DEGENERATION

the end of the evolution theory

by Peter M. Scheele

http://www.evolution-is-degeneration.com

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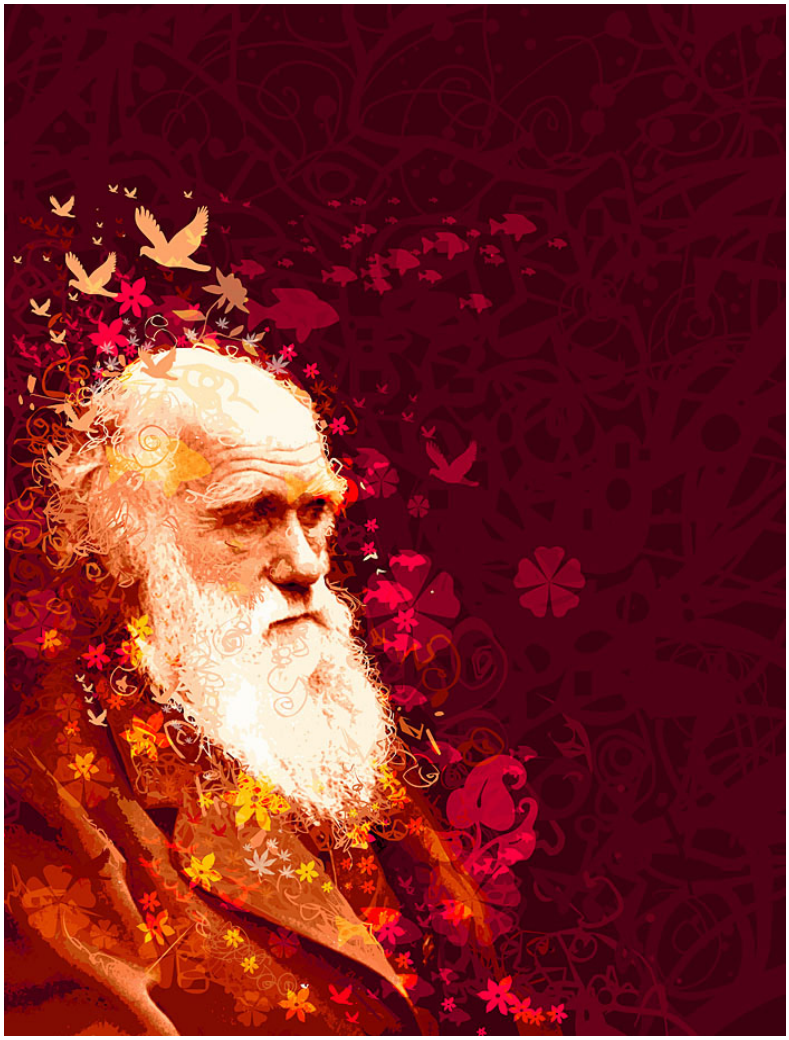
Summary

Evolution or Degeneration?

a summary of the degeneration-theory



Charles Darwin hardly knew anything about genetics. It was quite easy for him to set up a theory in which he didn't have to think of the complex reality of DNA, genes and proteins. However, he did discover that there's 'biological change' and something like 'natural selection'. The mistake Darwin made is that he interpreted this into a certain direction, assuming all 'higher' animals evolved from 'lower' animals. If biological change should be given a direction, it would be downhill: Degeneration instead of evolution.

Evolution is controversial, not universally accepted.

Contrary to what many people think, the idea of the development of one-celled organisms toward the stage of mammals and man is not a solved issue. Since the publication of Darwin's book The Origin of Species there have been serious protests against it. The genetic laws of Mendel were considered contradictory to an evolution-theory, because of the fixed genetic laws. The so-called 'Neo-Darwinian' synthesis provided an answer: evolution takes place by means of random mutations (changes in DNA-structure) in combination with nonrandom selection.

The main spokesman of this theory is Richard Dawkins with books like The Selfish Gene and The Blind Watchmaker. In the seventies Niles Eldredge and Stephen J. Gould started an opposition by claiming that the fossil-record did not provide all the links that Darwinism hoped to encounter. In their alternative, and now widely accepted, model of 'punctuated equilibrium' (interrupted balance) they try to solve the issue. Biochemist Michael Denton, however, completely rejects the evolutionistic vision in his book Evolution: A Theory in Crisis. And more recently biochemist Michael Behe published his book Darwin's Black Box, that caused a lot of commotion, especially within the scientific community. With strong arguments about 'Irreducible Complexity' he clearly shows the duo 'mutation + selection' is falling short.

Besides these things, creationism provides an everlasting stream of publications. The Dutch writer Maarten 't Hart described the book Darwin on Trial (by Philip Johnson) "the clearest formulated, sharpest attack on the weak spots of the evolution-theory". So clearly, there is a lot to say against the thought of universal evolution, even though it is often taught as a fact.

What changes have we seen since Darwin?

Darwin's ingenuity is clearly seen from the fact that he found out species change and that he was able to identify the mechanism: natural selection. Natural selection is the opposite of human selection with breeding. Darwin hardly knew anything about heredity - he wrote a book about 'blending inheritance' which was found to be completely beside the truth - and he also did not have the knowledge of genetics.

Biochemical and genetic research today revealed a miniature-world with an amazing degree of complexity that goes beyond our imagination. As many biochemical secrets have been revealed now, for example the eye-functions, evolution has to be explained on that lowest level, not longer on the general, broad level; the level that already troubled Darwin in his time and that sometimes 'made him quiver' when thinking of it.

Macro-evolution is genetically impossible

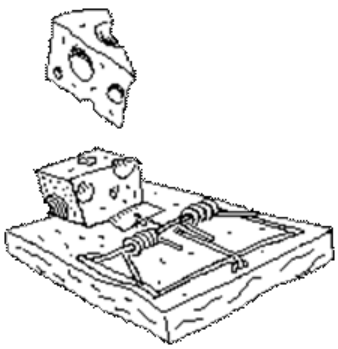
In biology there is a difference between macro-evolution and micro-evolution. When a child inherits certain qualities from both father and mother, we call that micro-evolution. That's because the child inherits a random half of qualities from both parents. On DNA-level this is caused by 'recombination' : exchanging parts of chromosomes (=DNA) between equal chromosomes. That's why there can be a lot of variety among offspring. The genetic material itself, however, does not change; new combinations of genes are created.

However, by means of mutations (copy-errors in the process of DNA-splitting) changes are inevitable. The mutation-theory tries to prove that all genetic information came into existence by means of such copy-errors, because the most favorable are selected (natural selection).

There are some serious objections that can be brought in against this theory:

1. Just as a computer-program is not created through a combination of copy-errors and selection, also the complex information inside DNA did not spring forth from copy-errors and selection. In the same sense it would also be nonsense to say that the typewriter came into existence through small copy-errors, made when retyping the manual of the typewriter.

2. Michael Behe talks about 'Irreducible Complexity'. A mousetrap is irreducible complex. If one part is missing, the mousetrap doesn't function. Many biochemical systems, such as blood clotting, 'light-sensitivity' of the eyes, and the 'engine' (flagellum) of a bacteria, are completely useless if only one part (gene) is missing.

   Only if all the parts function at the place they are needed, success is guaranteed. It's impossible for mutations to develop such complete systems step by step (the system doesn't work unless it's complete), or at once (too great a step for mutations.)

3. Many genes are so essentially important to bring forth living offspring, that their function could never change. If such genes would start to function otherwise, life would be impossible, because the original, essential function is lost. One example is hemoglobin, which transports oxygen in the blood. Not a single individual can miss it. So basically, there is no significant evolution in those kind of genes.

4. The fact that the information inside DNA is degenerating is a very much neglected aspect of life around us. This degeneration causes species, and also mankind, to degenerate and genes disappear instead of new ones with formerly unknown functions appearing.

LOSS OF GENES leads to new variation and new species

That the loss of a functional gene can lead to new variation is one aspect of biological change that is hardly realized. One single mutation can completely disable the a gene. With that the gene loses its function and causes a certain effect on the appearance of the individual carrying the gene. One clear example is albinism. The gene that produces the pigment has become dysfunctional. But it can also be more subtle: With many animals in the polar-regions, the gene that produces pigment in the skin has become dysfunctional. That's not the same as albinism, because albinism causes eyes to be red.

This photo of penguins shows how such a mutation can easily pop up in a certain population.

In the same way white lions (with black eyes) have been discovered in Africa. They will most likely quickly disappear in nature, because such a loss doesn't lead to good survival-prospects for lions.

White Lions: radical changes in appearance spontaneously originate in populations when a mutation disables a functional gene.

However, if such an elimination of a pigment gene takes place in an area with lots of snow, it can be an advantage, because the species is less visible and thus has a better chance to survive. The polar-bear, the dall-sheep and the snow-owl are good examples.

Besides the gene that is responsible for coat-coloring, the polar-bear also lost the genes that produce the core of the hairs. Therefore they are hollow and that is an advantage for them, because they isolate the bear very well against the cold. But it is a loss of functional genes that causes this advantage.

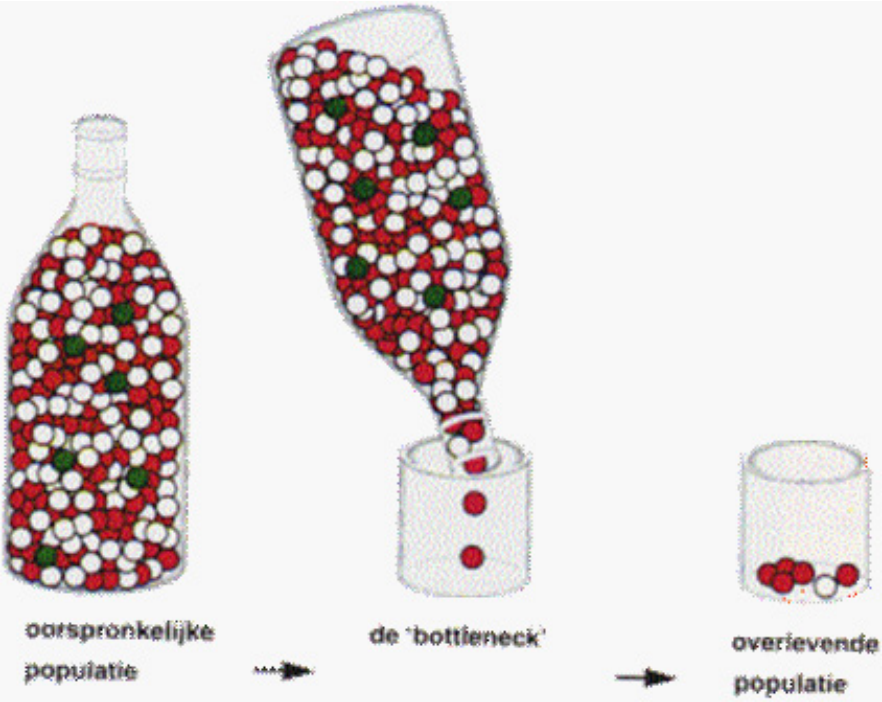
The process of domestication leads to new variations much more often, because these variations are wanted and therefore preserved. That's why our dogs, cats and rabbits are available in many different varieties. Those varieties are usually the result of genes that were eliminated completely or that sometimes still perform a minor part of their original function.

In that sense , the result of the loss of A, B, C, D and S-genes leads to respectively black, cinnamon-colored, albino, blue-grayish and spotted mice. Loss of certain combinations of these genes eventually leads to mice that are chocolate-brownish, blue, silver-cinnamon-colored, silver-roe-colored, black spotted, cinnamon spotted and so on.

Breeding and selection can lead to a lot of new varieties (a lot of genes will be permanently eliminated or damaged and new combinations of active genes arise). But the possibility to breed continuously is limited, because eventually too many active genes will have been lost. So 'fresh blood' has to be brought in; original, functional genes have to be added. Species around the world become 'genetically poorer' as time goes by, no matter what kind of selection is used: natural or human.

Genetic Loss

In biology two interesting phenomenons are well-known: the 'bottleneck' and the 'founder-effect', that show us how genetic loss occurs. The bottleneck is an event where the genetic diversity of a certain population reduces significantly while being brought back to just a small number of individuals (later to return to its original size maybe). Many genes can be lost in the process, because these few individuals could never carry the genetic variety of the whole population.



The founder-effect is something similar and starts working when a certain number of individuals split from a mother-population, and establish their own population separately from this mother-population. When one male and one female arrive on a remote island for instance, they can create a new population. This population will only have the limited genetic variation that was already present within the original founders of this population.

On top of that there will be a certain amount of inbreeding. The advantage of inbreeding is that hidden (recessive) qualities can be made manifest, that leads to quick new variation which makes possible selection and adaptation.

On the other hand, inbreeding could lead to an increased chance of hereditary defects, thus to degeneration. In the founder-effect - which is the most common mechanism for species-formation (when individuals split from the main population and get reproductively isolated) - the appearance of new variation, gene-loss and degeneration are closely related.

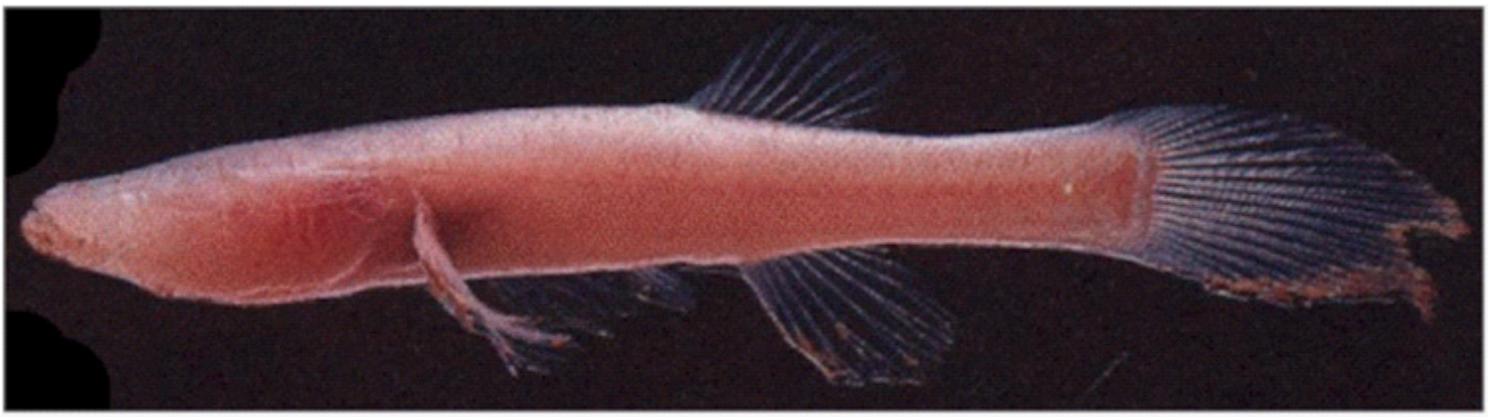
Degeneration exists

Many examples of biological change in living nature, which are often used to prove evolution, are in fact examples of degeneration:

1. Rudimentary (reduced) organs are still considered as strong proof in favor of evolution. But the reality shows us it is a loss, losing something, not the development of something that originally wasn't there. It's a form of degeneration.

2. Human hereditary illnesses are often caused by a mutation of a gene that was originally good. From that moment on the flaw is passed on to other members of a family according to hereditary laws. In first instance, however, the gene was good. And most other people outside this family have the good gene. All kinds of isolated groups of people show to have their own specific hereditary illnesses. But we have to keep in mind it's a malfunction of something that originally functioned perfectly. It's not just another step on the evolutionary diary. So if we go back in time far enough (thousands of years), until we reach the time of our ancestors, we would find that they possess all the intact genetic information. It is not possible for them to have carried all our billions of genetic defects within their limited gene pool.

3. In isolated caves we can find various animal species that lost sight, like the blind water-scorpion in the caves of Moville, Romania, or the blind fish and lobsters in the longest cave-system on earth; Mammoth Cave, Kentucky, USA. These fishes, for example, have also lost the pigment in their bodies. They are completely pale. This can be interpreted as 'an adaptation to the conditions', but nevertheless it is based on a loss of genetic information (for pigment and eyes).



A fish from the dark(!) Mammoth Caves with no eyes and no pigment.

Usually individuals with such mutations will not survive. But in dark caves it's no longer a disadvantage and they're still able to reproduce. Because of this reproduction, damaged genes spread and once a whole population lost the original genes, they will never return, because the information inside genes is too complex to originate from dysfunctional genes. It's like a genetic subroutine has gone lost.

4. The non-flying cormorant lost the ability to fly. This species lives on an isolated island, with plenty of fish around, so diving from rocks is enough for this cormorant to stay alive.

The non-flying cormorant lost the ability to fly...

5. Parthenogen lizards lost the ability to reproduce on a natural way, because the female-eggs have a double pair of chromosomes instead of a single pair. The lizards are exact copies of one another (clones) and they stimulate ovulation by simulating mating-behavior among each other. The masculine genetic information has gone lost through mutations, because this was no longer needed.

6. 6 - One of the reasons the cheetah disappears is because of genetic loss and degeneration, like various researches have proven. By means of a 'bottleneck' all genetic information has gone lost and all cheetahs are lookalikes, like twins. In the supposedly 10.000 years this process has been going on, mutations did not lead to the needed variations; once something is lost, it will never return.

These examples and many more concerning this 'degeneration-law' leads us to this conclusion:

On the long run a species or population tends to lose genes and qualities which it doesn't necessarily need to survive.

Did the koala lose the genes that once helped him to have a more balanced diet?

Mutations occur randomly and one single mutation can be enough to disable a gene completely (just like a typing-mismatch will block computer-instructions). Therefore all the genes of a species have the risk to be eliminated sooner or later. Only if it strictly should not happen, because it decreases the chance of survival, the non-functional gene will disappear.

In the long run it shows us that only the genes which are needed for survival in a specific environment, will last. Because of this a species might become completely dependent upon its environment, like, for example, the Koala, that only consumes very special eucalyptus-leaves. Eventually the genetic 'stretch' will have vanished, and if the environment changes again, a species could easily become extinct. It no longer has the genetic diversity to adapt to such changing circumstances.

The natural bottom-line of degeneration

One question might arise: where does it end? Will life eventually become extinct?

There is a natural limit to degeneration that is preserved through natural selection: the reproductive age, the age on which a species might have offspring. If degeneration goes so far as to eliminate reproduction, that form of degeneration will not be spread anymore. In that sense, natural selection serves as a 'protector' against damaging degeneration, like weaker individuals die quicker than strong ones.

When a species balances on the edge of death, and is still able to reproduce, it can be called the worst form of degeneration. A good example is the one-day-fly. This fly spends most of its life under the surface of the water as a larva. On a certain moment the larvae climbs out of the water onto a stalk and peels off its skin. It spends a little time flying, climbs onto a stalk again and peels off its skin for a second time. Then it starts looking for a partner. When the female is fertilized and the day has passed, she falls into the water out of exhaustion. While she drowns, she releases her eggs into the water for the next generation. A remarkable characteristic of the one-day-fly is that it has no mouth! This is where we can see the degeneration-law in action: a mouth wasn't necessarily needed for survival, and thus the species lost it eventually.

The one-day-fly does not have a mouth. The female releases her eggs into the water whilst drowning...

What does this all lead to?

When biological change that happens today and can be observed, shows us that species go genetically downhill, it will be very hard to hold on to the idea of an increase, or generation, of new genes. Micro-evolution seems to be 'down-hill'-evolution. That makes macro-evolution a fairy-tale.

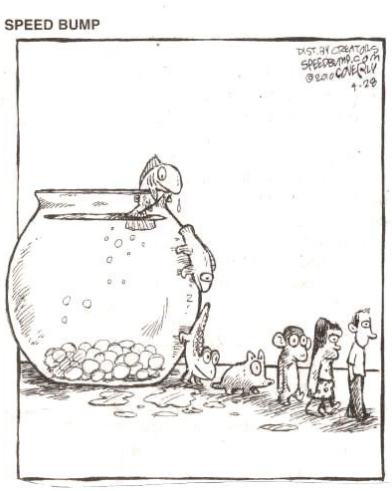
The most logical explanation for the generation of life, and for the information inside DNA, is that an Intelligent Creator preprogrammed the DNA. Life must have sprung forth from several original types, like an original wolf, an original cat, an original bovine animal, and an original human. From these original species that had a great genetic richness in first instance, all the millions of subspecies and varieties started developing, each one searching its own way downward in its own environment.

And what about Darwin? He was a great man that made the most important discovery in biology, which is that species change throughout time. The only thing is that the direction he gave to biological change was completely opposite to what he assumed:

Not EVOLUTION, but DEVOLUTION.

Quick Look

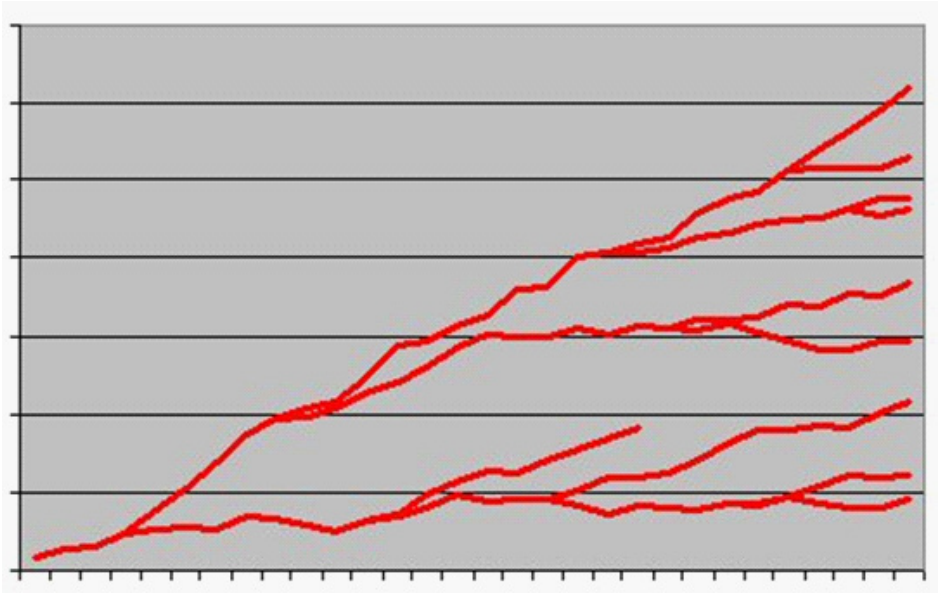
get to know the basics in 15 seconds



The evolution theory says:

- that all kinds of species have common ancestors
- all life has started as single cell organisms
- during millions, billions of years all species have become more and more complex up until humanity amongst others.
- all kind of new genes originated over time, from zero to one to ten to 100 to thousands etc.

in short, biological change has 'gone up':



biolological change according to the evolution theory

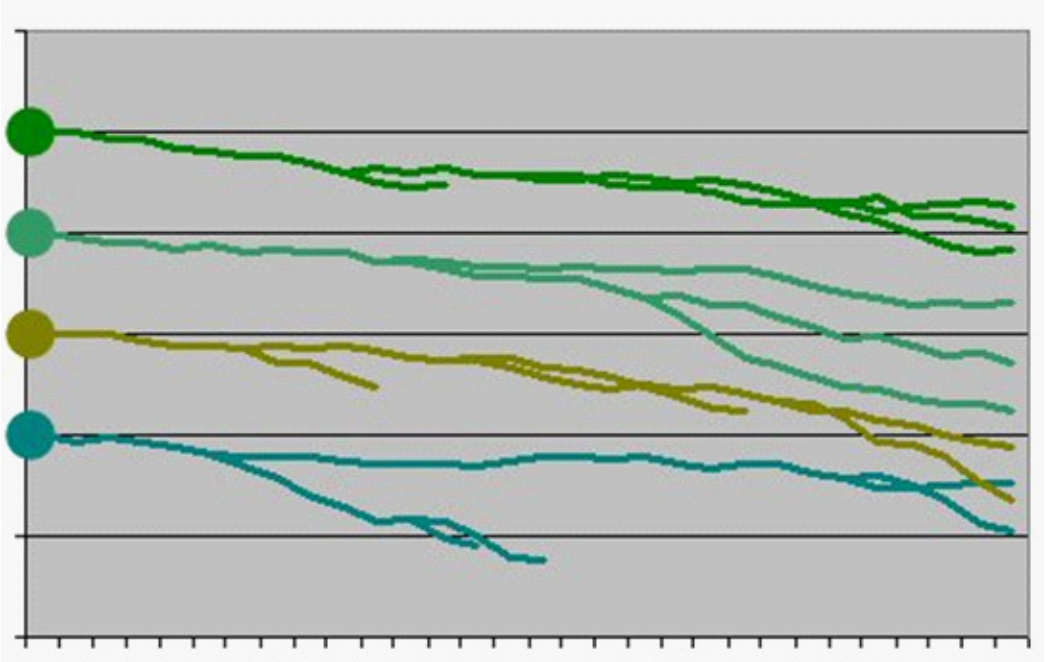
The degeneration theory says:

- all evolution as described above is genetically impossible
- life started with the creation of ancestral types (for instance the ancestral wolf, the ancestral oxen and the ancestral man)
- their variants can never evolve beyond the natural borders of their type
- a new species is genetically poorer, or is even a form of degeneration compared to their ancestors
- over time genetic information is lost instead of gained

in other words, biological change goes down:

genetic

richness



biological change according to the degeneration theory

To get a broader view of the contents of the degeneration theory have a look at the summary or the FAQ. Chapter 11 of the book describes all kinds of examples of degeneration.

Bold Claims

about evolution and the degeneration-theory

Here you find some bold claims that I make. They are explained in the book, but this allows you to have a quick impression of what the book is about...

- (Macro-) evolution is a genetic impossibility.
- The largest part of the genes does not vary and (thus) will not evolve either.
- (Natural) selection is always making genetic information poorer.
- Genes are too complex and too specialized towards their task to be able to gradually evolve.
- There is no growth in genes and genes do not 'adopt' significantly new functions.
- Darwin has discovered how variation originates, not how completely new species (or types, or families) came to existence.
- Darwin could not help not knowing anything about genetics.
- Much of the so-called 'proofs' for evolution are great examples of the opposite: degeneration and genetic impoverishment.
- DNA has initially been programmed, not evolved.
- Variation is no proof for evolution.
- New variations originate by loss of genes, not by an increase of them.
- The difference between man and apes is not necessarily at the level of DNA.
- Similar functions can be done by different genes in non-related species.

Introduction

"DEGENERATION - the end of the evolution theory" is a book translated from Dutch into English.

Darwin's "The Origin of Species" was published on the 24th of November in 1859 and the complete first print of 1.250 books was sold out on that day.

In the Netherlands "Degeneration" was published on the 24th of November 1997 and the complete first print of 5.000 books was sold out that day.

In total more than 15.000 books in Dutch are now sold.

TODAY the English translation is available on the internet, so everyone can see why this Dutch version caused such a stir...

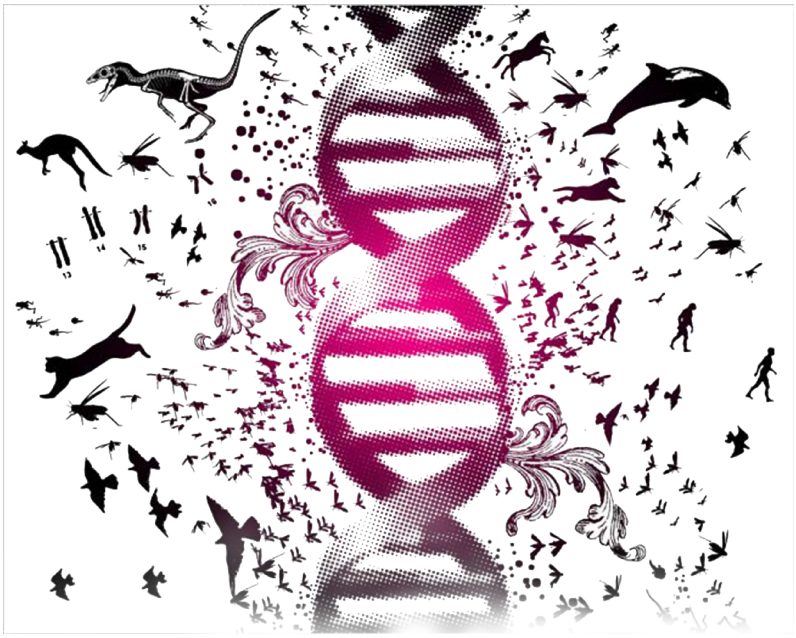
Please acknowledge that this translation was made with very limited funds and the help of volunteers. So please report ANY translation errors as soon as you see them or make other comments.

Furthermore, the author is looking for ways to get this book published. If you can be of any help, please respond...

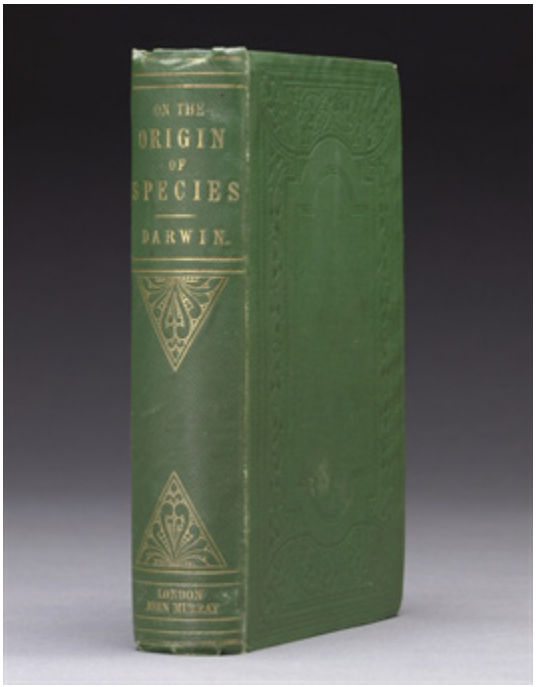
Now discover why evolutionary theory will be turned upside down...

1. INTRODUCTION / 1.1 Outline

There is biological alteration! That is clear. Dachshunds and St. Bernards are around now but were not here in the beginning: they came into being. In the fossil records, we encounter animals which no longer exist and there are animals which exist now that do not appear in the fossil records. Therefore, there apparently is biological alteration as well as new variation. But where is the line drawn? Darwin proposed that there should be no absolute division and that all life should be seen as having one common ancestor and therefore at the most basic level as all having been descended from unicellular organisms. Without a doubt, this idea means that over billions of years biological alteration has resulted in an increase in the complexity of life forms, which is called macro-evolution. But this is not necessarily true! It is also possible that the biological alteration which exists is only lateral, horizontal, which is called micro-evolution or "variation on a theme". It is also possible that the biological alteration we perceive is a genetic impoverishment, or even a form of degeneration, which could be vertical, but never goes upwards. If this is true, Darwin's story becomes inconsequential, at best. This would mean a revolution in our way of thinking. That is the subject of this book: macro-evolution is a genetic impossibility, and the alternative, inevitably, is the degeneration theory...



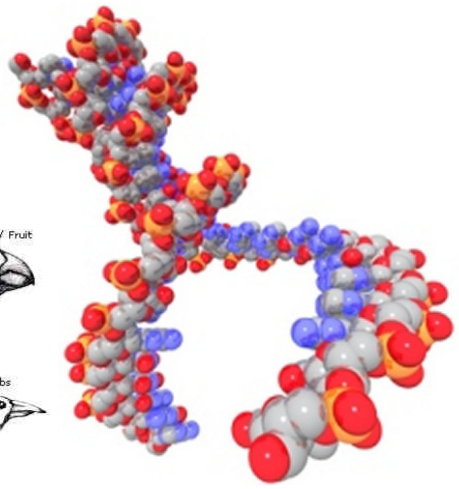
This book, which thus becomes the counterpart to Darwin's Origin of species by means of natural selection, began as a chapter in another book. For various reasons, it grew beyond its scope so quickly that it developed into an independent book. Given that the theory of evolution cannot be completely disproven in a pamphlet or even in a single chapter, and that the solution was more complex than I thought in the beginning, my own interest in the subject contributed to this process. I began studying and consulting others intensively, and there were moments when I honestly doubted my own ideas. The notes, texts, and examples grew so extensive that it became clear fairly quickly that I needed to make this into a completely separate project.



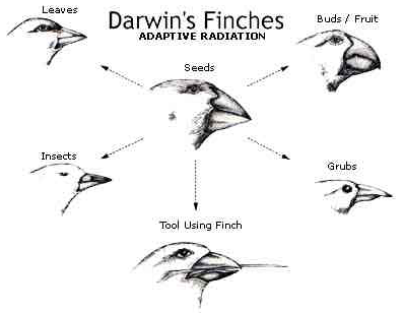
Nevertheless, I deliberately place limits on myself: I will grasp the bull by the horns. Darwin's bull. The holy cow. The heart of the evolution theory: mutations and natural selection. This question then becomes central: could natural selection have worked beyond the borders of species or types and caused an increase in complexity? Could it then be responsible for the origin of the unrelated species from common ancestors? The evolutionary theory stands or falls with this biological aspect, and not the geological or astronomical aspects. This is the reason I have chosen not to discuss those other aspects and a great number of questions which arise from the treatment of the biological side of the matter.

The present knowledge of DNA, genes, and the proteins created by the genes casts Darwin's idea of the single origin of life in a very different light. It no longer

has to be a philosophy or a theory; the probabilities, the possibilities, and the impossibilities can literally be calculated! The mechanisms which cause variation are so familiar now, in contrast to Darwin's time, when only speculation was possible, that the idea of evolution can definitively be either proven or disproven.



And what is the result? That no new complex, specialized genes can originate by pure chance. That Darwin's principle of natural selection could not have been involved at all in the origin of the majority of genes! That genes do not spontaneously form new interactive groups, for instance to make a cell sensitive to light as in Darwin's 'most primitive eye'. And that means the end of the theory of evolution!



1.1 Outline

This book consists of two parts. In the first part, I will ask myself briefly why Darwin's idea caught on as it did and why the evolution theory is still so popular. After that, I will describe the evolution of the evolution theory up to the present day. In this section, I will also give a concise and step-by-step explanation of the insights which have been discovered since Darwin. Someone already familiar with this material could skip this part. In chapter 5, I will give a few proponents of the evolution theory an extensive opportunity to elaborate and the contours of a biocosmic drama begin to appear. The destructive climax takes place in chapter 6, when we address the question of whether gene growth exists and/or adoption occurs - that is, the assumption of new functions by the genes necessary for, for example, new organs. Naturally, I will consult the mechanisms suggested by the proponents of the evolution theory, but they offer no assistance.

Ever since the time of Darwin, there have been objections raised against the evolution theory. Will this suddenly change because of my writings? It is possible: one important argument supplied by evolutionists is that there is no alternative. So even if there are problems, we should take the good with the bad.

The second part of my book contains that alternative in the form of the degeneration theory. The degeneration theory is meant to be tested: to be rejected, refined, or accepted, wherever it can be or is necessary, and is in that sense a true scientific model, which can also make predictions. It is not meant as dogma to be superimposed on our thinking, but as a framework for further discussion and/or development. It is a reasonable alternative, in that I have tried to base it on scientific facts and observations. All data on the living, biological nature, upon which the degeneration theory is based, are themselves based on, and almost always quoted from, books upon which the evolutionary idea depends! In principle, there is nothing wrong with the observation of facts. There could be something wrong with the way in which the facts are explained in a larger context. The degeneration theory gives a new, fresh look at that greater context.

The difficulty in writing a book like this one is the possible difference in knowledge between the author and the reader. A biologist shouldn't grit his teeth at the shortsightedness of it, a biochemist shouldn't burst out laughing because of the simplification, and an interested

layperson should still be able to understand it. This forces me to explain certain basic principles, which are common knowledge to the initiated. However, this has its advantage: this book, which began as a chapter for a public not specifically well-grounded in biology, expanded to a book which very specifically discusses biology. The interested layperson simply begins at the beginning and is gradually initiated into the material (I hope). Those who are better informed could start reading at chapter 5, which could be briefly scanned so as to dive quickly into chapter 6, the heart and essence of part 1, and continue from there.

Conclusions/summaries

A point-by-point explanation of the conclusions and/or a summary can be found at the end of almost every chapter. If a chapter seems unappealing to the reader, the conclusions or summary could be sufficient, and possibly invite the reader to return to certain sections after all.

Footnotes

The footnotes are often used to discuss specific details. Reading or understanding them is not necessary for generally understanding the theory, and they can be skipped.

Right-aligned headings

In the more difficult chapters, I have included a heading to the right above many paragraphs, in which I try to explain in one sentence what I subsequently want to make clear.

The FAQ

Frequently Asked Questions (or FAQ's) have been added I have attempted to discuss possible questions in this section which might not be interesting for everyone, therefore freeing the main text of them. One FAQ is placed as a chapter after part I, and subsequently after each chapter of part II. The FAQ's are not essential to understanding the material and may be skipped.

Boxed text

Sometimes a more in-depth discussion which is not necessary for the essence of the text needs to be included at a certain point in the text, but is too extensive for a footnote. In that case, it is shown inside a box.

A tour

A summary of the most important arguments I have used is given in chapter 18, with references to the respective chapters or paragraphs in which they are discussed. This can be used as a tour guide, a manual, or a summary, and I strongly recommend it to everyone.

With these precautionary measures, this book is a child of its time: it is to some extent interactive. The reader can make his own choices and piece together the reading material according to his own knowledge, need, and interest. I hope you will find much food for thought...

Peter Scheele

My extreme thanks goes out to the following people:

Drs. Folkert de Jong, chemist. For his intense involvement, from the very first moment, in detail, for the many corrections and consultations, and helping me to think, which almost makes this a co-authorship.

Huub Bogaers, sociologist. For pinpointing problems where there are solutions… (which forced me to think matters through), for the involvement, for the hints on a lot of current information, for helping me think along the lines of 'the formation of science', and for giving tips and recommendations.

ir. Cees Geerse, biologist. For wrestling through a text which was not yet finished or particularly well-structured at that point in time, for the many evenings this took and for the valuable feedback I received.

Dr. ir. Kees Bos, geneticist. For the same wrestling with a somewhat more polished text, for the extensive critical commentary, the E-mail correspondence and the consultation that without a doubt have given the book a higher quality and reliability.

Charles Darwin, biologist. For his love of living nature, his insight, and for turning the world upside down.

The Creator® of heaven and earth. For the incredible wonder of life, for the encouragement and inspiration.

Sjoerdje, Eline, Ian en Talitha. For the love, trust, companionship, and the loyalty to give me the opportunity and to make it possible for me to do this. And Ian, for the cozy hours we spent together watching nature documentaries, and the love we share for living nature.

All the others who provided me with comments, both before and after the forum-discussion, via the website, through E-mail, during conversations, or by reading the manuscript, like Henk and Ria Dokter, Jan Hidders, Hans Roskam (for listening to so much foolishness), my family and others.

This book is dedicated to:

Richard Dawkins

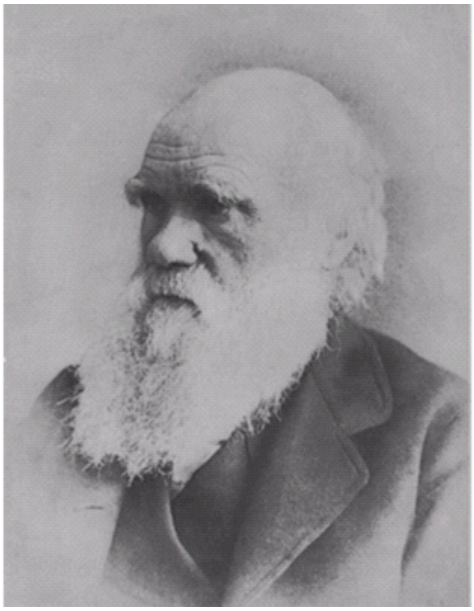
The personification of traditional evolutionary thinking in the world.

2. How Did It Get This Far

The origin of the theory about the origin of life

Charles Darwin is not the inventor of the evolution theory. What did he have that others did not? Why have his ideas grown to be so popular? Why is the evolution theory so popular today? Is that because it is just simply Pure Biological Truth? Or do other issues also play a role?

2.1 How Darwin arrived at his theory



Charles Darwin's visit to the Galapagos Archipelago led to the publication of his book The origin of species by means of natural selection (or the preservation of favored races in the struggle for life) on November 24, 1859. The wide variety of finches and turtles he observed on the islands, led him to conceive a mechanism for the origin of species (the idea of evolution already existed). In this process, Darwin gratefully used other people's ideas and data which were vital in his day.

From the book An Essay on the principle of population by Malthus, he learned the following, later known as the law of Malthus: the population grows faster (exponential growth) than the resources (linear growth), which finally results in a massive death toll. Darwin developed the concept of the struggle for existence, which later became better known as the struggle for life.

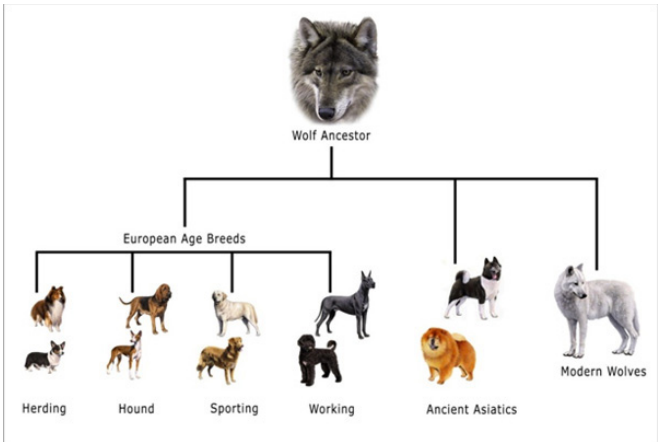
From the book Principles of geology by Charles Lyell, Darwin understood that the changes in the Earth's crust, such as erosion, were supposedly the result of forces which are still active, and have been for a long time. This principle is called actualism, in contrast to one-time catastrophic forces. At the time, it was a revelation. He also applied that principle to the living nature, by postulating that it is controlled by forces which always function in the same way.

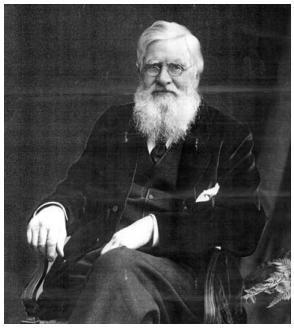
Lyell also proposed that, as a result of geological or climatological changes, the environment of a species of animal can be altered. The animal can react to this in three ways:

- by migrating by
- becoming extinct
- or by adapting.

Darwin hit upon the ingenious thought that since, according to Malthus, extinction is never total, the most adapted individuals survive. It is not extinction or adaptation, it is adaptation through extinction. In other words, considering that many varieties of one species will have to die in the struggle for existence, those varieties which have adapted the most to the new circumstances have the highest chance of survival. It is called adaptation.

Darwin's next step was: then how do animals change? For this question, he took a look at breeders, because they are able to continually get new plants and animals. A breeder works like this: from one brood, he selects the offspring which most resemble what he wants to have, and breeds them further. The other offspring are destroyed. The breeders use artificial breeding; in living nature, it works along the same principle: natural breeding. Later, this term was replaced by natural selection.





Another scientist, Alfred Russell Wallace, was working on the same problem, the origin of species, and published an article, twelve pages long. This contained the Serawak Law, which states that a new species does not simply appear from nowhere, but originates at the place where another closely related species had existed previously and up to that point in time. The new species is descended from the old, cannot differ significantly from the old species, and replaces the old species.

Wallace later wrote an essay, in which he described the principle of divergence as a law. All descendants of a parental pair are different from each other, and their offspring are also different from each other. This results in an infinite variety in further reproduction. This was an important principle for Darwin's concept of descendance; since a species does not naturally display a tendency towards endless variety, natural selection is fairly impotent.

The end result is this:

1. The law of Malthus, struggle for life

There are too many offspring, which cannot all survive.

+

2. The principle of Lyell, the beginning of actualism

Environments change constantly and gradually.

+

3. The law of Wallace, principle of divergence

There is spontaneous and infinite variation in successive generations.

=

Darwin, natural selection, survival of the fittest

Animals which adapt the least become extinct;

animals which adapt the best survive.

One important point was that, at that time, people believed that God had created the earth and the living creatures on it exactly as they appeared at that moment. The whole idea that the earth could be subjected to change and that a species could change or adapt was unthinkable.

An important question which arises from this is why Wallace's law stipulates infinite variation. That idea was definitely not based on observation!

What Darwin discovered is how different alternatives of a species can originate in Living nature. What he didn't discover is how the species themselves originated. That was an idea he came up with (or got from his contemporaries, who were also working on this issue), prompted by his discovery.

The logic actually goes like this:

1. In living nature, we see spontaneous variation
2. This proceeds infinitely.
3. So the species themselves originated from each other (or from a common ancestor).
4. This represents a progression from simple to complex.
5. Therefore, everything must have started with a unicellular organism.
6. This is only possible if it took an unbelievably long time.
7. So that must be true. It did take an unbelievably long time.
8. Evolution exists (or existed)
9. All other issues must therefore be seen from an evolutionary perspective: geology (fossils and geological layers), embryology, later astronomy (the Big Bang), and the recent favorites, psychology and sociology, etc.

Where does this go wrong?

In history, it went wrong from the very beginning. Everyone thought that spontaneous variation did not exist, and therefore had great difficulty accepting Darwin's discoveries. This resulted in a division, in which one group defended an indefensible point of view (there is no variation) and the other went too far (the species themselves also originated from each other). For the most part, the evolution theory has gotten the upper hand.

2.2 Why was Darwin received with open arms?

Long before Darwin, the idea was proposed that species could change into other species. Various Greek philosophers have supported this. Lactantius, who lived from 260 to 330 AD (!), wrote:

> Some people teach that the first men lived nomadic lives among the woods and plains. They were not united by any bond of speech or laws. Instead, they lived in caves and grottos, using leaves and grass for their beds. They were prey for the beasts and stronger animals. Eventually, those who had escaped, having been torn [by wild beasts]… sought out the company of other men for protection. At first they communicated to each other by nods; then they tried elementary forms of speech. By attaching names to various objects, they little by little developed a system of speech.

Lactanius, Institutes, book 6, chapter 10. (quoted from www.bible.ca/h-darwin.htm)

Around the turn of the 18th century, various naturalists proposed a sort of evolution. Lamarck (1744-1829) is the best-known; he published his thoughts in the year Darwin was born (1809). However, that idea of a common ancestry never caught on ...until Darwin. What did Darwin have that the others didn't? Why was he the one who achieved the breakthrough?[1]

a) Darwin's observations of variations absolutely did not agree with the theories, generally accepted at the time, about static life forms.

Of course, Darwin did discover something: how in living nature different varieties can originate, just as they can originate artificially if they are bred, because humans provide selection. Nearly all the natural scientists of that time, even the atheists like Lyell, thought that little or no variation occurred in living nature, or could occur. Darwin proved the opposite. His opponents' point of view was therefore no longer viable.

b) Because there is no longer a need for a Creator to explain the earth's origins.

It is almost inconceivable how significant this argument was. Before Darwin, you could think or claim there was no God, but it could never be argued. There were always difficult questions about where life would have come from and so on. With Darwin's theory of evolution, it became possible to support unbelief or atheism. Is it then understandable that some people (for example Karl Marx) were waiting for something like this?

c) It provided a tool with which one could resist the church in areas of politics, belief, and sexuality.

Other than a rational (meaning intellectual) breaking away from belief in a God, a rational breaking away from the hold of the church on society is of course also possible. That trend came into existence with the arrival of Darwin's ideas, and is still not completely gone.

d) The politics of that time needed Darwin's theories as a basis or confirmation of their own theories.

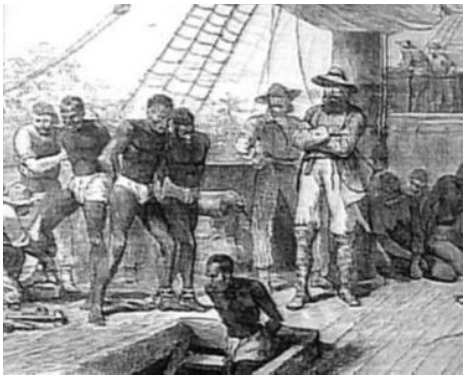
This will surprise you, but I really didn't make it up. I will summarize, in my own words, what Prof. Jan Hendrik van de Berg writes about that in his book Koude rillingen over de rug van Darwin (Cold shivers down Darwin's back).

Most of the political movements of that time can be put into three categories: Marxism, liberalism, and National Socialism.

- Karl Marx immediately annexed Darwin's book. His ideas on the struggle between the classes, the struggle of the workers against the ruling aristocracy, corresponded perfectly with Darwin's concept of struggle for life.
- Liberalism could use Darwin's ideas very well if they were applied to economy: let the economy follow its own course; like living nature, it will take care of itself, and he who is best prepared will prevail over his competitors.
- Hitler's National Socialism, up to and including the Endlösung, is the consequence of a logical application of Darwin's principles on the human race.

Our present political system came into existence in Darwin's time. Until then, the bourgeoisie (the rich) ruled over the proletariat (the people, the workers). The idea of democracy developed

at that time: all men are equal. In this, democracy is anti-Darwin, since Darwin says that everything is different and that the strongest will win. Because people are in fact not the same (equal, but that is something else), out of that original idea of democracy comes immediate formation of parties, of people who are reasonably equal. These political parties are Darwinistic: they compete with each other in the struggle for (political) existence.



e) It gives an argument for giving in to animal (!) lusts.

This is also an interesting one, which might not be expected. As you can understand, the way we handle sex these days is totally different than 150 years ago. It hasn't been that long since the public display of a bare breast was completely unthinkable. In Darwin's time, things were much stricter. Sex was something spiritual or romantic. For us, is has become purely physical. That doesn't change the fact that people had the same kinds of lusts then as now. Darwin gave them a rational argument to give sexual desire a free rein and to experience things differently. Of course, this was not caused only by Darwin. Social developments of the time were reinforced by Darwin's story.

What many people do not know is that Darwin's second book, The descent of Man, is actually called The Descent of Man and Selection in Relation to Sex. He writes on page 13 of Part II:

The whole process of that most important function, there production of the species, is strikingly the same in all mammals, from the first act of courtship by the male, to the birth and nurturing of the young. Monkeys are born in almost as helpless a condition as our own infants.

That comparison between human and animal love was definitely new and shocking in his time. For us, it is a common idea.

f) Darwin published his book after the Romantic period, when Realism controlled public thought. In Romanticism, spirit and emotion were praised, but Realism replaced these with admiration for material things and rationalism.

Romanticism and Realism designate periods in literature and art history. Realism expressed a need for an "integral and objective representation, even of the most banal reality. A treatise on the origin of human life in a purely natural, animal (and therefore banal?) manner fits very well in such a cultural turnover. [2]

g) It knocks man off his pedestal, which corresponds well with Realism's reduced concept of humanity.

Where Romanticism was, among other things, the "cult of feeling" en "the triumph of individuality as a reflection of the divine", during the Realist period people were less inclined to think highly of man. It was the time of the Napoleonic Wars, with their bloody battlefields, which were the inspiration for Henry Dunant to found the Red Cross. It was the time of Florence Nightingale, who wrote practical instructions for nurses. Darwin painted man as animal-like, not god-like.

What should we think of these things?

Darwin's ideas fit with, or can be applied to, the following areas:

- **religion or anti-religion, atheism;**
- **politics;**
- **economics;**
- **culture;**
- **psychology (concept of man**
- **biology;**
- **sexuality.**

Darwin's theory was not accepted only because of biological reasons, or because it is the whole truth and nothing but the truth. On the contrary, you can see from the quantity of the above points and their all-encompassing living nature that Darwin came at the right moment.

2.3 Why is the evolution theory so popular right now?

(Some points will show a resemblance to the previous paragraph.)

Why does it seem as if the discussion about evolution or creation is over? It is completely accepted that the evolution theory is the only serious explanation for the origin of life and therefore a part of the required material. You are completely ridiculous if you think that God created the world.[3] Why is the evolution theory so popular?

a) We don't know any better

As a student in school or university, unless you have had a very emphatic upbringing in which you heard the creationist side of the story, you just have no information about the evidence opposing evolution."There are not many schools where both stories are told. In various documentaries and living nature series on television, it is present as a hypothesis. "Sharks have been surviving for thirty million years," a commentator's voice says on a Discovery program. If you hear that often enough, who are you to say it isn't true? And if someone claims it isn't true, then of course he is immediately wrong, because the whole world accepts it!

Nearly all present-day scientific and popular science books and magazines tell nothing but the evolution theory. We grew up with it, we heard it from early childhood onwards, and we hear almost nothing about the other side, in other words: we don't know any better.

b) It is the only serious explanation

It is often said that belief and science are at odds. Either you believe, or you are a scientist, not both. And you are free to believe, but science is down-to-earth and reliable and contains a greater percentage of truth than belief. But how many scientific arguments or evidence against the evolution theory have you heard (they do exist)? Probably not even one. If you have heard arguments, they were most probably weak derivatives from a proponent of the evolution theory, who immediately explains why this could not be true.

c) There aren't many choices

There aren't ten theories you can choose from. And those that exist are practically unknown. There are quite a few alternative variations on the evolution theory, but most of those are also almost unknown, and the main point (everything came from unicellular organisms) is the same

d) The alternative is unacceptable

The alternative means that you believe in:

- a Magician who Waves a Wand
- God as Explanation-For-As-Yet-Unsolved-Physics-Problems, the 'God of the gaps'
- Adam and Eve!!!!!

e) The simplicity of the basic principles

The basic ideas are simple to explain to a layman. Biology and physics are difficult subjects. Most people do not know much about them. The evolution theory can be broken down in a very basic sketch and is therefore easily digested. Quantum mechanics (even though many people may have heard at least the name) will never be as popular as the Big Bang, because it is much too complex.

f) It appeals to the imagination

If you close your eyes, you can see the Big Bang, almost taste the primeval genetic soup You can imagine how fish crawled onto the land and became reptiles. These days there are morphing-programs available for the computer. You can even change your girlfriend into a cat, so you can definitely change a reptile into a bird.

It leaves room for imagination. With the basic principles as a beginning, you can create lots of variety (very appropriate word). It is also a rich source of inspiration for artists in the areas of literature, films, advertisement, sculpture, etc. You might see, for example, a caveman in a bearskin with a big club chasing mammoths over the prairie while shouting incomprehensibly. Lovely! Even scientists allow themselves to be seduced by fantasies. One professor claimed in a documentary that the reason people are aggressive is because we still have traces of dinosaur brains in our heads! The problem is that a statement like that is impossible to test, and therefore very unscientific, and therefore only based on belief. (And I had never heard that man was descended from dinosaurs?!)

Photo 1, American Museum of Natural History, Homo ergaster

g) It is too complex

Discussion between proponents and opponents almost always gets bogged down in a discussion of

details. The greater the knowledge involved, the more involved and niggling the discussion becomes. A well-informed layman is soon unable to follow it at all. Facts, forget 'evidence' (whether for or against), can hardly be checked. Little choice remains but to simply believe...

h) There is evolution!

But the word evolution is confusing in this context. It should be variation. Variation exists and new variation can come into existence. Others call this micro-evolution. We can observe in Living nature that species with the same origin, for example a primordial wolf, can develop to look very different from each other if they reproduce outside their original population, like a snow fox and a dachshund. As a result, we think that there is a common origin for all species. That is also called evolution. But there is a huge difference between that kind of 'evolution' and variation (as we shall see).

i) Unbelievable technical progress is being made

This may surprise you, but the world we live in changes every day. If you buy a computer today, it will be obsolete within six months. Incredible progress is being made in almost all areas of science. The rate of progress now is very different than in the past. The Middle Ages encompass the period from 500 to 1500, during which life passed in almost the same circumstances, without any major changes. But in our time, everything happens at a furious pace, and it keeps getting faster. You can see a clear progression! We feel that we keep going upwards, that we continually evolve. Compare us with the people of the Middle Ages. Aren't we more civilized than they were? We are superior. We have automobiles and Walkmans, and we have been to the moon!

However, that is not evolution. Evolution is 'lower' species developing into higher species by natural selection. The modern Western man, however, is not a higher species than men in the Middle Ages, or aborigines. We could still create offspring with them (okay that is a bit difficult with people from the Middle Ages, but still). The progression we see is in the knowledge we accumulate. Some things are discovered because someone devoted his entire life to discovering it. We learn about his discoveries from two lines in a textbook. Something which is discovered today doesn't need to be discovered tomorrow. That is why our knowledge rests on the shoulders of our ancestors. We have the ability to go much farther than they did, but we do have to work hard for it. We need to study hard to understand all the groundwork done before our time. If an aborigine child grew up in the Netherlands, he would be able (depending on his upbringing) to be a good engineer.

This technical progress has nothing to do with evolution, but does create the feeling that an evolution is happening, a kind of intellectual evolution.

j) Evolution is always presented by people who know more than we do

Teachers, professors, biologists, and scientists. Who are we to contradict them? If we are capable of raising objections, then they are easily able to refute them because of their greater knowledge. We have no clear understanding of what they are saying, and therefore cannot refute them in return. As a result, if it sounds reasonable, it is probably right.

An impression of inviolability accompanies the evolution theory. Anything labeled as science is seen as having a mark of quality and guarantee, and people have the tendency to believe in it. The man in the white lab coat is always right and is very believable (advertising companies also make use of this more than willingly).

k) It gives freedom

Natural selection does not create obligations. The evolution theory reduces humans to 'complex biochemical-genetic life forms'. Everything that makes a man a man can therefore be reduced to genetic information or biochemical processes. There is no morality, no law, no responsibility, no good or evil, no guilt. Man is free to do what he wants. He is his own god.

l) It gives man purely physical, bodily, 'animal' sex

(Or to put it more mildly: it gives free sex)

Because it even justifies the deeper darker lusts which lurk in the hearts of men by declaring them natural. The evolution theory says: it's natural, it's biological, it's healthy, it's supposed to be this way, go ahead, you don't have to be ashamed, just do it. There are no limits, because it is all determined by natural selection. It also explains the urge to commit adultery: he has to pass on his genes. And, very popular these days, even the sperm is involved in this. As soon as it comes into contact with someone else's sperm, a sort of spermatological war begins with roadblock-cells, attackers, and roadrunners or something like that, in other words, it is now scientifically proven that even sperm is prepared for adultery,[4] so why should we resist?!

m) It is not necessary to believe in God (anymore)

There is a need or a will not to believe in God! The evolution theory satisfies that need. The evolution theory explains everything. We don't need God anymore. We can save ourselves. Literally. The evolution theory explains the origin of matter, time, space, life, the species, man; only the origin of the natural laws and forces of physics which are supposed to have caused all of this have not yet been explained. Anyone can explain anything they want. Do you want an explanation for the brown coat of a deer? It is camouflage so it will blend in. Do you want an explanation for its white tail? That's so it can choose to stand out, so that its young will see it.[5]

n) All scientists believe in evolution

That's a good one. People think that all self-respecting scientists believe in the evolution theory. It is true that almost all scientific publications, the 'real' ones and the popular-science magazines, have an evolutionary point of view. Most textbooks also have that point of view. The museums I know which deal with the origin of the earth also have an evolutionary slant. That's a powerful argument. Still, I would like to defuse things a bit. I personally know quite a few people who have gotten scientific degrees and/or fill scientific positions and do not believe in the evolution theory at all.

To begin with, I come from a family of doctors.

- My father, for example, was a general practitioner, and as such was quite aware of the biological functions of the human body. He is a Christian and believes in a Creator.
- My brother also studied medicine, and works at Lilly, a pharmaceutics company, where he heads the worldwide research for a cure for osteoporosis, a loss of calcium in the bones,

affecting older women. He thinks it is a shame that all documentation on dinosaurs has an evolutionary slant (because of his small son who is about the age to be interested).

Furthermore, there are many scientists who work for Philips who go to the church in Eindhoven that I go to. One example:

- Jan Bok is an engineer in physics whose team discovered the energy-conserving light bulb. He thinks that the evolution theory raises some impossible intellectual problems for us.

There are also scientists who openly express their disbelief regarding the evolution idea in publications:

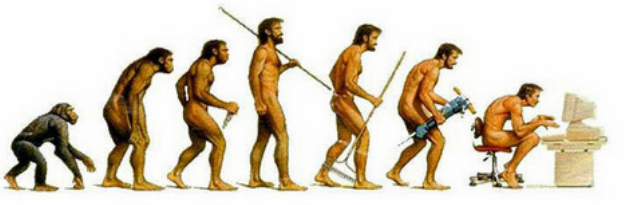
- Ben Hobrink is a biologist and wrote a book: Evolutie - Een ei zonder kip. (Evolution – An egg without a chicken)
- Dr. Walt Brown, a mechanical engineer, has an interesting Internet site at http://www.creationscience.com about geology.
- Professor Dr.Dr.Dr. Ouweneel (he has doctorates in philosophy, biology and theology). He has published many books on a wide variety of subjects, including psychology, evolution, and occultism.
- **A SCIENTIFIC DISSENT FROM DARWINISM** WWW.DISSENTFROMDARWIN.ORG

It seems like one camp doesn't know (or want to know) about what the other is doing, and vice versa. A sort of denominational segregation. A sort of Us and Them. If you are in one denomination, everything from the other denomination is stupid, unscientific, the evil world, not to be taken seriously, and the list goes on. On the other hand, not all non-Christian scientists believe undividedly in the evolution theory:

- **Michael Denton**, who has a degree in molecular biology, wrote the book Evolution: a theory in crisis. A quote: 'Ultimately the Darwinian theory of evolution is no more or less than the great cosmic myth of the twentieth century.'
- **John Boslough**, a 'leading American scientific journalist', wrote [Masters van de tijd], in which he explains that the present, very precise data from the universe means that the Big Bang theory finally has to be discarded.
- In 1980, the **Macro Evolution Congress** was held in Seattle, with this shocking conclusion: there is evolution on a small scale (micro-evolution, or variation on a theme), but not on a large scale (macro-evolution).
- **Niles Eldridge** and **James Gould** launched their momentarily generally accepted Punctuated Equilibrium theory which says that evolution can no longer be seen as gradual, but must have happened in spurts.
- **Michael J. Behe** recently wrote Darwin's Black Box. He is a biochemist and not a creationist; he argues that the biochemical machinery must have been designed!
- **In America**, Gallup does a regular survey on how people see the origin of life. In 1993, 47% chose for creation alone, 35% for creation and evolution, 11% for evolution alone, and 7% had no opinion. In a survey among chemists in 1988, 52% indicated that "supernatural intervention played a role" and 48% chose "it is possible that humans evolve from a primordial soup" (Walt Brown, In the Beginning, pp. 203).

In other words: many people believe that all scientists say it is like that. It is clear that the evolutionary viewpoint is dominant (in magazines and schoolrooms) and it tends to dismiss all other possibilities as unscientific, but it is simply untrue that there is only one undisputed scientific viewpoint.

2.4 Conclusion



There are greatly differing reasons why people believe in the evolution theory. It is definitely not the case that only biological truth hangs in the balance. It also involves (or has consequences for) how you think about God, or about people, or sex, life after death, abortion, about your career (survival of the fittest or live and let live), etc. Pretty comprehensive. Changing how you think about the evolution theory has many consequences. That's why the issue is often not the search for truth, but the search for the consequences of one truth or another.

That is also the reason it is so difficult to have a serious discussion about facts.

Facts are not the issue.

Evolutionists will always have the feeling:

"You want to convert me. You are a religious freak, so I cannot take you seriously. You think I should believe in a Creator." People who believe in a Creator will always feel that "You just don't want to see the truth, scientific or not."

If you realize the extent of these matters (why the evolution idea was so well received, why it is so popular, what aspects of life it affects), you see the contours of a religion appearing. A godless religion. A religion aims to control all aspects of its followers lives, or, to put it differently, man tries to find a religion which gives him what he wants in all aspects of his life (why else would he follow it?). The point of the evolution theory is that man gets what he wants: his freedom. Problems do come with it, moral problems for instance, but we take the bad with the good. We try as good and as bad as possible to live with it.

The entire problem of the lack of standards and values in our society and the urgent necessity of public social discussion on that problem is caused by the general acceptance of the evolutionary theory.

We raised our children, brought them up with the idea from the beginning, that we are creatures created only by natural selection, with the logical consequence that we are amoral. The promises of this godless religion or philosophy we follow are wonderful. The price will be paid now and in the years to come. Despite all social discussion, the population will only lose standards and values. The standards that still exist are often Christian standards, but the foundation for maintaining these standards has been removed. The coming generations will be even less inclined to maintain the standards themselves. And for that we have the evolution theory and Darwin to thank.

Summary

- Charles Darwin is not the inventor of the evolution theory.
- Charles Darwin discovered a mechanism by which variation originates in living nature.
- Charles Darwin did not discover how the species themselves originated.
- There were many social, cultural, and especially political circumstances which made it possible for Darwin's ideas to gain attention. It is definitely not only about Biological Truth.
- The reason the evolution theory is so popular right now is because it gives man freedom, specifically moral and sexual freedom.

[1] Mainly based on Koude rillingen over de rug van Darwin. (Cold shivers on the back of Darwin)

[2] Grote Winkler Prins Encyclopedia

[3] But I would rather be taken for an ape than be descended from apes :-)

[4] The scientific content of this idea seems to be of extraordinarily low quality. Furthermore, it completely ignores how inadvisable it is to have many sexual partners because of the risk of many afflictions, sexually transmitted diseases and/or traumas people can be left with.

[5] Karel van het Reve, in Dag uit het leven van de Reuzenkoeskoes. (A Day in the Life of the Giant Koeskoes)

http://www.evolutionisdegeneration.com/

3. What Darwin Didn't Want To Know

And what we have learned since his time

In this chapter we are going to look at the way in which inherited characteristics are passed on. Mendel discovered how that worked. Darwin knew nothing about it. In fact, he would have none of it! Nevertheless, Mendel's ideas are known generally accepted and proven. There is apparently a build-in natural mechanism in reproduction which causes (genetic) variation in the offspring.

3.1 Mendel.

Gregor Mendel (1822-1884) lived in the same period as Darwin (1809-1882). In the monastery where he lived, he spent a lot of time researching inherited characteristics in peas. He discovered that characteristics, like the color of the flower or the shape of the peas, were distributed in the offspring in a standard pattern and that the offspring could have 'hidden' (later known as recessive) characteristics.

Darwin had also done research into heredity, but Mendel had a mathematical background, which made him better at statistics. He had also planned his experiments carefully, so that he was able to discover this standard pattern. In 1865 (Darwin's Origin had been published in 1859), Mendel presented his results, but his ideas were not accepted or understood. One group of people thought that the offspring 'expanded over an infinite field of variety' (principle of ergence), and another thought that the next generation received the average of the parents' characteristics. Apparently, Mendel sent his results to Darwin, but Darwin never opened his letter...[1]

Mendel came up with the concept of a gene, although he did not use that word himself. A gene is a 'unit of influence', for instance for the color of a flower this could be a gene coding for purple or white. Genes almost always occur in pairs, because the offspring receives one part from the father, and the other part from the mother. Mendel discovered that when he crossed purple flowers with white flowers (the parental pair is designated by 'P' for parents), the first offspring (designated by 'F1', the 'first filial generation') all had purple flowers. However, when he cross-bred the F1's with each other, then white flowers appeared (in F2, the second generation), but on average in only a quarter of the offspring. The White characteristic was therefore hidden in some way in the F1 generation and the Purple characteristic was stronger, dominant to the White characteristic. But why were only one quarter of the flowers from the second generation (F2) white? With a bit of calculation, this becomes clear.

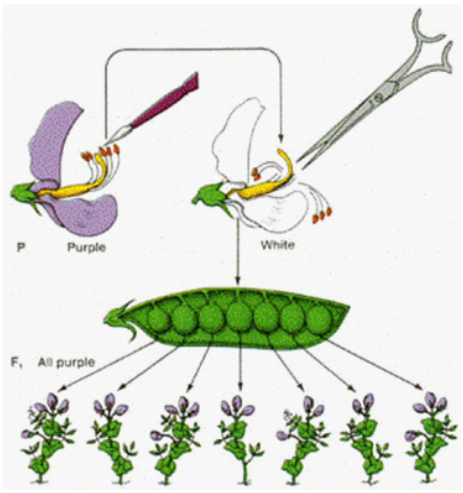


Figure 1, Genetic Analysis pp. 24; How Mendel carried out his cross-breeding.

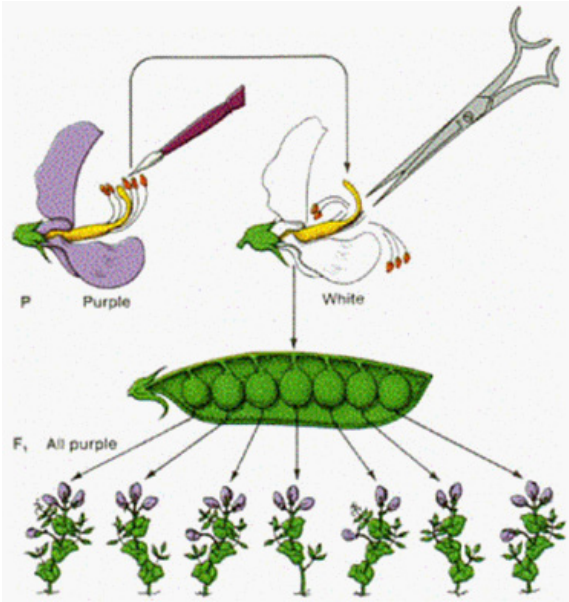
Suppose we assign a letter to the characteristic 'flower color', for instance the letter A. Purple is the dominant characteristic, so we will indicate it with a capital A. White is the recessive characteristic, so we will indicate it with a lowercase a. If a purple father-plant is AA (all genes occur in pairs), then he makes pollen in which half of his double genes can be found, in this case A. The white mother-plant aa always passes on a to the first generation (F1). And A plus a is Aa, so all plants from F1 have Aa as a characteristic, and since A (purple) is dominant to a (white), all of F1 is purple.

Schematically, this is shown as follows:

P: AA x aa (purple x white)

F1 Aa (purple)

What happens if you cross Aa with Aa? That results in four possibilities: AA, aA, Aa and aa. The first three all have purple flowers. Only the last one has white flowers, so one quarter of F2 is white.



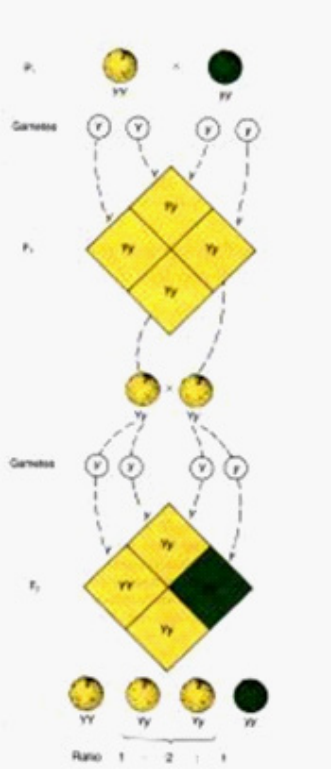


Figure 2, Biology pp. 227. Schematic overview of the heredity of the characteristics Purple and White in peas.

A list of a few 'difficult' terms:

a gene: the hereditary coding for a certain characteristic, such as Flower Color

an allele: a variant of a gene, which has a certain 'value' for the characteristic which the gene has, or 'fills in' the attribute, such as Purple or White. One gene (e.g. for the characteristic of flower color) can have multiple alleles (a purple allele, a white allele, etc.)[2]

homozygote: having the same two alleles of a certain gene, for instance AA or aa, or perhaps BB or bb

heterozygote: having different alleles of a certain gene, for instance Dd (Aabb is a heterozygote for A/a and a homozygote for b)

dominant: the allele which suppresses the other characteristic in heterozygotes, for instance A or D

recessive: the allele which has a hidden characteristic in heterozygotes, but in homozygotes displays a different characteristic, for instance a or c

phenotype: the external appearance, for instance Purple (both by AA and Aa)

genotype: the internal, genetic makeup, for instance: AA or Aa (the phenotype (Purple) can be the same while the genotype (AA or Aa) is different)

Why was this so difficult for Darwin and his followers to understand?

I see two reasons. In the first place, Mendel was a monk, thus spirituality he was exactly what Darwinism was against (see Ch. 2.2). How could a clergyman, most of who were against Darwin, produce anything good?

The second reason is that Mendel's experiments showed that heredity happens according to a standard, even predictable pattern. New characteristics are not actually new, but hidden. In other words: you can't produce characteristics that weren't already there. Darwin's theory depended on the development of truly new characteristics, such as an eye or wings, because otherwise how would everything have been able to originate from unicellular organisms? If Mendel were right, the whole story would be finished before it even took off.

Alfred Russel Wallace (of the principle of divergence) once wrote:

> But on the general relation of Mendelism to Evolution I have come to a very definite conclusion. This is that it has no relation whatever to the evolution of species or higher groups, but it is really antagonistic to such evolution! The essential basis of evolution, involving as it does the most minute and all-pervading adaption to the whole environment, is extreme and ever-present plasticity, as a condition of survival and adaption. But the essence of Mendelian characters is their rigidity. They are transmitted without variation, and therefore, except by the rarest of accidents, can never become adapted to ever varying conditions. [3]
>
> (Italics by PMS)

Not until after Mendel's death at the beginning of the twentieth century was his work recognized, after three other scientists, including the Dutchman Hugo de Vries, independently arrived at the same results. Later, it was discovered how those characteristics were passed on: by chromosomes, by DNA.

3.2 What Mendel did not know

About cells, chromosomes and DNA

Mendel knew nothing about the existence of chromosomes. Chromosomes are very long molecules of DNA which occur in the nucleus of all the cells of a living creature.[4] A human is made up of billions of tiny cells. All of these cells have a cell nucleus. In every nucleus (except in the reproduction cells) there are 23 pairs of chromosomes. Of 22 pairs, each chromosome in the pair codes for the same gene. The chromosomes in the 23rd pair either code for the same gene (XX), which indicates that the person is female, or they are different (XY), indicating that the person is male.

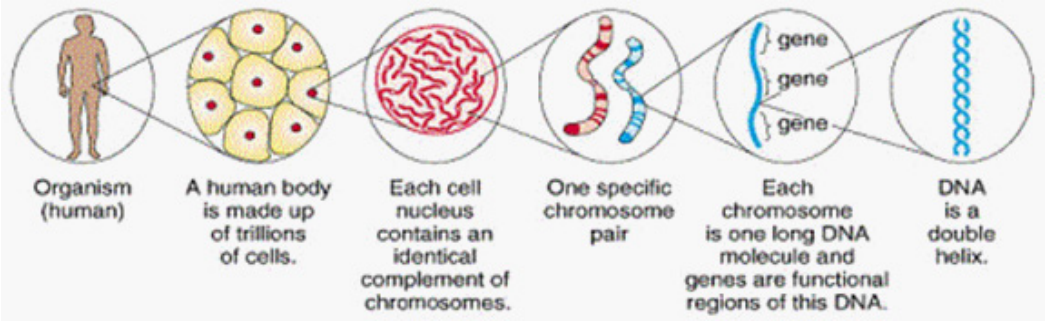


figure 3: different enlargements of a organism from the whole body till the DNA, genetic analysis, pp.2.

What appears to be the case? Those two parts, those two alleles of a gene each appear to literally occur on one of those two double chromosomes. A gene, or more accurately a gene pair, is therefore made up of two small pieces of DNA on a double chromosome. Furthermore, during the manufacturing of sex cells, those double chromosomes split apart and each half ends up in a

different sex cell, so a sperm cell or an egg cell has only half as many chromosomes as a normal cell. When a sperm cell and an egg cell join, another cell is formed with double chromosomes, and from that new cell, a new life grows. A sperm cell which carries a Y chromosome will make the child a boy (Y from the father and X from the mother). A sperm cell which carries an X chromosome will make the child a girl (X from the father and X from the mother).

Chromosomes are actually super-molecules, on which all our genes have a place. A human has a little less than 100,000 genes. Each gene has a fixed location on a chromosome, and there are also overviews in which the genes are mapped. An example of such a gene map can be seen in Figure 6. At this point in time, it is not known where all the human genes are located and what precisely they do, but it is being investigated in the Human Genome Project.

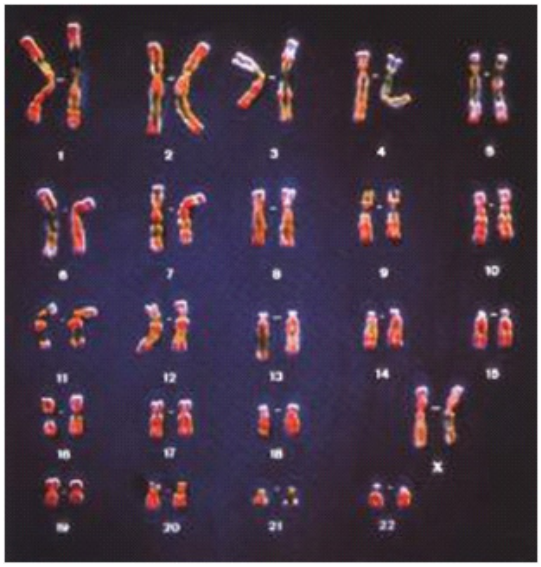


Figure 4, The human set of double chromosome in a row, The DNA-makers pp. 203.

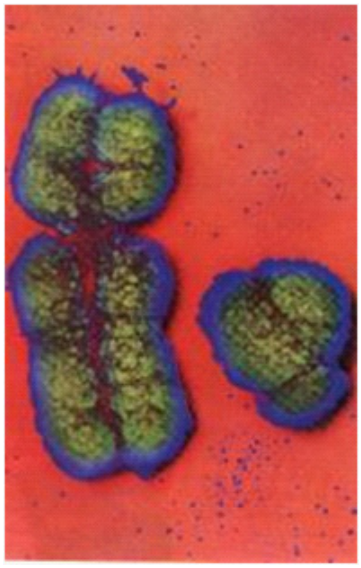


Figure 5, The human X and Y chromosomes, Scientific American, Sept. 96, pp. 9.

3.3 An interchromosomal exchange program

You could say that a child therefore always receives either one half or the other half of the characteristics of a whole chromosome, but the chromosomes have another trick to play on us!

In order to multiply, cells share with each other and so grow a bit more. During this process, they copy their chromosomes, so that each successive cell has the same DNA. When manufacturing sex cells, the cells also share, and the chromosomes are also copied. But before it is complete, the double chromosomes exchange a piece with each other. Kind of like: you give me that piece, and I'll give you this piece. Afterwards, they part ways permanently in a cell ision which makes the sex cells.

And what is the point of that? That each new offspring is a complete mix of the characteristics of the parents. Imagine: if humans had 1 double chromosome, there could only be four (2 possibilities from the father times 2 possibilities from the mother) different children. Humans have 23, so there are (2^23=8,388,608) about eight million possible different children. However, thanks to the exchange program, there are an unbelievably large number of possible combinations.

Another reason is that the exchange program ensures that the alleles (the 'values' or appearances of the gene) on one chromosome will not stay together forever. In the hard reality of life, certain combinations could be more practical than others.[5] This exchange of pieces of a chromosome is called crossing-over or recombi¬nation.

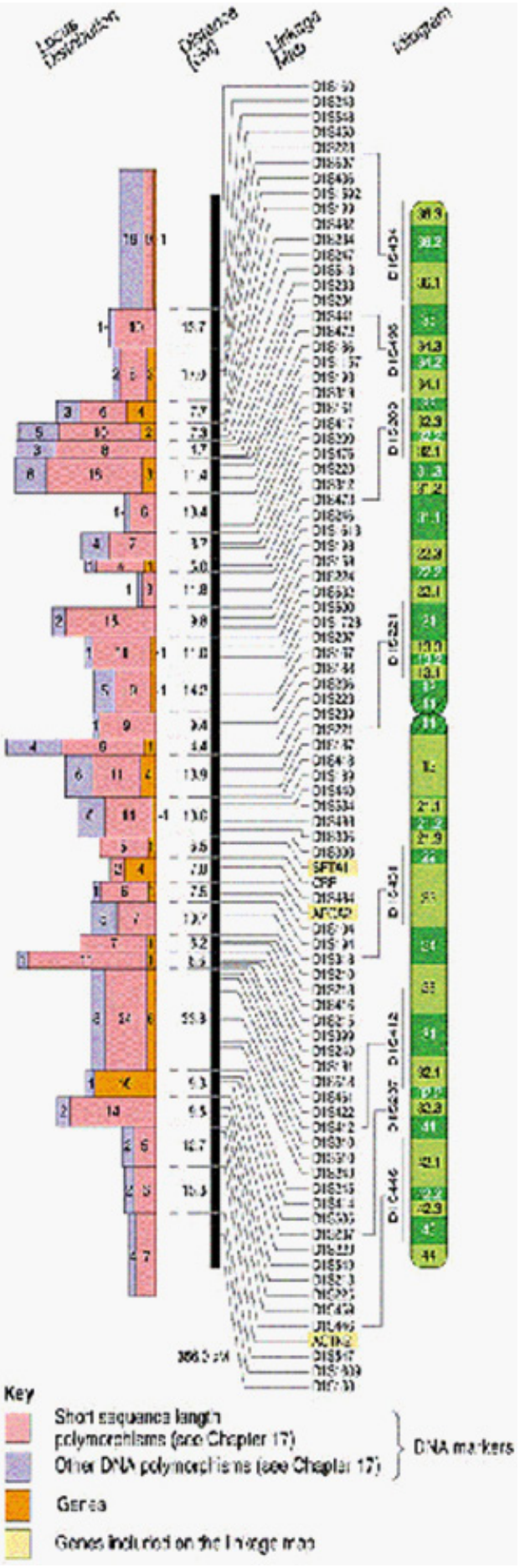


Figure 6, gene map of a human chromosome, Genetic analysis, pp. 143.

Another list of a few 'difficult' terms:

crossing-over: see recombination

diploid: a cell is diploid if the number of chromosomes occurs doubly. In humans, diploid cells have 46 chromosomes (23 pairs).

DNA: the super-molecule of which a chromosome is made, which contains the genes and is therefore the carrier of hereditary information

genome: a complete singular set of chromosomes of a species, in which all genes occur once.

homologue: chromosomes are homologous if they are 'equal', that is to say, they have the same genes in the same order. The alleles may differ (on one chromosome the allele may code for A (Purple) and on the other the allele may code for a (White)).

haploid: a cell is haploid if the number of chromosomes occurs singularly, so sex cells are haploid. In humans, haploid cells (the sperm and egg cells) have 23 chromosomes.

recombination: (or crossing-over) two (double or homologous) chromosomes exchange pieces with each other

3.4 Conclusions

- There is a purposeful and goal-directed process which brings about variation, namely the double chromosomes, and the exchange of genes between the two. Which combination of genes will result is coincidental, but the system itself which takes care of this has nothing to do with coincidence. It occurs in all animal and plant life. We shall in future call this process (sexual reproduction; homologous chromosomes; recombination and meiosis (i.e. ision of homologous chromosomes between haploid sex cells)) natural variation (analogous to natural selection!).
- In natural variation (not 'natural selection'), there is no mechanism which ensures that new attributes are added to the organism, or that new functions are added (let alone complete organs). Natural variation only ensures that the variation already present in the genes is distributed more or less arbitrarily throughout the offspring.
- Natural variation ensures that new combinations of alleles appear, not that new alleles appear, which is necessary for evolution.

Mendel and the built-in exchange program, called recombination which was discovered later, meant that the evolution theory needed to be rethought. This happened with the mutation theory.

---

[1] Source: The Talk.Origins Archive, Introduction to evolutionary theory, Chris Colby

[2] The use of the terms allele and gene differs in genetics and in popular science. The word 'allele' does not occur at all in everyday speech, whereas everyone has heard of 'genes'. That makes it a bit difficult to handle the concepts in this book. Furthermore, there is a history behind it. For Mendel, it was a 'unit of heredity'. Later it was discovered to be a specific piece of DNA on a chromosome. It could go two ways. The first would be to say that a gene is a location or locus on the DNA which codes for a protein and therefore occurs twice in double chromosomes. An allele is then a specific variant of such a gene, with the resultant unique order of base pairs. A (double) gene, therefore, always has two alleles, which could be different, and multiple alleles are possible for only one (double) gene. The second way would be to make absolutely no difference between genes and alleles and to speak of 'different genes' which belong to the same location in the DNA. In order to avoid the word 'allele' as much as possible, I have chosen where I can for the latter option, although that is technically perhaps somewhat less accurate. Compromises like these must often be made in order to keep a book like this accessible for a wider public.

[3] From a letter to Dr. Archdall Reid from 28 December 1909; James Marchant, Letters and reminiscences, pp. 340, New York: Harper Brothers, 1916; quoted from In the beginning, Walt Brown.

[4] will leave the bacteria out of consideration. They have no cell nucleus, no double chromosomes, and no sexual reproduction. In that respect, they are entirely another story.

[5] It seems as though someone has given this some thought!

4. The Mutation Theory

Evolutionary miracles and the chemical basis of life

Mendel was a big problem for the evolution theory. Partly because of that fact, it took a long time before people wanted to accept his findings, since it meant something else was necessary to cause infinite variation, to pull species over their own natural borders.

The alternative came in the form of mutation. A 'new' hereditary attribute sometimes seems to appear for no reason, seemingly out of nowhere. Afterwards, this 'new' attribute behaves according to the laws of Mendel. The spontaneous generation of these 'new' attributes is caused by mutations.

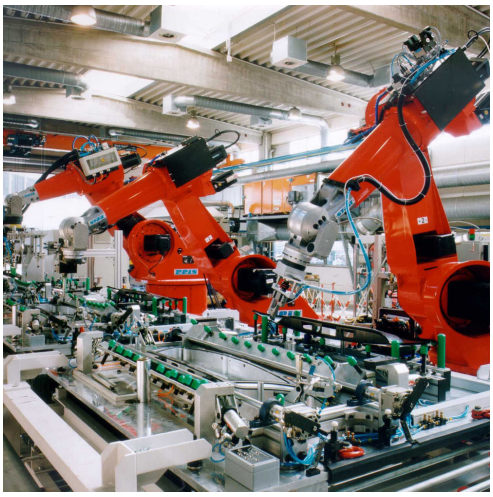
In order to understand what mutation is and how it works, we need to look at how DNA is put together and what proteins are. That this is a fascinating world can be seen in the virtual conversation I had with Cor Boonstra...

4.1 Cor Boonstra's ideal

When I last played golf [1], I saw Cor Boonstra, you know, the boss of Philips. 'Hey,' he said, 'you're Peter, aren't you?' 'Yes,' I said, 'and you're Cor. I may call you Cor, right?' 'Yes, of course,' he said, 'I like your TV programs.' 'Thanks?' I said, and that started a conversation.

Of course, I was very interested to hear from him what his future plans were for Philips, since I had heard some bits and pieces from the people in the church I go to. He was surprised that I knew about it and was interested, so he enthusiastically began to tell me about it. However, I could not have suspected that the future plans being cooked up in the higher realms of the Philips management would have such far-reaching consequences for our existence.

Philips is building a new factory for the so-called IIRT project, which stands for Integration of Informational & Robotics Technology. It will be an innovative combination of software (Informational) and mechanical (Robotic) automation.



You are probably familiar with robots. They are smart tools, which can, with great precision and constant self-correction, place parts on, for instance, an automobile. Robots do this much faster than humans could and do not need a lunch break. This automation of the production process has already been widely implemented, but a need has arisen for a more flexible production process. It was already the case that a robot could be programmed to carry out a certain task. What Cor now wants is a completely automated flexible production process by which market developments can be actively anticipated by the factories of the future which will not only put together a specific finished product, but also the robots that supervise the production process. And to make those robots, you need (that's right) robots! Why?

Robots, no matter how advanced they are, are also highly specialized. There are robots that can screw ten tiny screws simultaneously into a circuit board in order to affix it. There are robots that can carry a pallet of TV's to the storeroom. There are very many different tasks, and just as many different robots are needed. You could make multifunctional robots, but they are very expensive and are not used efficiently if they are only performing one simple task. It is not possible to have a series of robots on hand for every possible task in a specific production process. However, most of the parts of the robots are the same, and can be used in various production processes. What is Philips intending to do? They intend to recycle all those robots! They will be completely dismantled and the parts will be reused to make new robots, exactly the kind needed at that time. If there are robots that have nothing to do because there are too many robots for a specific task, they are taken apart by special disassembly robots. If there is a shortage of a certain kind of robot, there is a diagnostic robot which reports to the robot assembly department, which then finds the blueprint for that particular robot, which is then put together. Yet another diagnostic robot notices that the bottleneck in the production line is solved and it ensures that the assembly of the robots necessary for that solution is stopped. Even the robots that make robots are put together in the assembly hall by robots!

The whole factory works that way. Purchasing, billing, and accounting are done by accounting robots, which just sit on a table and are connected to the Internet and the bank network (they look a lot like our computers, but without a keyboard or monitor). Logistic robots unload the trucks which bring parts entirely independently, to the complete satisfaction of the driver, and they reload the trucks which come to pick up the finished products. Of course the robot parts wear out, but they also are put on the requisition lists completely automatically when certain robots ascertain that it is necessary. In the end, all Cor has to do is to push a button and say: so much of this, so much of that, and it happens. If necessary, the entire factory is rebuilt by specially designed robots. The production line needs to be structurally twice as big? Construction robots copy the whole factory on a larger scale in the factory next to it! And there the whole story starts over. Structural over-capacity? And just like that, the whole building is torn down and used for something else.

When he revealed this story to me, of course I was surprised. 'But how far does that go?' I asked. 'Very,' he said, 'When our first factory is done, more will follow. The connections between the factories will also be automated. Later, the truck driver will be a robot, with a built-in route planner and satellite navigation so it always knows its way around. Even if it were hijacked and set down somewhere else, it would be able to find a way back. DAF is already working on a truck without a cabin, with a built-in robot, and the Dutch Automobile Association is laying fiberglass cables along the roads to send data to the cars, so that the central traffic control can be done by robots. It's the new solution to traffic jams on the highway! Hahaha.' he laughed.

'But...,' I said, but I was speechless. What should I say? 'But...,' It dizzied me. 'But, how did you come up with the idea?' Luckily, this question came to mind, or I would have momentarily been at a loss to handle the situation, and I didn't want to make a bad impression at our first meeting. 'Ohhh,' he said, 'we got that from Living nature.' 'From Living nature?' I asked, surprised. 'Yes, certainly. Just look at the cells in your body. They are exactly that kind of factories; they are fully automated. And proteins...,' he paused briefly to give his words emphasis, 'proteins are nothing more than those super-specialized, recyclable ROBOTS, programmed by genes.' I fell over from

surprise. ‘Do you want to go get a cup of coffee?’ he asked. ‘No, no,’ I answered as I shook my head, ‘I think I need to process this. It was nice talking to you.’ And now he looked at me oddly, at such an obvious lack of spontaneous comprehension of his lucid exposition.

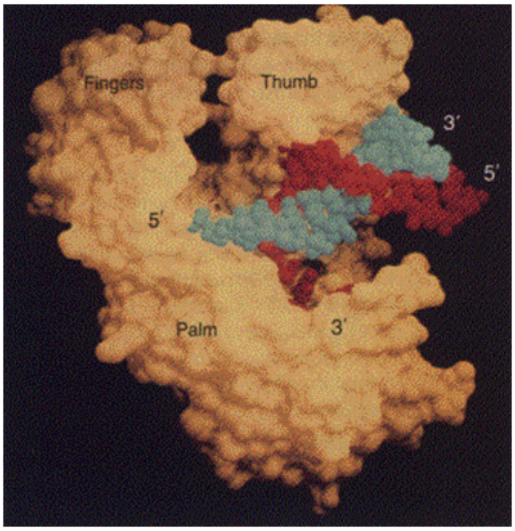


figure 1. A robot protein (Make-A-Model protein) grasping a piece of DNA (dark gray) in order to make a model of it.

4.2 Proteins

Genes are the blueprints for the proteins on which almost all life is based. Proteins do pretty much everything: the growth of a fertilized egg cell, from embryo to organism; the metabolism; the struggle against intruders and germs; the entire organization in cells, organs, and muscles, and more. All that is done by proteins, which are in fact biochemical robots. They are also called hormones or enzymes (although not all hormones are proteins), and there are almost 100,000 of them in the human body. These proteins are assembled in the cells of the body, the Cor Boonstra factories. Some proteins are needed in every cell, but many are made in specialized factories, such as the liver cells or special glands.

Not every conceivable protein is useful. Proteins are built up out of individual parts, the amino acids. One protein is made up of hundreds or even thousands of amino acids, and there are twenty different amino acids. If you haphazardly put a protein together by sticking amino acids together arbitrarily, you get (for instance in a protein with 300 amino acids) 20300 possibilities, that is approximately 2x10390. And that is:

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If you imagine that the entire universe has about 1080 atoms, that is:

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then you understand that it is impossible to put proteins together arbitrarily and hope that there are a few good ones.

And that is precisely what the genes are for, the blueprints for the protein robots. They code for proteins. In living cells, the genes are used to produce proteins. And how are these proteins produced? Exactly, with the help of special proteins! And how are these proteins produced? By the self-same special proteins! These are robots that put each other together.

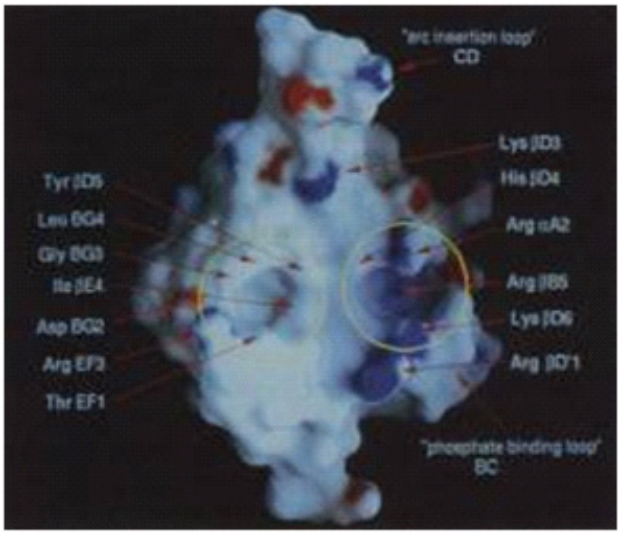


figure 2. An example of the complex structure of proteins

Proteins are not just long chains of amino acids.

1. The amino acid chain is only the first of four structural layers of the protein.
2. The second structure is the folding up of the chain into two possible basic 'figures': spirals or a zigzag structure.
3. The third structure folds it again, into a complex three-dimensional figure.
4. Lastly, several of these complex structures are joined to form the final protein.

The three 'higher' structures are almost completely determined by the order of the amino acids.

In this way, three-dimensional forms are created, which could for instance literally take hold of a strand of DNA and pull apart the two 'tracks', so that the information could be read. In this way they are literally robots.

Is insulin suddenly needed? A regulator protein knocks on the door of the organ that makes insulin, is admitted, and wakes up the gene that has the code for insulin. The Make-A-Model proteins[2] make a model[3] of the gene and, using the model, the necessary insulin is made by Make-A-Protein robots[4].

4.3 The structure of DNA

How do the genes code for a certain protein?

Genes are pieces of DNA, and the structure of DNA can be compared with a train track with rails. The two rails are connected by wooden crossbars. A DNA track is curled up in a spiral (see Figure 1). The rails are a sort of chemical backbone for the DNA. The 'crossbars' are made up of base pairs. There are four bases: Thymine (T), Adenine (A), Cytosine (C) en Guanine (G). These always appear in pairs in the DNA. T and A (with two hydrogen bonds) are always opposite to each other, and C and G are always opposite to each other (with three hydrogen bonds). They are the letters of the genetic alphabet. First, a model of the DNA is made, called RNA, but that model looks very much like the DNA, and the letters are the same. Three 'letters' in the RNA form a genetic 'word', called codon, for instance ATG or CTT. One word, or codon, in the RNA corresponds to one amino acid in a protein.

This means that the sequence of amino acids in a protein is completely determined by the sequence of A's, C's, G's and T's in the DNA. It resembles the zeros and ones of a computer program.

Figure 3. The structure of the DNA, Cell and molecular biology, pp. 67

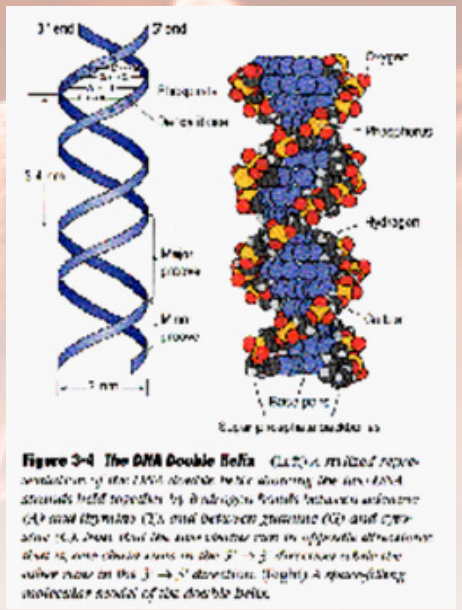
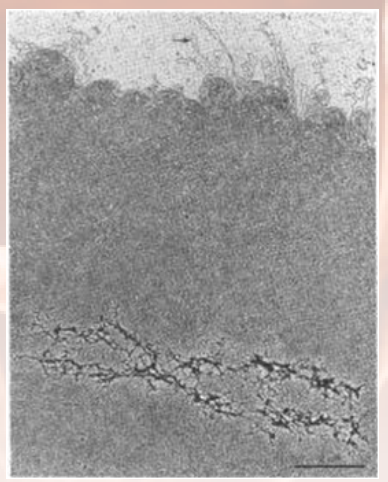


Figure 4. An unraveled chromosome; the arrow clearly indicates a strand of DNA, Cell and molecular biology pp. 416.



4.4 The genetic code

So how many words are in the genetic dictionary?

Sixty-four, because 4x4x4 (letters) = 64. And how many amino acids (robot parts) are there? Twenty. So sixty-four words are more than enough to indicate twenty amino acids. What if a word had two letters? Then there would be 4x4=16 words, not enough to indicate all the amino acids. 64 is the next number that suffices. Four-letter words would result in 256 possibilities and that is far too much. So it is 64.[5]

But 64 are too much. What do we do with the other 44? Well, these also indicate amino acids, and in such a way that, should a letter accidentally change, in most cases the same amino acid is indicated. Most of the time, the third letter can differ. Furthermore, a 'period' is necessary to finish a 'sentence' of amino acid-words, or rather to show where the protein production should stop. There are three of these 'periods', and a starting mark to signal the beginning of the information. In Figure 4, you can see a table of all the words and which amino acids belong to them. (The T is replaced by U for Uracil in the table, because that is what is used in the 'model', the RNA.) This table is called the genetic code.

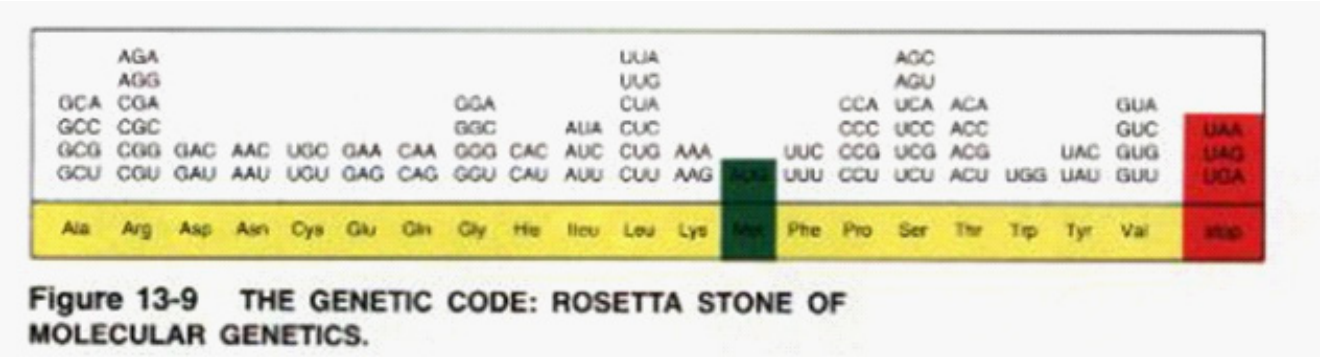


Figure 13-9 THE GENETIC CODE: ROSETTA STONE OF MOLECULAR GENETICS.

Figure 5. The genetic code: Rosetta Stone of molecular genetics

	AGA									TTA					AGC				
	AGG									TTG					AGT				
GCA	CGA						GGA			CTA				CCA	TCA	ACA			GTA	
GCC	CGC						GGC		ATA	CTC				CCC	TCC	ACC			GTC	TAA
GCG	CCG	GAC	AAC	TGC	GAA	GAA	GGG	CAC	ATC	CTG	AAA		TTG	CCG	TCG	ACG		TAC	GTG	TAG
GCT	CGT	GAT	AAT	TGT	GAG	GAG	GGT	GAT	ATT	CTT	AAG	ATG	TTT	CCT	TCT	ACT	TGG	TAT	GTT	TGA
a	e	b	d	f	g	h	i	j	k	o	l	m	p	r	n	s	t	u	v	stop

Now we need hemoglobin in our body. What would the gene that codes for that look like?

For instance, like this:

ATGCAGCGAATGTTTGAGAAGCTCGATGGCTCGTAG

Cut it up into segments of three:

ATG CAG CGA ATG TTT GAG AAG CTC GAT GGC TCG TAG

and match the letters up

ATG	CAG	CGA	ATG	TTT	GAG	AAG	CTC	GAT	CGC	TCG	TAG
start	h	e	m	o	g	l	o	b	i	n	.

As you can see, it codes for 'hemoglobin' (in reality, it is much longer)[6]

Suppose, for convenience' sake, we make a new table, with the twenty most used letters of our alphabet.

4.5 Mutations

Now we are going to see what happens when something changes in a gene. We change one genetic letter, and watch what happens:

ATG	CAG	CGA	ATG	TTT	GAA	AAG	CTC	GAT	CGC	TCG	TAG
start	h	e	m	o	g	l	o	b	i	n	.

It makes no difference! Another letter changes:

ATG	CAG	CGA	ATG	TTT	GGG	AAG	CTC	GAT	CGC	TCG	TAG
start	h	e	m	o	i	l	o	b	i	n	.

Hemoilobin is what it then reads. If this were a real protein, it would mean that the protein would no longer function as it should, or less well than it should. Remember the robots. If one random part were replaced for no reason, strange things could happen. If a wheel is not properly placed, it would go only half as fast. If a screw in its back is missing, there is hardly a problem. If its thumb is replaced by an eye, it is possible that the whole robot can no long perform its function, even though it would still look like a robot.

With proteins, a copy of the function is usually also found on the gene on the other chromosome, but if that one is also damaged, the whole function of the gene-pair/protein is nullified. In the case of a human, the carrier of such a damaged gene or gene-pair could then have a hereditary disease. Or, if he does not become ill as a direct result of the loss of that function, perhaps he has white(r) skin or blue eyes (there is no or too little pigment being produced in the skin or the irises).

These changes in genetic letters are known in biology as point mutations. Besides the changing of a letter, a letter could also completely disappear (a deletion). This could be the result:

ATGCAGCGAATGTTTGAGAAGCTCGATGGCTCGCGCTAG

ATGCAGGAATGTTTGAGAAGCTCGATGGCTCGCGCTAG

ATG	CAG	CAA	TGT	TTG	AGA	AGC	TCG	ATG	GCT	CGT	AG
start	h	g	f	o	e	n	n	m	a	e	

hgfoennmae is what is written, and this could continue until a TAG or other 'point' is coincidentally found. This becomes nonsense. With a real protein, it also becomes nonsense. If a letter is added (an insertion), it results essentially in the same thing. So this can never happen; if it does, you get a big mess. It throws the whole blueprint of the protein-robots into confusion. Of the different kinds of mutations, the point mutation is therefore the least destructive.

There are also various security proteins that do their best to prevent mutations. The structure of the genetic code itself is also set up to minimize the effects mutations have as much as possible.

The degeneration of the genetic code serves a protective function; the many codons for a single amino acid often are quite similar; for example, four of the six codons for leucine begin with CU, no matter what the third base is.

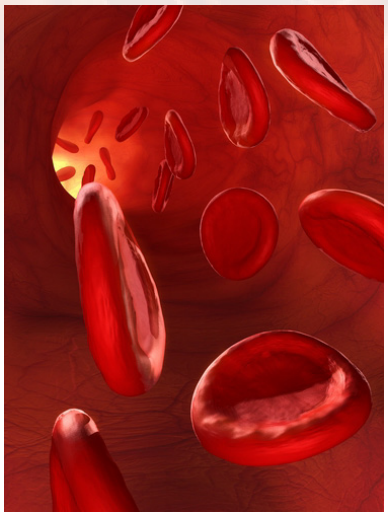
Because of this similarity, a point mutation in the third place will not lead to an incorrect amino acid being placed in a protein. Biology, pp. 300

Still, mutations do occur. For instance, under the influence of radiation or ultraviolet light, the number of mistakes made exceeds the amount the repair proteins can restore, so that they 'drop stitches' and mistakes creep into the DNA. There are also chemicals which are known to cause mutations. On average, one mutation can happen per person before it makes a difference and is not deadly.[7]

A practical example of variants of a original protein generated by mutations:

In humans, there are three versions, or alleles, of the gene that determines blood group: A, B, and O. There are two positions for a gene (on the double chromosomes), so the following combinations are possible:

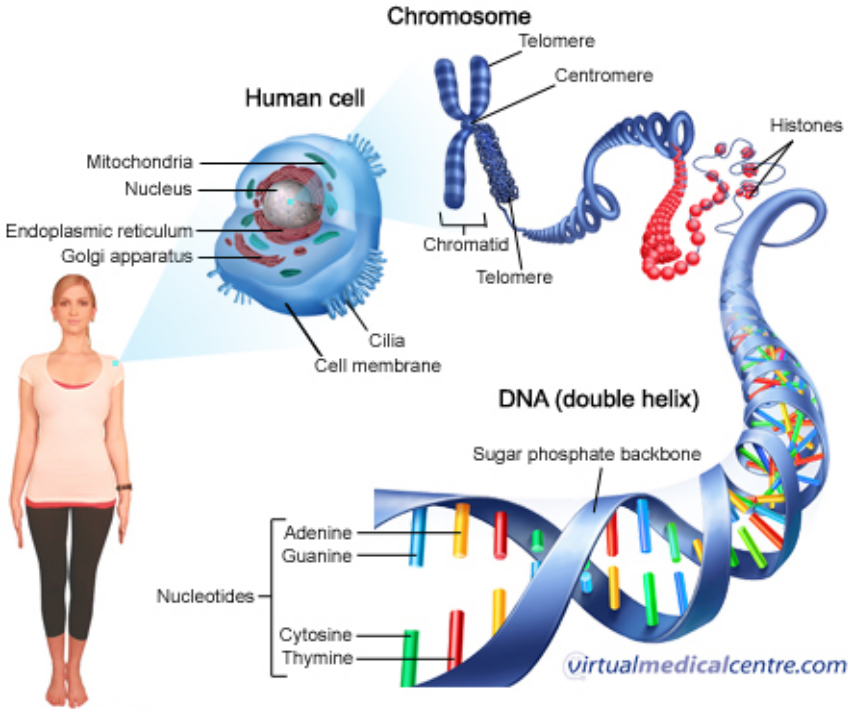
gene	blood group
O + O	O
O + A	A
A + O	A
O + B	B
B + O	B
A + A	A
B + B	B
A + B	AB
B + A	AB



Blood group A means that it can receive other blood with blood group A in a blood transfusion, but that antibodies are produced against B, if the blood would contain that blood group. Blood group B means that it can receive blood group B, but that antibodies against A will be produced. If you have blood group AB no antibodies are produced at all, so you can receive any A, B or AB blood group. Blood group O would produce antibodies against any blood group A or B during a transfusion.

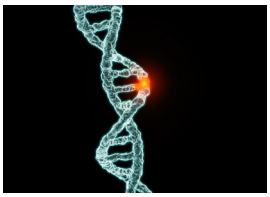
However, mutations do occur in blood groups A or B, which is why there are now people with blood groups A* or B+. In reality, those are A and B genes with a slight alteration, so that they produce antibodies which are not quite the real A or B. In this way, ten different versions of one gene could occur, but only if the protein created by that gene is not essential for the organism to stay alive. A mutation in, for instance, a Make-A-Protein gene[8] would immediately mean that no more proteins could be produced. Sex cells with such serious flaws will never result in viable offspring.

Summarize



- A gene is precisely defined and stores information for the production of specialized robot-proteins.
- The function of a gene is predetermined according to a precise pattern.
- Mutations are damage to or even elimination of existing and operative genes. They create chaos in the highly ordered system which exists in DNA. It is a loss of information.
- DNA has an anti-mutation attitude. There are no biochemical or genetic mechanisms which cause these mutations, only mechanisms which attempt to prevent and repair them.[9] The genetic code is set up in such a way that it attempts to oppose the effect of mutations.
- Mutations do not occur frequently. They appear coincidentally. Most of them make no difference. Many are damaging or deadly.

4.6 Mutations – evolutionary miracles?



What is so special about mutations? Well, they disturb Mendel's standard pattern, since mutations are random changes, in contradiction to the hereditary characteristics according to the rules which Mendel discovered. Mutations break the natural limit placed on variation. Because of mutations, DNA is not a given; it becomes a dynamic whole, and can 'grow' from one genome to another by an accumulation of small alterations. Because of mutation, variation is not finite after all, as Wallace feared and the reason he rejected Mendel, but is in its own way 'infinite'.

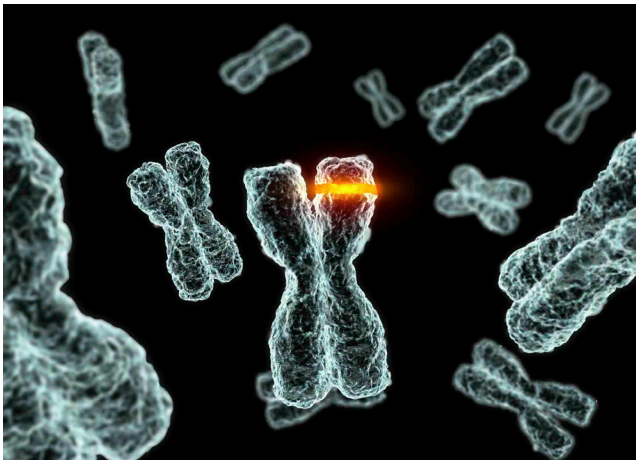
The Dutchman Hugo de Vries came up with a 'mutation theory', which he published in 1901-1903. He presented his own version of Darwin's selection mechanism: evolution does not happen through selection of the most well-adapted individuals within a species, but through selection of the most well-adapted mutant who generates a new species.

Finally, in the thirties and forties, the so-called 'neo-Darwinistic synthesis' took place, in which Darwin's concept of evolution and Mendel's heredity met, thanks to the idea that all sorts of spontaneous changes, or mutations, could appear in the hereditary material. As a result, a species is just as 'changeable' as the environment in which it lives and is able to evolve with it.

The extremely important question here is: does new variation originate through mutation?[10]

The answer is: Yes. But it is important to keep in mind how mutations do that. Mutations damage genes. Because each gene has a double, this is usually not a problem; the 'good' gene will take over. However, if such a damaged gene becomes a homozygote (can be found on both chromosomes), the function of that gene is completely eliminated. It just depends on how important that gene was for the organism. A human can survive without an arm, or without

a spleen, he can survive with only one kidney, or with particularly little pigment (white skin) or without brown eyes. In all these cases, existing functions are cancelled. Only in the case of the loss of pigment did those people have a better chance of survival in areas with little sunlight, and you can see that the further north you go, the lighter the skin color is. There is no improvement, or an increase in complexity.



I will come back to this in detail (in chapters 6 and 13), so 'hold your horses'.

The problem I am outlining here is: are mutations capable of making new specialized protein-robots and/or producing new genetic constructions which are necessary to make new organs which again have their own specific functions in the body. In other words, are mutations capable of causing structural evolution on a large scale. Mutations are mistakes in an organized system. How can this result in a new, never before encountered, organized system, such as when a reptile becomes a bird or a mammal? Do such complex systems originate from a chain reaction of mistakes?

To make a comparison: Suppose that a manual for making a typewriter is typed on a typewriter. That is, after all, essentially what DNA does: describe the proteins which give the DNA the impulse to produce proteins (and the impulse for self-duplication, recombination, and the suchlike). Furthermore, the manual can probably be described using an alphabet of 20 letters, which corresponds to the 20 amino acids of proteins. Is it now possible that the typewriter originated by an accumulation of typing errors in the manual's description? Of course not. Will typing errors lead to 'other' typewriters? Most likely, but where is the limit and where does it lead?

Therefore, the best thing we can do now is to listen to what the proponents of the evolution theory have to say about it. We will let some of them speak in the next chapter in order to form a picture of the present state of affairs in the evolution theory.

Afterwards, in chapters 6 and 7, we will test the mechanisms for macro-evolution which they propose, in order to see if they can withstand the test of criticism.

points of attention

- Apparently, in one way or another, each organism has genes which can put up with being 'on' or 'off' (such as the genes which make pigment), or sometimes with being only partly capable of doing what they need to do, without it directly affecting the viability.
- Point mutations change only genes which already exist. Point mutations cannot make new genes, only variants of existing genes.
- Point mutations use or actually abuse the system of natural variation.
- To say that the system for natural variation originated through point mutations is the same as saying that the typewriter originated through typing errors! Or that computer programs originated through mistakes in copying!

List of difficult words:

amino acids: The building blocks of proteins. Twenty different amino acids occur in the proteins all living things use.

base (pair): The building blocks of DNA. There are four of them: Thymine, Adenine, Cytosine en Guanine, respectively T, A, C and G. T and A have two hydrogen bonds, whereas C and G have three. That is why A and T always are across from C and G respectively in DNA, thus forming base pairs.

codon: In groups of three base pairs, the bases define one of the twenty amino acids which needs to be in a protein. Such a group of three is called a codon.

protein: A three-dimensional, specialized, biochemical robot, made of amino acids, which carried out specific functions in cells and in the body. They are also called 'enzymes', or sometimes 'hormones'.

genetic code: Because there are four bases, and three bases form a codon, there are 64 possible codons, but only twenty amino acids which occur in proteins. The genetic code is the table in which each codon indicates only one amino acid, and an amino acid is indicated by several codons. In the genetic code, there is also a beginning codon (start here with protein production) and three end codons (stop here with protein production).

mutation: An alteration in base pairs in the DNA. Mutations can be point mutations, insertions, or deletions. Point mutations change one single base pair into another, for instance from T-A to A-T or G-C. Insertions add a base pair, and deletions remove one.

---

[1] Only virtually of course.

[2] Among others, RNA-polymerase.

[3] RNA.

[4] Ribosomes.

[5] It seems as though someone has given this some thought...

[6] For instance: 'T h i s i s h e m o g l o b i n a n d i t h a s t o p i c k u p o x y g e n i n t h e l u n g s a n d t r a n s p o r t i t i n t h e r e d b l o o d c e l l s t o t h e o t h e r p a r t s o f t h e b o d y w h e r e i t r e l e a s e s t h e o x y g e n..' It is then 128 'amino acids' long, which is still far too short.

[7] In each generation has a gen a chance of 1 to 104 till 109 on a mutation. And because a human has 106 structural genes, has everybody of us an average of one mutation. Biology, blz 1027

[8] The ribosomes

[9] There are chemicals known to cause these mutations, but that is somewhat different from (co-operating) genes which would be intended to cause mutations. (The transposons will be handled in chapter 7.) In chapter 13, an example is given of a repair mechanism.

[10] I mean by this the point mutation, changing a base pair in the DNA.

5. Opening Act Of Cosmic Drama

The proponents of the evolution theory speak

5. THE OPENING ACT OF THE BIOCOSMIC DRAMA

5.1 The actors are introduced

a. **King Entropy:** nothing useful originates through coincidence (alone)

b. **Master Mutation:** variation originates through mutation?

c. **The true face of Master Crook Mutation:** mutations are mistakes

d. **Fool Coincidence:** mutations appear coincidentally, arbitrarily, at random

e. **The Angel of Natural Selection:** non-random selection selects certain genes

f. **Insertion:** he creates new, in this case 'better' genes

g. **Confusion:** there are several levels of evolution

h. **Indictment:** point mutations are an insufficient explanation for Macro-evolution

i. **The Quest:** evolution leaps forward

j. **The Older Uncles of Mr. Mutation?** Then which mechanisms take care of macro-evolution and/or gene growth?

5.2 The belief: there must have been evolution

A cosmic drama is in progress, a drama of biological and biochemical nature. This drama contains various players, and before we can understand the game, we have to know the actors. I would like to introduce them now, but I will do so through the voices of the researchers of the biocosmic drama, so that it will be clear that they are not my own creation! I will do so extensively, so that we can form an accurate picture of the actors, their backgrounds, and their motives. As we do this, the nature and extent of the biocosmic drama will unfold before our eyes, but the true high point will not be enacted until the next act.

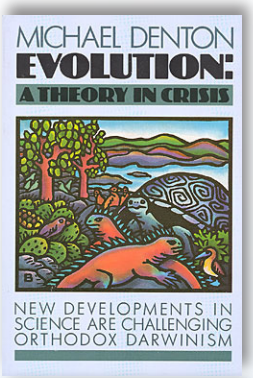
Below are my sources (for this chapter). The order is somewhat deliberate. The further down the list, the more thorough and to some extent more reliable the material in the source is. The Talk. Origins Archive is, in that sense, the most superficial source, the biochemistry book the most thorough. The increase in reliability is due to the fact that the theory must be tested according to the laws of biochemistry and be in agreement with them, or it is a fantasy.

I provide the quotes with comments in some places, without discussing it in depth, because that will take place in the next chapter.

A. The Talk.Origins Archive

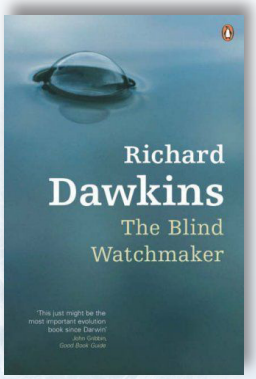
This is the most extensive Internet site about evolution, with a large collection of articles, which often viciously attack those with different opinions. In comparison with the other sources, it is somewhat less supported, and there are quite a few strong statements being made. However, it is an often-visited site and goes deeper than the material you get at school. The address is: http://www.talkorigins.org/

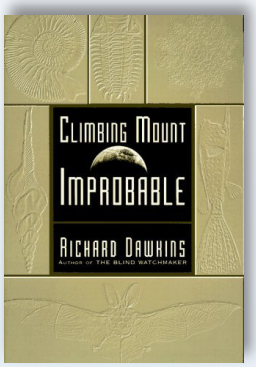
B. Michael Denton's Evolution: A theory in crisis, 1985



A molecular biologist who dared to openly criticize the evolution theory by claiming in his book that evolution on a large scale no longer happens, and suggests more of a typological model of species. Because he is, in that sense, difficult to present as a proponent of evolution, I do not quote him very much. However, his remarks are very important!

C. Richard Dawkins with his books The blind watchmaker and Climbing mount improbable.





He is a very popular author whose books have been translated into many languages. He is more Catholic than the Pope (read: more evolutionary than Darwin), because for him it is not the individual or even the species that tries to survive, but the DNA, the genes, which to that end use the individuals and the species as 'survival machines'.

D. Niles Eldredge and Stephen Jay Gould introduced the theory of Punctuated Equilibrium, which is nowadays accepted by everyone, despite the fact that they oppose Darwin (wrongly according to some, such as Dawkins). In the December 1996 issue of Earth Magazine, Eldredge wrote an article with the title What drives evolution, from which I quote. This therefore gives a very recent view of the present state of affairs.

E. Christian de Duve, De levende cel (The living cell), a publication of Natuur & Techniek (Nature & Technology).

Natuur & Techniek is a popular (popular-) science monthly magazine and in that sense important. Besides the magazine, Natuur & Techniek publishes many books, including this one by Christian de Duve. It is the only Dutch source.

Textbooks

F. Biology, N.K.Wessells (Stanford University) and J.L. Hopson, 1988

A large volume with a distinct evolutionist slant. A textbook for biology students.

G. An introduction to genetic analysis, A.J.F. Griffiths (University of British Columbia), J.H. Miller (University of California, Los Angelos), D.T. Suzuki (University of British Colombia), R.C. Lewontin (Harvard University), W.M. Gelbart (Harvard University), 1996

A comprehensive textbook (also quite large) about everything about genetics. Several passages about evolution.

H. Principles of cell and molecular biology, L.J. Kleinsmith (University of Michigan), V.M. Kish (University of Richmond), 1995

Another large volume all about cells and their biochemical reactions. Contains only a few paragraphs about evolution.

I. Biochemistry, D. Voet (University of Pennsylvania), J.G. Voet (Swarthmore College), 1995

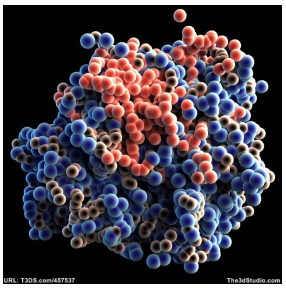
Large volume. Not much about evolution. A lot of proteins and biochemistry

5.1 The actors are introduced

It is now time to introduce the actors:

a. King Entropy: nothing useful originates through coincidence (alone)

The first actor is King Entropy. He ensures that nothing useful originates through coincidence (alone). Listen:



A protein molecule is made of a large number of parts arranged in a very special way. The number of possible ways in which those parts could have been arranged is exceedingly large. In the case of a protein molecule we can actually calculate that large number. Isaac Asimov did it for the particular protein hemoglobin, and called it the Hemoglobin Number. It has 190 zeros. That is the number of ways of rearranging the bits of hemoglobin such that the result would not be hemoglobin. In the case of the eye we can't do the equivalent calculation without fabricating lots of assumptions, but we can intuitively see that it is going to come to another stupefying large number. Richard Dawkins, Climbing mount improbable.

The chance that one protein ('polypeptide' was the original word, which means the same thing, PmS), which is composed of 100 amino acids, would originate through coincidence, is 10-130. Don't try to imagine this number or to convert it into familiar units. Simply forget the idea of making proteins by chance. Even if the entire world population helped you by working day and night with the unbelievable speed of one million proteins per second without ever making the same protein twice, it would still take them 10107 years

(5,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000,

000,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000 times the estimated age of the universe!) to produce all the possible combinations out of thin air.

Enough about this, it is quite clear.

Christian de Duve, De levende cel (The living cell), part 2.

King Entropy is the king of disorder, the emperor of chaos. King Entropy ensures that disorder always triumphs over order. Take a container with 100 white balls on the bottom and 100 red balls on top, and shake it. King Entropy ensures that the balls will always be mixed and will never return to their original division, no matter how long they are shaken. King Entropy laughs at coincidence. How big is the chance that the red and white balls will become separated again as they were in the beginning? Well, each ball can take one of 200 positions. The chance that the first ball is in the right place is 100 in 200, the chance for the second ball is 99 in 199, the third 98 in 198 and so on. The end result is a very small number. The chance is very small. But there is a chance. So there is hope! If you just shake it long enough, it could happen eventually. Well, in theory it could, but in practice it doesn't work. The chance of a coincidentally ordered arrangement is so astronomically tiny that it is unrealistic to take it into account in practice. And that is the work of King Entropy.

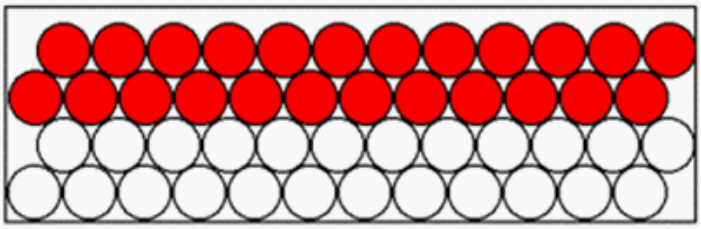


Figure1:

A nice Job for King Entropy:

An orderly tray of balls

Because why do the balls get mixed together? At the start, there are more red balls in one half than in the other. Is balls start moving around, more red balls from one half will move to the other half than vice versa (in the beginning none at all, of course). But suppose that there are now twice as many red balls in one half than in the other half. If it is then arbitrarily shaken, twice as many red balls will move downwards as from the bottom to the top. King Entropy ensures that the balls are always divided somewhere around 50%. Only with very small numbers can it happen that Fool Coincidence outwits King Entropy. Why is King Entropy such a powerful ruler? That is because the chance that the order is broken down is many times higher than the chance that the order is built up.

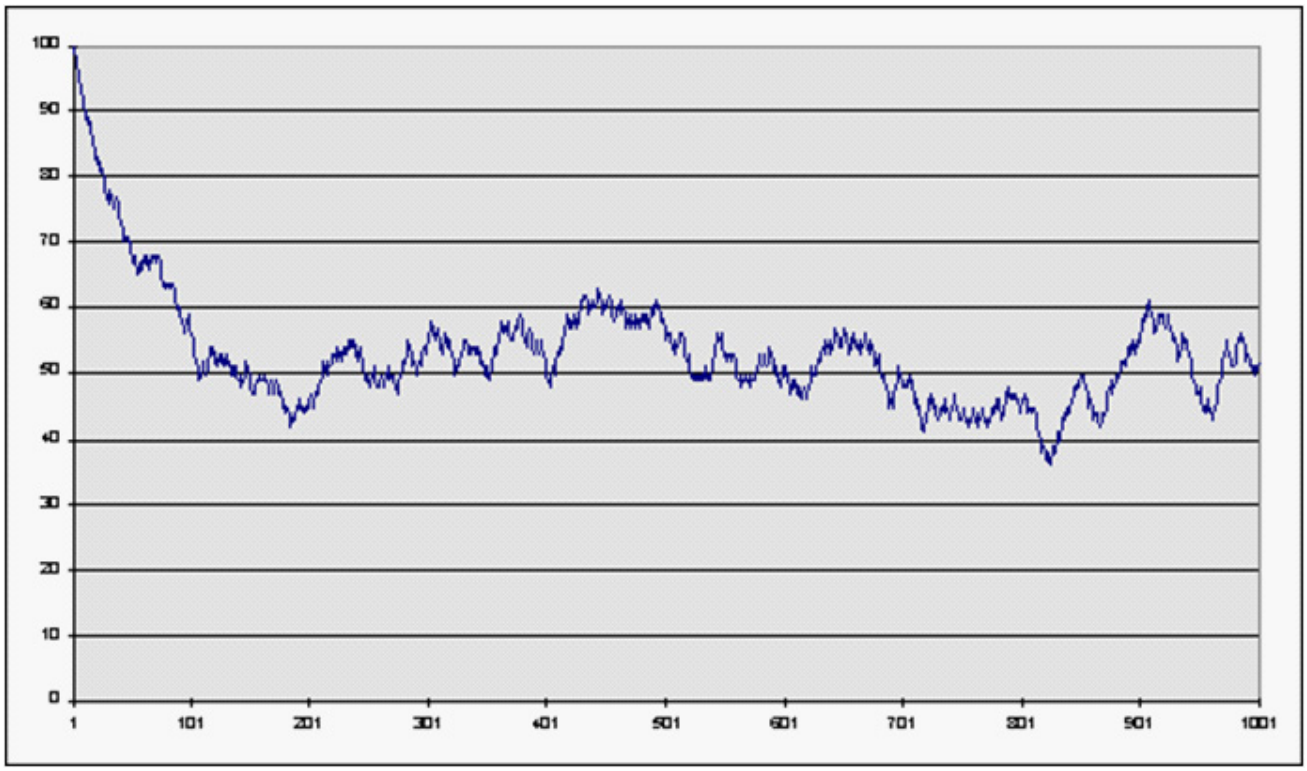


Figure 2: results of a simulation of the average distribution of red and white balls in a tray

In figure 2, you can see how that works out with 100 red and 100 white balls. The Y-axis shows how many white balls are on the bottom. at the start there were 100. The X-axis shows the number of times one ball goes from the bottom to the top. You can see that in the beginning, order disappears very rapidly, and after about 100 changes, hovers around 50%. Every once in a long while, the distribution rises above 60%. If you have a lot of patience and calculate this several thousand times, you might see it reach 70% once, but you will never make 75%, let alone the original 100%. The more balls involved, the less fluctuation. With 1000 balls of each color, you won't even rise above a distribution of 55%!

King Entropy says, simply: highly specialized proteins cannot originate by themselves, I take care of that. If I put together a protein, it is always a gray, average, useless protein

b. Master Mutation: variation originates through mutation?

Master Mutation is not unknown to us. We have actually gotten to know him already. But Master Mutation has played a prank on us, which has fooled almost everyone.

Taken as a whole, hereditary changes originate almost without exception through alterations of genes: mutations.

Christian de Duve, De levende cel (The living cell), part 2.

Mutation is a change in a gene. These changes are the source of new genetic variation. Natural selection operates on this variation.

Chris Colby, The Talk.Origins Archive, Introduction to evolutionary biology.

Evolution by natural selection could not be faster than the mutation rate, for mutation is, ultimately, the only way in which new variation enters the species. All that natural selection can do is accept certain new variations, and reject others.

Richard Dawkins, The blind watchmaker.

Mutation is a major source of genetic variation and serves as the raw material for evolution. Biology, pp. 1029.

What is the prank that Master Mutation has played on us? This: He is capable of making us believe that he is the one who causes variation. He doesn't do that at all. He only manipulates. The process and mechanisms of natural variation, especially recombination, ensure that variation exists! Master Mutation manipulates himself in this system for variation, and because he talks so much, we have all begun to think that variation is caused by him. Rather, there are all sorts of biological and chemical processes that try to prevent Master Mutation from Carrying out his pranks in the DNA. There is not one single genetic mechanism that introduces, regulates or controls Mutation. Master Mutation is a burglar, who uses dangerous radiation or harmful substances to do his work. Master Mutation is a crook. And he now claims to be the owner of the House of the (infinite) Variation! From now on, we will call him Master Crook Mutation.

c. The true face of Master Crook Mutation: mutations are mistakes

The cellular machinery that copies DNA sometimes makes mistakes. These mistakes alter the sequence of a gene. This is called a mutation.

Most mutations that have any phenotypic effect are damaging. Mutations that result in amino acid substitutions can change the shape of a protein, potentially changing or eliminating its function. This can lead to inadequacies in biochemical pathways or interfere with the process of development.

Chris Colby, The Talk.Origins Archive, Introduction to evolutionary biology

Mistakes and accidents are the source of variability, which is as vitally important as the exact rendering[1] , given it remains within acceptable limits.

Christian de Duve, De levende cel (The living cell), part 2

Many mutations in the genetic information are damaging to the organism, leading to a competitive disadvantage or to death(…..). Occasionally, however, a genetic alteration lends some survival advantage to the organism. [2]Biology, Wessels & Hopson

The true nature of Master Mutation is, of course, difficult to deny.

d. Fool Coincidence: mutations appear coincidentally, arbitrarily, at random

Natural selection, the blind, unconscious, automatic process which Darwin discovered, and which we now know is the explanation for the existence and apparently purposeful form of life, has no purpose in mind. It has no mind and no mind's eye. It does not plan for the future. It has no vision, no foresight, no sight at all. If it can be said to play the role of watchmaker in nature, it is the blind watchmaker.

Richard Dawkins, The blind watchmaker

One fundamental characteristic of mutations is that they take place completely by coincidence.

Christian de Duve, De levende cel (The living cell), part 2

Master Crook Mutation and King Entropy are friends! Both of them harness Fool Coincidence to their purpose.

e. The Angel of Natural Selection: non-random selection selects certain genes

The process of evolution can be summarized in three sentences: Genes mutate. [gene: a hereditary unit] Individuals are selected. Populations evolve.

Chris Colby The Talk.Origins Archive, Introduction to evolutionary biology.

Random mutation + non-random selection = evolution

Richard Dawkins, The blind watchmaker

Ultimately, Darwin's theory implied that all evolution had come about by the interactions of two basic processes, random mutation and natural selection, and it meant that the ends arrived at were entirely the result of a succession of chance events. Evolution by natural selection is therefore, in essence, strictly analogous to problem solving by trial and error, and it leads to the immense claim that all the design in the biosphere is ultimately the fortuitous outcome of an entirely blind random process - a giant lottery.

Michael Denton, Evolution: a theory in crisis

There is a familiar, and I have to say rather irritating, confusion of natural selection with 'randomness'. Mutation is random; natural selection is the very opposite of random.

Richard Dawkins, The blind watchmaker.

(Very strong remark! I come back to this extensively in chapter 6)

The game has countless variations and its progress is so unpredictable and variable that it goes beyond any understanding, natural or artificial. And yet, the rules of the game are extremely simple and can be summarized in three terms: exact rendering, variability, and selection.

…

> *What changes randomness into order is natural selection: every genetic change which increases the individual's chances of survival – and more particularly of producing offspring – will be preserved at the cost of changes which do not increase these chances.* Christian de Duve, De levende cel (The living cell), part 2.

Master Crook Mutation has an acquaintance: the Angel of Natural Selection. The relationship between the two is not completely clear. Is the Angel of Natural Selection Master Crook Mutation's accomplice? A demon? Or is she a saving angel, who relieves Master Crook Mutation of his bad reputation? Is she Master Crook Mutation's guardian angel, or the guardian angel of the evolving species? Is the Angel of Natural Selection innocence itself, and is she too manipulated and abused by Master Crook Mutation? Our biocosmic drama will have to reveal the nature of the Angel of Natural Selection. Is she a Guardian Angel, an Angel of Salvation, an Angel of Death?

f. Insertion: he creates new, in this case 'better' genes

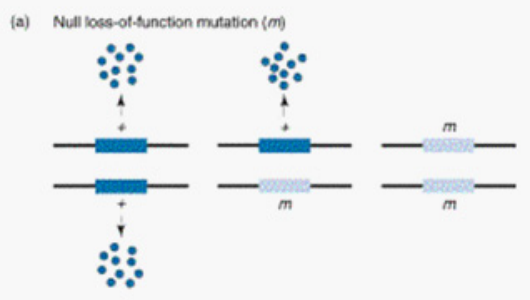
Only a very small percentage of mutations are beneficial. An allele that conferred a one percent increase in fitness only has a two percent chance of fixing (= to spread throughout the complete population, PMS). The probability of fixation of beneficial type of mutant is boosted by recurrent mutation. The beneficial mutant may be lost several times, but eventually it will arise and stick in a population. And, most importantly, even though "good" mutations happen much less frequently than "bad" ones, organisms with "good" mutations thrive while organisms with "bad" ones die out.

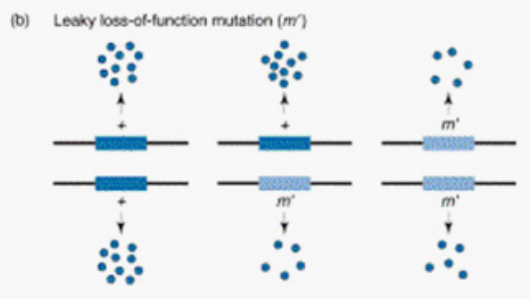
Chris Colby, The Talk.Origins Archive, Introduction to evolutionary biology.

The gain-of-Function Mutations

Because mutation events introduce random genetic changes, most of the time they result in loss of function. The mutation events are like bullets being fired at a complex machine; most of the time they will inactivate it.[3] However, it is conceivable that in rare cases a bullet will strike the machine in such a way that it produces some new function. So it is with mutation events; sometimes the random change by pure chance confers some new function on the gene. In a heterozygote the new function will be expressed, and therefore the gain-of-function mutation most likely will act like a dominant allele and produce some kind of new phenotype. [4]

Genetic analysis, pp. 186.





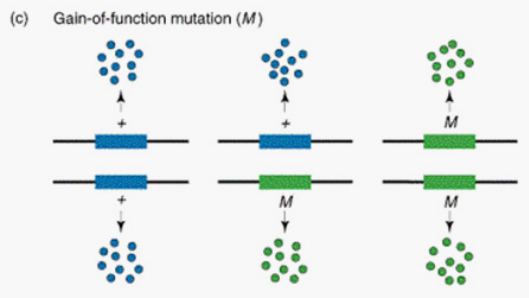


Figure 3,

Null loss of function(a.),

leaky loss of function (b.)

and gain of function (c.)

of a gene through mutations, as presented by Genetic Analysis pp. 187.

Mutation creates the new alleles that are a major source of genetic variation.

Biology, pp. 1027.

> This is what it is about. These are the stakes of the game. This is where Master Crook Mutation wants us to be: he can make 'better' alleles. He is a protein-improver. And by an accumulation of such 'good' alterations, he causes an increase in complexity and macroevolution, ...which is after all also how we originated. He doesn't only have bad sides, there is good in him. The Angel of Natural Selection brings out the good in him. This is also why we don't want to lose Master Crook Mutation: we need him. But the question is, is this true? Isn't this a lie he thought up to save his doomed skin and not be rejected by us? Is Master Crook Mutation, in co-operation with the Angel of Natural Selection, trying to dethrone King Entropy? Is that what he wants? Can he do it? Are they capable of it? Or is he actually in cahoots with King Entropy.

g. Confusion: there are several levels of evolution

Microevolution can be studied directly. Macroevolution cannot. Macroevolution is studied by examining patterns in biological populations and groups of related organisms and inferring process from pattern. Given the observation of microevolution and the knowledge that the earth is billions of years old -- macroevolution could be postulated.

Chris Colby, The Talk.Origins Archive, Introduction to evolutionary biology.

Though natural selection remains the central shaper of adaptive evolutionary change, biologists now realize that the evolutionary process goes on at different scales at more than one level: on the molecular level within organisms as well as on the more familiar level of gene frequencies in natural populations.

....

Rather than assuming that the small-scale changes necessarily add up, inevitably, to large-scale change as the geologic ages roll, many of us now see that evolution is a hierarchical process – and that what happens at one level, need not specify what goes on at the next higher level.

Niles Eldredge, What drives evolution, Earth magazine, Dec. '96.

> Macroevolutionary events include alterations in basic body design, such as the acquisition of a closed circulatory system in animals to allow larger body size or of stomata and guard cells in plants to control gas exchange in leaves. Alternatively, macroevolution may involve major changes in physiology, such as the evolution of amphibians from air-breathing fish and of vascular plants from nonvascular ones. Or there may be large-scale changes within a taxonomic group, such as the transition from foreleg to wing in the reptile-bird lineage and the transition from primitive, simple flowers such as magnolias, to later, compound ones such as sunflowers. Biology, pp. 1064.

> To disguise the truth, you must spread confusion. Master Crook Mutation understands that well. If we want to discover the truth, we need to make some distinctions. When we make those distinctions, maybe we can also shed some light on the activities of Master Crook Mutation and his claims

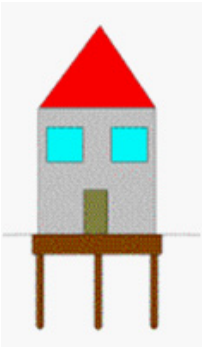
At this point in time, the case stands as follows:

- There is **evolution of proteins**, for now the specific domain of Master Crook Mutation.

- There is **evolution of species and/or populations**, otherwise known as micro-evolution, the domain of Natural Variation and the Angel of Natural Selection; however, Master Crook Mutation claims he is THE authority there, since he is supposedly the source of new variation.

- There is **macro-evolution**, species changing into other types, the domain in which we will ask ourselves whether Master Crook Mutation is capable of realizing this.

These levels of evolution relate to each other like a house, with a foundation and a roof. Molecular evolution is the foundation for the next levels. The house then supports the roof. Without molecular evolution, there is no evolution over the boundaries between species.



the roof: macro-evolution, originating new species or types

the house: evolution within species

the basis/foundation: evolution of genes

h. The Indictment: point mutations are an insufficient explanation for Macro-evolution

While sentences, machines, and other sorts of complex systems can undergo a certain degree of gradual functional change, there is invariably a limit beyond which the system cannot undergo further gradual change. To cross as it were from one "type" to another necessitates a relatively massive reorganization involving the redesign or re-specification of all or most of the interacting

component subsystems. Systems can undergo gradual microevolution through a succession of minor changes in their component structures but macroevolution invariably involves a sudden "saltational" change.

Michael Denton, Evolution: a theory in crisis.

Point mutations are, for an important part, responsible for what is sometimes called micro-evolution, or molecular evolution, that is to say: the continually progressing replacement of bases in homologous genes and of amino acids in the corresponding proteins during evolution. However, they probably were not involved much with the phenomenon which comprises much more of evolution, and led to the origin of increasingly complex life forms. Point mutations appear to have occurred with the same frequency throughout the entire evolutionary process and show no correlation to events that at certain moments have led rather abruptly to the emergence of new species. Christian de Duve, De levende cel (The living cell), part 2.

Point mutations or chromosomal rearrangements are themselves a limited source of variation for evolution because they can only alter a function or change on kind of function into another. [5]Genetic analysis, pp. 794.

Evidence is accumulating which suggests that protein sequence [6] evolution is not the only or even the most important basis of organismal evolution.

Biochemistry, pp. 131.

The occurrence of genetic monstrosities by mutation … is well substantiated, but they are such evident freaks that these monsters can be designated only as 'hopeless'. They are so utterly unbalanced that they would not have the slightest chance of escaping elimination through stabilizing selection … the more drastically a mutation affects the phenotype, the more likely it is to reduce fitness. To believe that such a drastic mutation would produce a viable new type, capable of occupying a new adaptive zone, is equivalent to believing in miracles … The finding of a suitable mate for the 'hopeless monster' and the establishment of reproductive isolation from the normal members of the parental population seem to me insurmountable difficulties.

Ernst Mayr, Populations, species and evolution, pp. 235

(quoted from Access Research Network at www.arn.org)

> Master Crook Mutation is subpoenaed! Serious doubts about him have been expressed. An indictment has been made. There are people who no longer trust him. His claims are cast into doubt. Furthermore, it is clear that he cannot cause macroevolution. He is too puny for that, since he cannot create new genes. He can only change existing genes. He cannot make 10,001 genes from 10,000. Still, no one really dares to kick him out of the House of Variation yet. On a larger scale, he may not have been the one who caused evolution, but on a small scale, he still does a lot of good in improving proteins. However that may be, we need to find a bigger brother, or cousin.

i. The Quest: evolution leaps forward

Once a new species appears in the fossil record, it tends to change hardly at all – even if it lasts millions of years. This pattern of non-change (we dubbed it "stasis") flew in the teeth of what we had been led to expect – what evolutionists going back to Darwin had supposed we would really see if the fossil record were sufficiently complete: gradual evolutionary change through time. The motor of evolution – natural selection – was assumed to run all the time. [7] If environments remained stable, natural selection should act to perfect existing adaptations.

Should the environment change, natural selection should gradually modify the features of organisms to keep them matched to their environmental needs. Either way, the evolutionary motor keeps running, and slow, steady transformation should be the rule.

…

In rediscovery stasis, Gould and I were holding evolutionary theory accountable to a nasty little fact of history: Most evolutionary change happens right off the bat, when a new species splits off from its ancestor and begins to go its separate evolutionary way. We called the pattern of change and stasis "punctuated equilibria".

….

Whole ecosystems remain stable for millions of years. Not until ecosystems are perturbed and species start going extinct at high rates will evolution literally spring into action, producing new adaptations, new species – new players to rebuild the shocked ecosystems. In other words, with few exceptions, nothing much happens in evolution without extinction first disrupting ecosystems and driving many pre-existing, stable species extinct.

Niles Eldredge, What drives evolution, Earth magazine, Dec. '96.

Eldredge and Gould could have make this their main message: Don't worry Darwin, even if the fossil record were perfect you shouldn't expect to see a finely graduated progression if you only dig in one place, for the simple reason that most of the evolutionary change took place somewhere else. … But no, instead they chose, especially in their later writings in which they were eagerly followed by journalists, to sell their ideas as being radically opposed to Darwin's and opposed to the neo-Darwinian synthetics. [8]

…..

*It isn't true that Darwin believed that evolution proceeded at a constant rate. He certainly didn't believe it in the ludicrously extreme that I satirized (in a parable that since it took the Israelites 40 years to get to Palestine, they were only doing 24 yards a day)…, and I don't think he really believed it in any important sense.[*9]

Richard Dawkins, The blind watchmaker.

According to the punctuated equilibrium theory, evolution proceeds by jumps – radical changes over short periods of time – separated by long periods of stability. [10] Gradualism refers to small-scale evolutionary changes in species, which ultimately might lead to reproductive isolation and speciation. Biology, pp. 1075.

> Master Crook Mutation's accomplice is no Big Brother. He needs to take great strides to fill in the gaps where Mr. Mutation is unable to. And these great strides are not the 'rapid gradual sum of the point mutations', because point mutations cannot explain increases in genes, or 'gene growth'. The accomplice is probably related to Master Crook Mutation, so let's just assume it is an Older Uncle.

j. The Older Uncles of Mr. Mutation? Then which mechanisms take care of macroevolution and/or gene growth?

1. No-one actually knows

Darwin's book was titled "The Origin of Species" despite the fact that he did not really address this question; over one hundred and fifty years later, how species originate is still largely a mystery. .[11]

Chris Colby, The Talk. Origins Archive, Introduction to evolutionary biology.

Current explorations of novel genetic and developmental mechanisms, using the new techniques of molecular biology, may broaden the list of potential mechanisms for micro- and macro-evolutionary change. Perhaps then we will know whether the sorts of micro-evolutionary speciation taking place as organisms at two ends of a cline become reproductively isolated can also lead to new genera, families, or even phyla.

Biology, pp. 1074.

In other words: we don't know now, but we might find out later.

It is not known whether macroevolution proceeds by "punctuations". Nor it is clear whether unique mechanisms are required for either punctuations or macroevolution.

Biology, pp. 1075.

How does macroevolution arise? How do new species originate? How do new organs originate? How do the new genes that are supposed to do that originate? Through an Older Uncle? Who is he then? We don't know!

2. Micro + time is macro

A few proponents of evolution solve the problem by pretending it doesn't exist! They come up with the solution that macroevolution is the sum total of microevolution, that the Older Uncle is none other than Master Crook Mutation himself. Everyone is free to think as they like, but it seems to me that this is no longer in accordance with what is now known and even widely accepted (see the next point). The problem remains how the new, highly specialized and co-operative proteins (and therefore the genes that code for them) can originate, which are necessary for new organs, systems, functions, characteristics. How those new genes can cause a species to cross an existing boundary. How gene growth is possible.

The modern theory of the mechanism of evolution differs from Darwinism …

that it postulates that speciation is (usually) due to the gradual accumulation of small genetic changes. This is equivalent to saying that macroevolution is simply a lot of microevolution. (speciation is the origin of two or more species from one species, PMS)

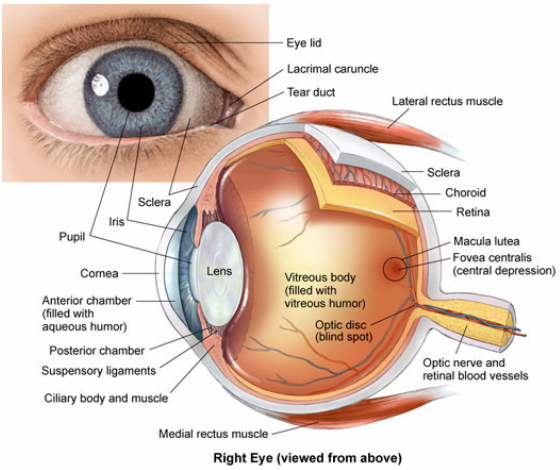
Larry Moran, The Talk.Origins Archive, The modern synthesis of genetics and evolution.

Answer the following two questions:

1. Could the human eye have arisen directly from no eye at all, in a single step ?

2. Could the human eye have arisen directly from something slightly different from itself, something that we may call X ?

The answer to Question 1 is clearly a decisive no. The odds against a 'yes' answer for questions like Question 1 are many billions of times greater than the number of atoms in the universe. ... The answer to Question 2 is equally clearly yes, provided only that the difference between the modern eye and its immediate predecessor X is sufficiently small. [12] Richard Dawkins, The Blind Watchmaker



As we have seen, to invoke chance, on its own, as an explanation, is equivalent to vaulting from the bottom to the top of Mount Improbable's steepest cliff in one bound. And what corresponds to inching up the kindly, grassy slopes on the other side of the mountain? It is the slow, one-step-at-a-time, non-random survival of random variants that Darwin called natural selection.
Richard Dawkins, Climbing mount improbable, p.70.

> What is this? Is this a new trick by Master Crook Mutation? Or is it the last twitch of his death throes? Why do some people continue to believe so stubbornly in his inviolability?

3.What it could be

In the past 30 years, geneticists have revealed a complex world of molecular inheritance, including genetic elements that can jump from one chromosome to another and, in some instances, even leap to unrelated organisms.[13] If evolution is stability and change in genetic information, we now see molecular components to the evolutionary motor that bias the transmission of genetic information from one generation to the next.

Niles Eldredge, What drives evolution, Earth magazine, Dec. '96.

Much more drastic intervention must have happened, and that probably consists of deletions, duplications, recombinations, transpositions, couplings, exchanges, viral invasions, and all other forms of genetic migration,[14] the existence of which has been brought to light by modern research. In most cases, fooling around with orthodoxy like that must be immediately corrected, but in certain rare cases, perhaps in combination with a sudden climatological or other ecological change, the deviating product turned out to be better adapted than its 'normal variant'. It became a phagocytic hunter in a sea with a shortage of nutrients, a fish that could live out of water or a tree-dweller exiled to the Savannah.

Christian de Duve, De levende cel (The living cell), part 2.

Nature has devised many ways of changing the genetic architecture of organisms. We are now beginning to understand the molecular process behind some of these phenomena. Gene mutation, recombination between chromosomes, and transportation can all be reasonably explained at the DNA level. Far from merely producing genetic waste, these processes undoubtedly all have important roles in evolution. This idea is strengthened through the knowledge that the processes themselves are to a large extent under genetic control: there are genes that affect the efficiency of mutation, [15] recombination, and transposition.

Although mechanisms of transportation are sometimes used, the analogies between the transposable elements of phages, bacteria, and eukaryotes are striking. At present, it is not known if transposons are elements that normally play a role in the day-to-day transactions of the genome, as originally proposed by Barbara McClintock in the 1950s, or if they are pieces of "selfish DNA" that exist for no purpose other than their own survival. Whatever the truth of this matter is, transposons certainly represent a completely unexpected element of chaos in the genome, which geneticists have already harnessed into their team of analytical procedures. At the evolutionary level, transposons may be important in the sudden leaps that characterize the fossil record.

Genetic analysis, pp. 660.

To add new functions requires expansion in the total repertoire of genes through duplication and polyploidy (= multiplication of chromosomes, PMS), followed by a divergence between the duplicated genes, presumably by the usual process of mutation.

Genetic analysis, pp. 794.

Biologists have discovered ….. that genes may undergo duplication and divergence so that an extra copy of a gene arises by a mutational process. This duplicated copy is then free, in a sense, to evolve: while the original diploid (=double, PMS) set is still present to produce the phenotype and is still influenced by natural selection, the duplicated allele may have an altered base sequence and thus may yield new proteins with novel properties.

Biology, pp. 1027.

Mutation includes point mutation changes in DNA, as well as processes such as chromosomal rearrangement. Gene duplication and divergence, another category of mutation, can lead to families of related proteins.

Biology, pp. 1029.

Gene duplication is a particularly efficient mode of evolution because one of the duplicated genes can evolve a new functionality through natural selection while its counterpart continues to direct the synthesis of the presumably essential ancestral protein. Biochemistry, pp. 131.

What we now see is that some sort of Older Uncle is indeed necessary who arranges an increase in genes in order to make new functions possible. Only his precise identity is not yet known. These suggestions have been made:

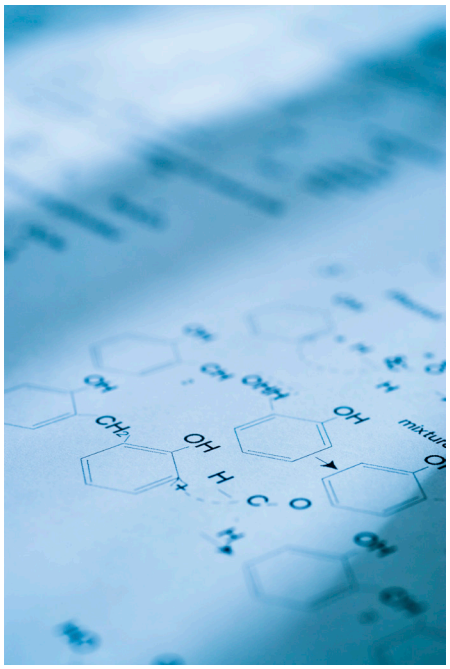
1. Uncle of Duplication to Divergence (i.e. doubling and then change)'
2. Uncle Transposon or Transposition;
3. Uncle Virus, who sends his offspring to invade.

But there is also a fourth possibility.

Mutations in regulator-genes

Chance mutations in regulatory genes might also help to explain radical changes in structure that mark the beginning of major new groups of life forms. For instance, although most significant changes in a gene are likely to be detrimental to an organism (….), some tiny percentage may produce viable "hopeful monsters" – organisms that, although drastically altered, are still adapted to their surroundings and survive to reproduce.

Biology, pp. 1062.

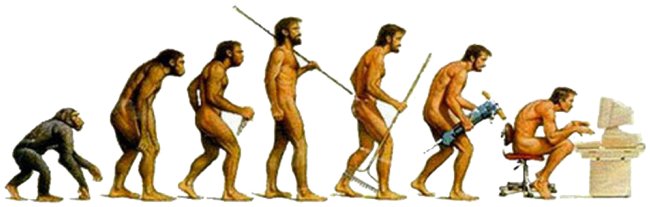


Evidence (PeterS1) is accumulating which suggests that protein sequence evolution is not the only or even the most important basis of organismal evolution. There is, for example, more than a 99% sequence identity between the corresponding proteins of humans and our closest relative, the chimpanzee. [16] This is the level of homology observed among sibling species of fruit flies and mammals. Yet, the anatomical and behavioral differences between human and chimpanzee are so great that they have been classified in separate families. This suggests that the rapid divergence of human and chimpanzee stems from relatively few mutational changes in the segments of DNA that control gene expression, that is, how much of each protein will be made and when. Such mutations do not change protein sequences but can result in major organismal alterations.

Biochemistry, pp. 131.

Not only are there genes that code for proteins, there are also genes that control the development of the embryo. Such a regulator gene can turn whole groups of genes on and off, so that the right 'parts' are built at the right place and the right time. A small mutation in a gene like that can understandably have very serious consequences. This is therefore not an Older Uncle, but the (identical) twin brother of Master Crook Mutation himself. He just affects a different kind of gene, has a slightly different face. Could the people who say that macro is a whole lot of micro be right after all?

4. Twin Brother Regulator Gene.(PeterS2)



5.2 The belief: there must have been evolution

More, I want to persuade the reader, not just that the Darwinian world-view happens to be true, but that it is the only known theory that could, in principle, solve the mystery of our existence. Richard Dawkins, The blind watchmaker.

'There is no alternative,' says Dawkins.

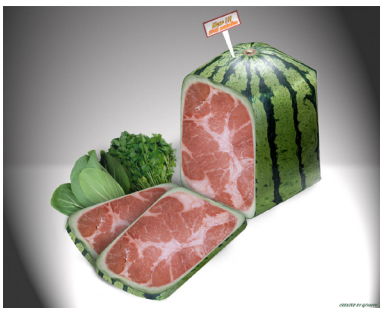
I believe that this idea (of the hierarchical levels of evolution, PMS) will ultimately enable geneticists and paleontologists to agree on the form and content of that single evolutionary theory – a theory that must exist simply because life, with all its complexities and scales, from molecules to ecosystems, has had one single, integrated evolutionary history.

Niles Eldredge, What drives evolution, Earth magazine, Dec. '96.

Taken as a whole, genetic changes consist almost without exception of gene alterations: mutations. The fact that they take place completely coincidentally is a fundamental characteristic of mutations.

Having come close to the end of our journey, such a claim can only sound unbelievable (italics mine, PMS). How often have we stood, speechless with admiration, in front of a piece of molecular apparatus that we could only describe in terms of 'brilliantly designed', or similar superlatives? And now we are asked to see all these wonders as nothing more than products of mere coincidence. It is simply ridiculous. And the evidence is still here before us, not only in the way we see genes at work, but also in the form of the historical document that this work has left behind in their structure and the structure of their products.

Christian de Duve, De levende cel (The living cell), part 2.



The most important argument to indeed believe that evolution occurred is not the full comprehension of the mechanisms which caused it (on the contrary, they seem unbelievable, he says), but the fact, or 'proof', that life simply does exist. Evolution has to too.

One has only to contemplate the magnitude of this task to concede that the spontaneous generation of a living organism is impossible. Yet here we are—as a result, I believe, of spontaneous generation.

However improbable we regard this event, or any of the steps it involves, given enough time, it will almost certainly happen at least once. What we regard as impossible on the basis of human experience is meaningless here. Given so much time, the impossible becomes possible, the possible becomes probable, and the probable becomes virtually certain. One has only to wait; time itself performs miracles.

George Wald, "The Origin of Life," Scientific American , Vol. 190, August 1954, pp. 46.

…it is a considerable strain on one's credulity to assume that finely balanced systems such as certain sense organs (the eye of vertebrates, or the bird's feather) could be improved by random mutations. This is even truer of some ecological chain relationships (the famous Yucca moth case, and so forth). However, the objectors to random mutations have so far been unable to advance any alternative explanation that was supported by substantial evidence.

Ernst Mayr, Systematics and the origin of species, pp. 296.

Trust in Master Crook Mutation and his family is still unlimited and unashamed.
There have been serious charges brought against him, but hope is not yet lost. There is a very simple reason for that: how would it work otherwise? We have no alternative. But, things aren't all that bad, as we will see in part II...
But before we get that far, and now that we have been amply introduced to the actors, their characters, the place of operation, the stakes of the game, and the nature of the drama, we want to take a look at how the drama is unfolding. The following questions must be answered.

- **Who is the rightful owner of the House of Variation?**
- **Can Master Crook Mutation improve genes and give them new functionality?**
- **Can Master Crook Mutation and the Angel of Natural Selection dethrone King Entropy?**
- **Who is Master Crook Mutation's Older Uncle?**
- **Can this Uncle explain macroevolution?**
- **Can Master Crook Mutation cause macroevolution himself after all, through mutations in regulator genes?**
- **Does the entire Mutation family contribute collectively or each separately?**
- **In short, does gene growth happen and who causes it?**

[1] He means here that DNA must be copied with extreme precision. There are also all sorts of mechanisms that prevent mistakes or make repairs.

[2] I think this is expressed rightly. A mutation, even if it damages a gene or eliminates a gene completely, can still have a positive effect on the chances of survival.

[3] This is (from an evolutionist point of view) ill chosen, because it is an example close to the truth. Not in 5 billion years will any sort of complex machine whatsoever arise from shooting a bullet at a pile of scrap (read: meaningless code in the DNA), even if you carefully select things which look possible, or have 'better chances of survival'. On the other hand, a bullet could change the functioning of a complex machine (read: meaningful, practical, co-operative genes), in the sense that it causes damage.

[4] Unfortunately, no concrete example was given…!

[5] Real structural alteration of a gene cannot happen through point mutations. See chapter 6.

[6] The sequence of amino acids in the protein.

[7] Not to be irritating, but it is finally being admitted: there are not enough fossilized transition forms to support gradual evolution.

[8] This is a nice example of the fact that people in the higher realms of science are not always quite so much in agreement as is often thought.

[9] What Dawkins is actually trying to say is that nothing has changed since Darwin, but that is not completely true. Mendel was a problem for Darwin, as is the fossil record.

[10] There are two forms of 'jumps': rapid gradual changes (Dawkins wants to have Eldredge and Gould say that), or drastic non-gradual changes (which Eldredge and Gould seem to choose).

[11] Oops. This is a very remarkable remark! He is absolutely correct. Darwin did not deal with the origin of the species. Darwin dealt with the origin of varieties. But that Chris Colby just bluntly admits that and adds that most people today are actually unaware of that fact...?! Isn't this point the basis of the whole discussion?

[12] I am sorry to have to say this, but I think this could be considered a subtle form of deception. If the chance of making the transition in one step is too small to be probable, it follows that the time necessary to do it one step at a time is too big to be probable! You would then need such an absurd length of time because there is a good possibility that it does not happen all at once: 'billions of times greater than the number of the atoms in the universe.'(1080). Time (only!!! five billion years) and natural selection subtract nothing from that. I cannot travel 1080 meters in one step. I can do it one step at a time, but I need 1080 seconds in which to do it, and that's if I can take one step per second. That means that I cannot travel 10 80 meters at once, not in 5 billion years, not even if I keep walking in the 'right' direction due to natural selection.

[13] ??!! (I'll come back to this).

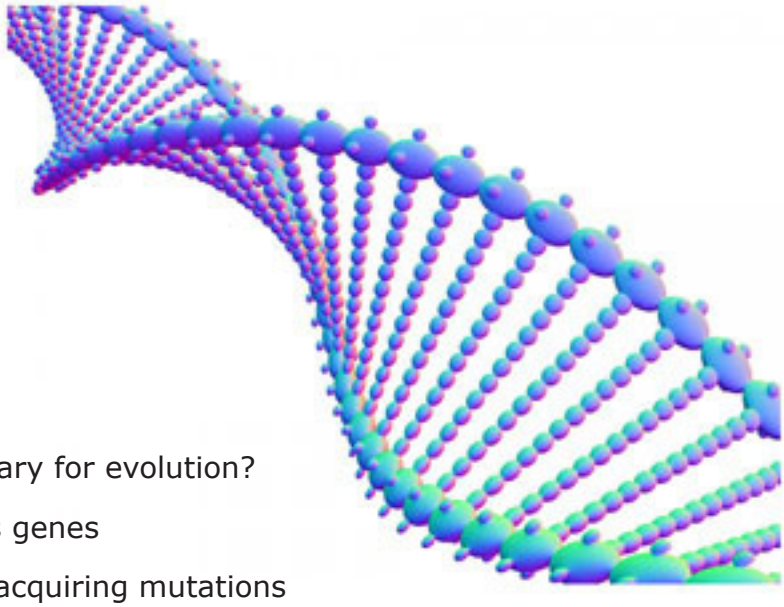
[14] That is a lot of powerful terms in a row, more than you can understand just like that, which is the problem. How can you evaluate such a claim when you don't know what is meant by all those terms? Or is this just a roundabout way of saying: we don't know? But have patience. It isn't that bad. I'll come back to it.

[15] There are genes that prevent and repair mutations, but there are no genes that cause them.

[16] Other than the proteins that do not match and all the other differences in non-proteins. Chimpanzees and humans have approximately 60 million differences in their DNA sequences. (Biology, pp. 1045).

6. Gene Growth

The origin of new genes



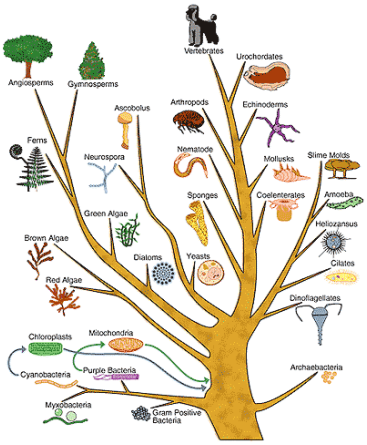
In the previous chapter, we heard from the proponents of evolution themselves how macro-evolution theoretically would occur. Their words have seriously called the role of Master Crook Mutation into question, but there are a few people who are still not yet completely convinced. That is why I will try, in this chapter, to permanently settle the issue of Master Crook Mutation's role as the (sole) cause of macro-evolution. That will immediately lay the foundation for dealing with his family members in chapter 7.

In order to have an idea of what we are discussing and to prevent unrealistic theoreticising and philosophising, we need to take a look at the way in which genes work together, and I will give a specific example of a robot protein. Afterwards, I will elaborate on the need for gene growth and adoption, because these are conditions of macro-evolution.

This is the most important, but also the most extensive and probably the most difficult chapter in the first part of the book. It might be helpful for the reader to read the summary which can be found in the Quick Tour in Chapter 18, in order to better understand the general line of this material.

6.1 Aunt Adoption

Do we know of a mechanism (like for instance natural variation) which takes care of gene growth? We will be applying ourselves to this question in this and the next chapter. This question is important, because the evolution theory says that there is (or has been) an increase in complexity. The 'more highly developed' animals originated from 'less highly developed' ancestors.[1] In the end, we are all descended from unicellular organisms. Bacteria have only one chromosome which has much less DNA than any other creature. How did this growth in DNA get started? No, that isn't put right. How did gene growth get started? Where did the hundreds of genes come from that code for organs which were not there at first? If a species has 10,000 genes, what happens to make it 10,001 at some point in time, at finally 11,000?



The question is actually bigger than that: how did macro-evolution get started? But it is clear that gene growth [2] is absolutely necessary for macro-evolution, because the number of genes varies greatly from species to species. If evolution took place between species with a different number of genes, somehow, from their common ancestor onwards, growth or increase in genes must have taken place.

This means that we can already come to a conclusion about Master Crook Mutation's potential uncle: whatever his name is, whoever he is, he is married to Aunt Adoption! But to understand who Aunt Adoption is, we need a better understanding of the way in which genes and proteins work.

6.2 Gene-regulation

Genes are not just pieces of DNA that code for a protein, and they also don't spend all day just making proteins. Nothing happens until the moment they are needed. Transcription, or the translation of the code to the model (mRNA) that makes the protein, has to be turned on or off. The production of proteins has to be able to be sped up, or slowed down. Certain genes only have to work in specific organs. In the skin, no insulin, which is necessary to maintain the blood sugar level, needs to be made, for example. In short: genes need to be regulated. This happens through operators, promotors and repressors. A gene which codes for a protein needs other, different genes to work with, which regulate it.

Below you can see an example of such co-operation of genes (called metabolism). Here you see the genes for lactose-metabolism in bacteria[3] during which lactose is broken down into the two sugars glucose and galactose. These serve as 'food'.

It is important to now study the figures below, before reading further.

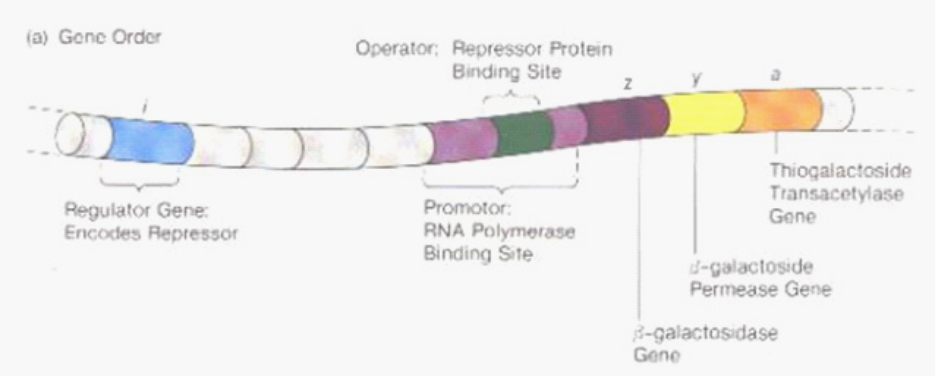


Figure (a). The order of the functional elements on the DNA

blue, i: The code of a repressor gene; when this piece of DNA is translated, a Turn-Off-This-Gene protein is made

purple: Transcription never happens at just any place on the DNA. There is a special make-a-model protein (RNA Polymerase) that makes the copies(mRNA) for proteins. This Make-A-Model protein starts to make its model when it comes across the specific code on the DNA which indicates that the model starts there. The Make-A-Model protein can attach itself to that spot. That place is shown in purple and is called the promotor.

green: The Turn-Off-This-Gene protein also has a place where it can attach itself to the DNA. This is shown in Green, and is called the repressor.

brown,yellow,orange: These are the codes for the three proteins necessary to break down lactose. They are indicated by the letters z,y and a.

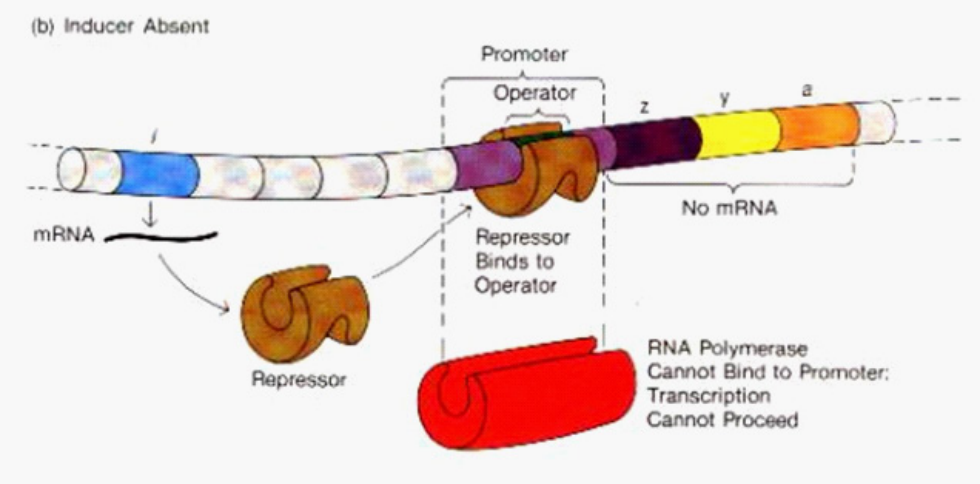


Figure (b). inducer absent

If there is no lactose present in a cell, Turn-Off-This-Gene protein is produced continuously, which attaches itself to the green piece of code where the Turn-Off-This-Gene protein fits perfectly. As a result, the Make-A-Model protein is incapable of attaching itself to the pieces of code it needs in order to make a translation to a model. No copies are produced and no z-, y-, and a-proteins are produced.

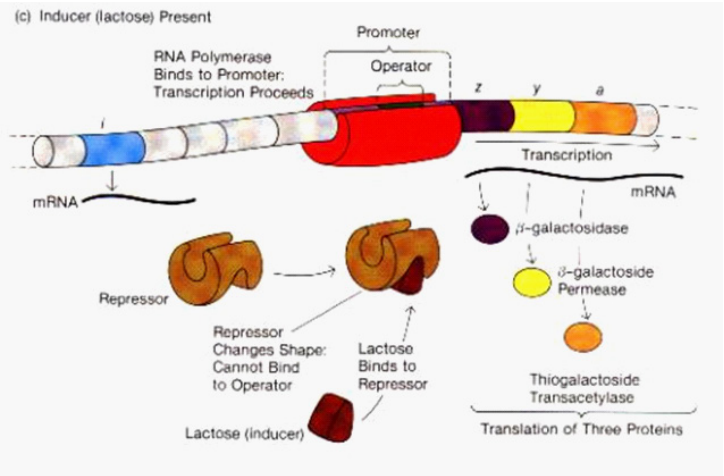


Figure (c). Inducer present. Lactose is the inducer.

The Turn-Off-This-Gene protein is still being made continuously, but this protein has a keyhole, where the lactose key, and only the lactose key, fits exactly. This locks the Turn-Off-This-Gene protein, so that it can no longer attach itself to the (green) piece of code. The Make-A-Model protein is now able to find the Model-Starts-Here code, and copies are being made. From these copies, the z-, y-, and a-proteins are then made. The z-protein is the Break-Down-Lactose protein. When the lactose is gone, the Turn-Off-This-Gene protein is no longer locked, which means that the production of copies ceases, so that it returns to the situation in figure(b).

genes and their proteins co-operate closely

You see here a mechanism which only comes into play when it is necessary. There are different kinds and degrees of mechanisms. Here, too, you can see that a protein can have various functions. The Turn-Off-This-Gene protein can sit on a specific location on the DNA with a specific code in order to thwart the Make-A-Model protein, but it also has a place where lactose can attach itself, so that it can be locked.[4] In order to fit itself to the DNA, this protein needs a three-dimensional structure which fits into the DNA spiral precisely, and then a few very specific amino acids at the right locations, which attach to very specific bases (A, C, G, or T). This is applicable to the Break-Down-Lactose protein, which has to be able to pick up lactose, and needs the right molecular tongs for that, to cut it in two at the right places. The y-protein is a Transport-Lactose protein. It can pass through the cell membrane to the outside, handcuff a lactose molecule, subsequently passing through the membrane again on the way in, because it has the right ID card, and there it releases the lactose again, so that it can be broken down by the Break-Down-Lactose protein. Now that's working together!

gene teamwork works with ID's and keys

Nothing in a cell happens by itself! Everything is arranged by proteins. All proteins are made by the cell itself. All proteins co-operate. One does this, the other does that. One arranges it that the other comes into play when it is necessary, the other arranges it so that yet another does something else. It is hopelessly complicated! It is also admirable that humans are capable of unraveling tiny pieces of the mystery time and again.

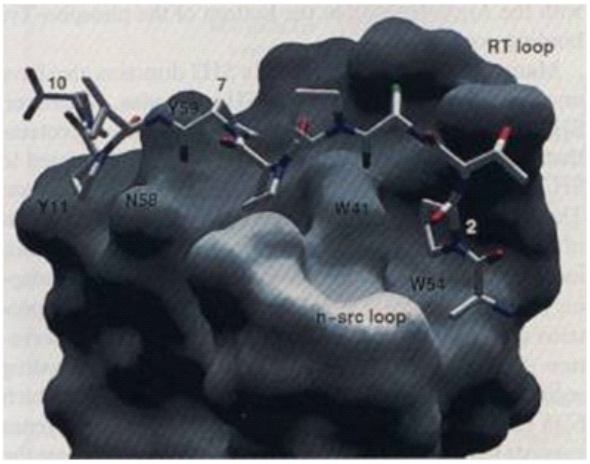


Figure 2. A molecular key: because the Signal protein (drawn as rods) fits exactly into the lock of the larger Receiver protein, (chemical) action is initiated (or not).

Figure 3. GLUT1 (green) is a Transport protein which recognizes the 'ID' of glucose (red) and therefore allows it to pass through the cell wall. It is a Bouncer-for-a-Private-Club protein.

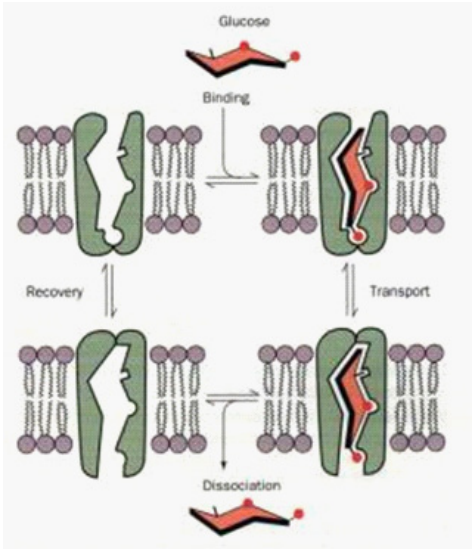


Figure 4. Biochemistry, pp. 880; Leapfrog protein

The point here is that a gene does not stand alone. One gene is nothing. One gene is only good for one protein. That protein has to do something very specific if it wants to be useful. That protein has to be active at the right place and at the right time. For that purpose, it

needs other proteins and therefore other genes. I will call this gene teamwork. Gene teamwork says that one gene on its own is useless. Genes have to work together, be in tune with each other. If a Turn-Off-This-Gene protein suddenly (due to a mutation) no longer feels like binding lactose, then it goes very wrong, then all those other genes (z, y, and a) also do not act. Or if the Turn-Off-This-Gene protein suddenly attaches itself to a molecule other than lactose, the whole system is thrown into disarray. That is why such proteins have keys, so that they can only attach themselves to lactose. They have, as it were, gotten a certificate of uniqueness: there is absolutely no other molecule which fits.

So gene teamwork is full of unique keys, because in a cell, all sorts of molecules are jumbled together. If there were no keys, how would such a soup of proteins ever be able to work well? And a lot of proteins have ID cards. Some are allowed to go outside, others are not. Yet others can bring others inside, or outside. Some have to be inside special buildings in the cell (with names like mitochondria or Golgi apparatus), or be brought out of those buildings. Intruders are unwelcome in these specialized factories, so you cannot enter without an ID or a guide. Teamwork. Rules of the game. Keys. Agreements. Locks. Pre-programmed or programmed.

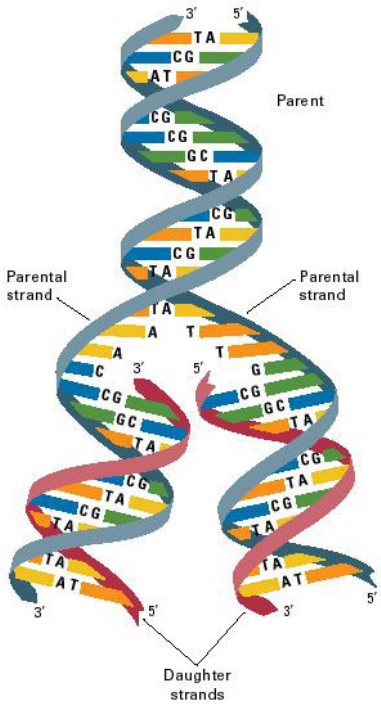
6.3 The Leapfrog Protein

Now that we have gotten a hint of how genes work together, we are going to take a look at a concrete example of a protein-robot. That is practical because it is important to know what we are actually talking about when we discuss a 'protein' (and the gene behind it).

Tug-of-war

When a cell splits, resulting in two identical cells, the DNA is copied during that process. The two strands of DNA are pulled apart and the corresponding bases are added to both sides, resulting in two identical DNA molecules. This is a process that is intensively monitored by all sorts of proteins. One of those is the Leapfrog protein, which is actually called Topoisomerase.

Suppose you take a piece of rope a few meters long. You knot one side firmly to a chair, and you split the other side in two. Next you pull those two pieces apart. What happens then? The rest of the rope is rolled up very tightly and curls up on itself and gets all knotted up. That happens to DNA too, and that is not permissible. If the tension gets too great, it can break, or if it gets knotted, it can no longer be duplicated.[5]



How does that work? Well, that is where the Leapfrog protein comes in. The Leapfrog protein has two large arms for gripping, one on top and one on the bottom, which together form the shape of a C. It takes hold of one half of a DNA strand with both paws right next to each other. It cuts through that half of the strand, but keeps hold of the ends. It then rotates the two cut ends in different directions toward the other side, and in the meantime lets the second half, as it were, inside, so that it embraces the strand. Then it glues the two cut pieces back together. When that has happened, it lets go and begins again there or somewhere else. In this way, the Leapfrog protein can take one entire DNA strand straight through another, so that unraveled DNA does not come to resemble a piece of yarn so entangled that is impossible to de-tangle it.

In figure 5 is a computer representation of the Leapfrog protein and how it cuts a strand of DNA and lets another through. As you can see, it is a highly specialized molecular robot.

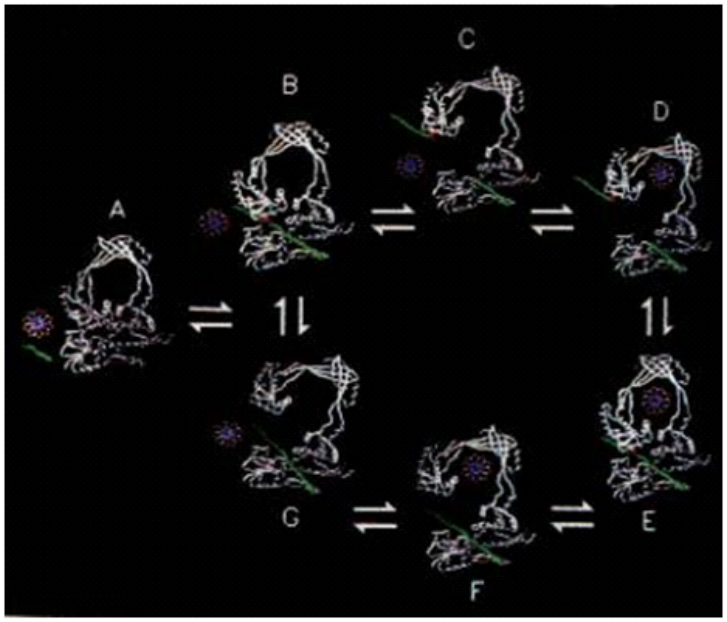


Figure 6.the Leapfrog Protein at work

A. Leapfrog protein at rest.

B. The Leapfrog protein attaches itself to a single strand of DNA (green) at the red dot.

C. The strand is severed and the Leapfrog protein opens up.

D. Now a double (as in this case) or single strand of DNA can be allowed to pass through.

E. The two sections of the severed DNA strand are glued together again.

F. The Leapfrog protein opens again.

G. The 'imprisoned' strand of DNA can get out.

The process can start again, or the Leapfrog protein returns to its resting position.

6.4 Adoption

What does adoption mean? There are two forms of adoption to be distinguished from each other. When a protein, for instance already mutating, changes function and takes on a new, different function (which it did not already have), it adopts that new function, as it were. I will call this functional adoption. This is therefore no mere small alteration in which the same functionality remains, but is carried out differently, faster, or less, or better, etc. That is only a functional change or even damage. Functional adoption could perhaps be an accumulation of functional change, but if functional adoption is being discussed, the original function has to differ structurally or be essentially different from what it was before. It has to adopt a different, new function that it did not have at first, and it has to expand to the same refined degree of specialization as the Leapfrog protein. Functional adoption is therefore specialization, in which the whole structure of the protein is such that it is optimally equipped for its task, as is the case with all 100,000 genes in our cells!

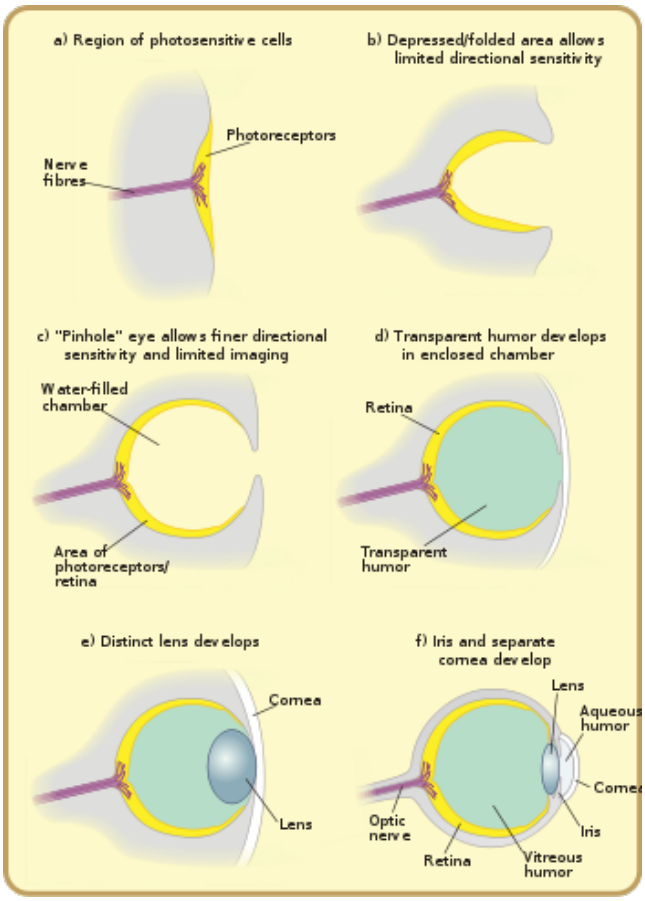
Therefore, it is not even a question of functional adoption if a few amino acids change so that the existing protein suddenly has an effect on something that it previously did not have. That is throwing a wrench into the workings of another refined mechanism. Only if the protein became specialized in that function and all the parts were in tune with that function could you speak of functional adoption.

The second form of adoption is that a new gene (for instance a gene in which functional adoption has taken place) is adopted into the family of co-operating genes, in other words has to be regulated, turned on and off at the right time. For such an adoption, many other genes are necessary, such as, for instance, a regulator gene, a 'binding site' it can attach itself to, a promotor and/or a repressor, and such. This kind of adoption I call metabolic adoption. If the six genes of lactose metabolism as it is described above were to have developed from another metabolism that once did not have that functionality at all, then you could speak of metabolic adoption: A protein which has gone through an essential functional change has to be taken into some new chemical balance, process, mechanism (called metabolism).

6.4.1 Why is adoption absolutely necessary for evolution?

Although we have already looked at some arguments for why adoption is necessary, I will still give an extensive example here of why gene growth and the adoption it entails are absolute conditions of macro-evolution, the change from one species or type to another.

1.Darwin's most primitive eye needs genes



As an example, take the classic argument of the eye, which has been used before by Darwin and many others after him. Is there something new to be said about it then? Is there anything to be added to the discussion which has not yet been said? Yes, there certainly is, because we can now look, on the lowest level of evolution, the level of DNA, at genes and proteins to see how an eye could have developed. Darwin did not have that option. We no longer have to speculate or even fantasize about what is and is not possible. On the DNA level, the possibilities and chances can even be calculated! So, let's have a look.

Darwin says this:

If we must compare the eye to an optical instrument, we ought in imagination to take a thick layer of transparent tissue, with a nerve sensitive to light beneath, and then suppose every part of this layer to be continually changing slowly in density, so as to separate into layers of different densities and thicknesses, placed at different distances from each other, and with the surfaces of each layer slowly changing in form. Further we must suppose that there is a power always intently watching each slight accidental alteration in the transparent layers; and carefully selecting each alteration which, under varied circumstances, may in any way, or in any degree, tend to produce a more distinct image. We must suppose each new state of the instrument to be multiplied by the million; and each to be preserved till a better be produced, and then the old ones to be destroyed. In living bodies, variation will cause the slight alterations, generation will multiply them almost infinitely, and natural selection will pick out with unerring skill each improvement. Let this process go on for millions on millions of years; and during each year on millions of individuals of many kinds; and may we not believe that a living optical instrument might thus be formed as superior to one of glass, as the works of the Creator are to those of man?[6]

It is not hard to imagine. Close your eyes and try to see it before you. It can work. If that doesn't work, the current computer programs might help. It is called morphing. Michael Jackson started it in a video clip, later advertisements followed, and these days you can buy simple programs which any amateur can put on their computers. You see an old man's face transform fluidly into the face of a child, an African into a European, a woman into a man, a human into a panther. It is not hard to imagine that a layer of transparent skin with a light-sensitive nerve under it develops into an eye like a human's. You can even make a computer animation of it. Except, Darwin knew nothing about genetics...

What does an organism need, an organism which does not yet have anything resembling an eye, to begin to develop one? Genes! Genes arrange the development of the eye during embryonic growth, genes maintain the eye, genes arrange the processes in the eye, in the nerves, in the

brain which turns that light into a picture that our mind understands. Nothing in a cell happens by itself. That takes proteins and genes that code for those proteins. And all those genes have to come from somewhere. They don't need to all end up in an organism at the same time, but, if evolution is going to happen, there does need to be an increase in genes which do this. In the beginning, it will be a few, the ones which make a nerve cell appear at the right place, and the ones which ensure that it is built in at the right moment during embryonic development and the ones which take care of communication with the brain and the co-ordination with the rest of the body. There is no point to this process if a stimulus from that primitive 'eye' does not become 'conscious' in a certain way, so that it can be reacted to. A photosensitive spot on my big toe is of no use to me if I cannot receive the signal in my brain, so that I can do something with it. Let us say that the most primitive form of the eye, as Darwin suggested it, needs ten genes. This is a bit less than is actually needed, but we have to start somewhere. I will propose this very simplistically the first time, in a way which does not do justice to the complex reality of genes. However, if I do it in a highly simplified way, it will in any case be clear to everyone how necessary gene growth is for evolution.

Name of the gene	**Function**
Transparent	This gene ensures that a cell becomes transparent.
Make-Transparent	This gene ensures that the production of transparent genes begins at the right time during embryonic development.
At-This-Place	This gene ensures that transparent cells are produced at a specific place and not arbitrarily spread throughout the organism.
Size-Gene	A gene that determines the size of the transparent tissue, where it starts and where it stops.
Nerve-Gene	This makes a cell a nerve cell.
Photosensitive	This gene makes a cell sensitive to light.
Make-Nerve	At the right moment during embryonic development, one or more cells have to form nerves.
Nerve-At-This-Place	The nerve has to be placed exactly under the transparent tissue.
Connection Gene	The nerves have to go from the eye to the brain.
Signal Gene	A signal has to be able to pass along the nerves, and some form of 'consciousness' has to be present to be reacted to.

Here you see the ten genes. In actuality, the number of genes is a multiple of what is named above, even for a minimal primitive eye (see Box). However, it is clear that it is necessary that these genes are formed in some way, have to originate in the DNA of an organism, if a new organ, like an eye, is to be able to grow. Next, a steady increase in the number of genes for this eye is still necessary, because hundreds or even thousands of genes are necessary for the most complex eye there is.

Box: The twelve proteins which make a cell sensitive to light

That follows is part of an article by Michael Behe on the true complexity of 'sight':

In general, biological processes on the molecular level are performed by networks of proteins, each member of which carries out a particular task in a chain

When light strikes the retina a photon is absorbed by an organic molecule called 11-cis-retinal, causing it to rearrange within picoseconds to trans-retinal. The change in shape of retinal forces a corresponding change in shape of the protein, rhodopsin, to which it is tightly bound. As a consequence of the protein's metamorphosis, the behavior of the protein changes in a very specific way. The altered protein can now interact with another protein called transducin. Before associating with rhodopsin, transducin is tightly bound to a small organic molecule called GDP, but when it binds to rhodopsin the GDP dissociates itself from transducin and a molecule called GTP, which is closely related to, but critically different from, GDP, binds to transducin.

The exchange of GTP for GDP in the transducinrhodopsin complex alters its behavior. GTP-transducinrhodopsin binds to a protein called phosphodiesterase, located in the inner membrane of the cell. When bound by rhodopsin and its entourage, the phosphodiesterase acquires the ability to chemically cleave a molecule called cGMP. Initially there are a lot of cGMP molecules in the cell, but the action of the phosphodiesterase lowers the concentration of cGMP. Activating the phosphodiesterase can be likened to pulling the plug in a bathtub, lowering the level of water.

A second membrane protein which binds cGMP, called an ion channel, can be thought of as a special gateway regulating the number of natrium ions in the cell. The ion channel normally allows natrium ions to flow into the cell, while a separate protein actively pumps them out again. The dual action of the ion channel and pump proteins keeps the level of sodium ions in the cell within a narrow range. When the concentration of cGMP is reduced from its normal value through cleavage by the phosphodiesterase, many channels close, resulting in a reduced cellular concentration of positively charged sodium ions. This causes an imbalance of charges across the cell membrane which, finally, causes a current to be transmitted down the optic nerve to the brain: the result, when interpreted by the brain, is vision.

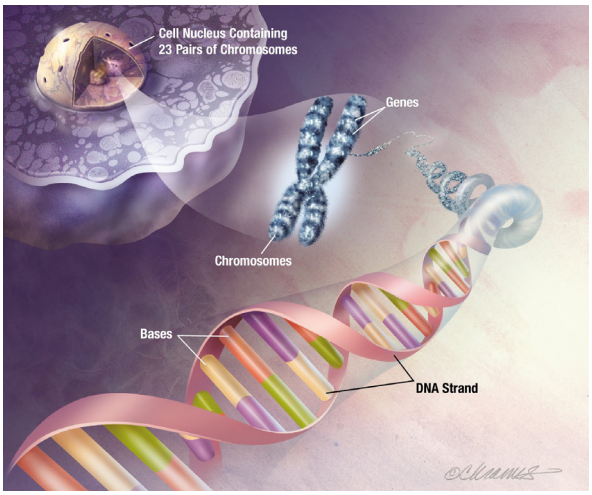
If the biochemistry of vision were limited to the reactions listed above, the cell would quickly deplete its supply of 11-cis-retinal and cGMP while also becoming depleted of sodium ions. Thus a system is required to limit the signal that is generated and restore the cell to its original state; there are several mechanisms which do this. Normally, in the dark, the ion channel, in addition to sodium ions, also allows calcium ions to enter the cell; calcium is pumped back out by a different protein in order to maintain a constant intracellular calcium concentration. However, when cGMP levels fall, shutting down the ion channel and decreasing the sodium ion concentration, calcium ion concentration is also decreased. The phosphodiesterase enzyme, which destroys cGMP, is greatly slowed down at lower calcium concentration.

Additionally, a protein called guanylate cyclase begins to resynthesize cGMP when calcium levels start to fall. Meanwhile, while all of this is going on, metarhodopsin II is chemically modified by an enzyme called rhodopsin kinase, which places a phosphate group on its substrate. The modified rhodopsin is then bound by a protein dubbed arrestin, which prevents the rhodopsin from further activating transducin. Thus the cell contains mechanisms to limit the amplified signal started by a single photon.

Trans-retinal eventually falls off of the rhodopsin molecule and must be reconverted to 11-cis-retinal and again bound by opsin to regenerate rhodopsin for another visual cycle. To accomplish this trans-retinal is first chemically modified by an enzyme to transretinol, a form containing two more hydrogen atoms. A second enzyme then isomerizes the molecule to 11-cis-retinol. Finally, a third enzyme removes the previouslyadded hydrogen atoms to form 11-cis-retinal, and the cycle is complete.

Twelve specialised robot-proteins are needed just in the photosensitive cell, in order for it to become sensitive to light at all. Seeing colors is another matter altogether. Besides, the details are not mentioned in the above description. It is clear that the lack of one single protein in this process would cause blindness. The question is: now that we know how it works, how did this mechanism originate?

gene growth is absolutely necessary



It is clear, gene growth is necessary, but a general increase in genes by itself is not enough. Functional adoption is also necessary. If an organism has no nerve cells and these nerve cells need to originate, then not only does the number of genes need to increase, but completely new functions must also be carried out by these genes, which had never been seen before. Proteins must be produced which have never been produced before. Robots need to appear which can do things that have never before been possible. A new gene must therefore also acquire a new useful function, or adopt one. Such a new function, for instance React-To-Light, or the function Make-A-Cell-Transparent, must also be regulated, that is: it must be adopted by the community of genes which is already in place, so that it will carry out its function at the right time and in the right place. Not only does a group of genes work together, groups of these groups work together in an organ, and those organs have to co-operate with all the groups of co-operating genes in other organs. Before an organ can function at all, and before the useful proteins in that organ are able to fulfill their functions, groups of co-operating genes have to have built that organ during the development of the embryo.

> These three, therefore, *gene growth, functional adoption, and metabolic adoption* must be structurally possible if evolution on a large scale (macro-evolution) is going to be able to take place. Because evolution is, in the first place, arbitrary, such an infinite amount of variations on new (co-operative) genes needs to arise, as it were, that natural selection has more than enough to choose from to get the kind of specialization and the level of co-operation that we observe in living organisms.
>
> With this, the difference between micro-evolution and macro-evolution becomes clear almost immediately: macro-evolution could be (at least) defined as 'the origin of new groups of co-operating genes which fulfill functions which have not previously been observed in that organism'. All other alterations in or combinations of existing genes are thus variation on a theme or micro-evolution, because through that by itself, nothing fundamentally new will be added.

6.4.2 Functional adoption and 'function-acquiring mutations'

What we are going to do now is look at how a protein, already in the process of mutating, can grow towards another function, in other words how functional adoption would arise. This accumulating, gradually mutating change towards another function I will cal gradual adoption, in contrast to the radical leaping transition to a new function, which is also called leaping adoption. The latter is covered in the next chapter.

In Genetic analysis on pp. 794 under the heading [Het ontstaan van nieuwe functies] is the only(!) example given in all of my sources: B. Hall has experimentally changed a gene to a

new function in Escherichia coli[7]. In addition to the lacZ genes specifying the usual lactose-fermenting ß-galactosidase activity in E. coli, another structural gene locus ebg specifies an other ß-galactosidae that does not ferment lactose, although it is induced by lactose. The natural function of this second enzyme is unknown. Hall was able to alter this gene into one specifying an enzyme that ferments another substrate, lactobionate. To do so, it was necessary to alter the regulatory element to a constitutive state and to produce three successive structural-gene mutations.

Does this not show clearly and convincingly enough that functional adoption is possible? Or does it? (The answer follows under point 11.)

1. Dead genes

Dead genes; genes can lose their function by mutation

Genes can lose their function so that they no longer have any function, though they may still code for a protein. Recessive inheritance of a characteristic often indicates that:

A recessive allele often has lost part or all of its ability to perform the function of the normal allele. In a heterozygote, one copy of the dominant allele may provide enough of a given gene's normal function to support the development of a normal phenotype. Thus in a pea plant heterozygous for round seed trait (Rr), the single R allele allows enough of a specific enzyme to be synthesized so that sufficient starch is manufactured to give a firm, round appearance to the seed. In a homozygous recessive plant (rr) , the protein controlled by the r allele is not enzymetically active, so that not enough starch is produced to make the seed plump, and it appears wrinkled.

Biology, pp. 246.

One single mutation is capable of paralysing a gene completely. Consider the Leapfrog protein. Suppose a mutation causes an amino acid in one of his claws to change, which makes him unable to take hold of the DNA strand (firmly). As a result, the entire protein can no longer work. That one mutation will cause the protein to become a dead protein or the gene a dead gene.[8] Now the Leapfrog protein is so essential to the functioning of a cell that living creatures will never occur with a dead Leapfrog gene.[9] In practice, that usually means that at a certain point the development of a fertilized egg cell cannot continue and the embryo dies.

On the other hand, it is also possible for a certain mutation not to bring all the functions of a protein to a stop immediately, because the change in base pairs does not make much difference in the amino acids, or because it is in a less essential part, or because the protein's function only decreases partially. However, an accumulation of mutations will eventually result in the protein becoming totally defective. In other words, to the left, to the right, before and behind this 'mutating protein'[10] lie yawning chasms with sheer, deep walls. As soon as the protein goes one step (i.e. mutation) too far, it loses its function and the mutant falls into the precipice next to it and dies. The protein is, as it were, on a mountain peak. Only on that peak can it do what it needs to do. If it descends too far, it loses its original function.

(The question of whether (hidden) paths can be found on that mountain will be covered in point 5.)

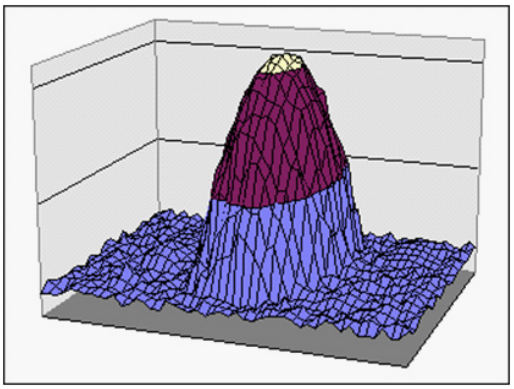


Figure 6, The Mount of Isolation: only on the uppermost surface does the protein retain enough of its function not to be a 'dead' protein.

2.The advantageous mutation

Now we get into an important matter which Master Crook Mutation conceals from us and where confusion of terms sets in, since he says that he can make new characteristics and is a source of variation. What happens internally on the DNA level?

the loss of a gene can benefit its carrier

When a protein has lost its function, it is quite possible that that the individual in which it lives benefits (!!) from it. Think for instance of the loss of skin coloring in an Arctic fox, which gives it a white pelt. That is a definite benefit to the fox in the snow. However, it is not the protein itself which has undergone a 'change in function'. It is not the protein itself which causes a 'new characteristic' to appear. It is the loss of that protein that cause a 'new characteristic' to appear! This so-called 'new characteristic' can be advantageous, but the protein has not become 'better' for those circumstances. The protein has been lost, or damaged so that it can only do half of its work.

As long as the protein is fine and functioning, selection can take place for that functioning-of-the-protein, but as soon as a protein becomes a dead protein, the selection for the protein itself disappears. Selection can continue to exist for the absence of that protein, or its non-functioning.

in dead genes, selection no longer takes place on the protein sequence

It is important to make that distinction and to understand it thoroughly. As soon as a gene has lost its original function, even if that benefits the carrier, the pressure of selection on the functioning of that protein disappears, and related to that, the selection pressure on the structure of the protein, which is determined by the sequence of the amino acids. In other words, to put it succinctly, the selection pressure on the sequence of amino acids disappears. [11] This is because it no longer matters if the protein ceases to function 100%, or ceases to function 50%. In both cases, it no longer functions. It then also no longer matters what kind of protein is being coded for, or even if a protein is being coded for. Each successive mutation can damage the protein further, it no longer matters. The protein has died. It has become a dead protein. The is no more selection which preserves the protein sequence, the order of the amino acids in the protein. The gene is delivered into the hands of 'free mutation', which means mutation-without-selection.

a distinction needs to be made between micro-evolution and molecular evolution

The reason that this is never fully understood is that the distinction is not made between the evolution of proteins, or the protein sequence, on the one hand, and the evolution of an individual or a species on the other hand. Because, again: selection can happen for the loss of a function in a protein, but the selection for one mutation instead of another in the protein itself has then disappeared.

For instance, it is said that: 'a mutation causes a new characteristic', or 'mutations are the source of variation'. However, such statements do not take the difference between levels of evolution sufficiently into account. A mutation, which causes a 'new' characteristic and therefore gives rise to 'new' variation, can, speaking genetically, quite possibly have completely eliminated a gene. In that case, that mutation is totally not a source of variation, but a vessel which draws from the source, by removing something!

This is the confusing effect of a mutation if no distinction is made between the levels of evolution:

level		the effect
1.	micro-evolution	A mutation causes a new characteristic.

This is the *clarifying* effect of a mutation if the levels of evolution are clearly distinguished from each other:

level		the effect
2.	variation + natural selection	A 'new' characteristic is signaled.
1.	molecular evolution	A mutation damages a gene or even eliminates it.

Because of this, fruit flies in my compost are not seen. If I were to breed them and expose them to strong UV light so that some serious mutations happen, at some point in time, I could see some fruit flies with white eyes. A mutation has, as it were, pulled this new characteristic out of thin air. However, genetically speaking, a functioning protein has been put out of commission, namely the protein which would usually make red pigment in the eyes.

3.Free mutation.

As long as a protein continues to perform a useful function, selection for the protein sequence can take place. If a mutation changes the sequence of amino acids, thereby changing the function, thereby changing 'something' in the carrier of that gene, then one sequence can be chosen instead of another by natural selection.

free mutation means no evolution

What does that mean for a protein, that it is no longer selected for and that it can mutate freely? That that protein no longer evolves!

Because it went like this:

arbitrary mutation + non-arbitrary selection = evolution.

If selection is no longer possible, because the protein is dead, there is no longer evolution in that protein!

arbitrary mutation + no selection = no evolution

It is an absolute condition for a 'mutating protein' that it never loses its function completely and becomes a dead gene. If it dies and can mutate 'freely', suddenly, all the rules of that absurd calculation of probabilities comes into effect which say that the chance for a coincidental new functional protein is 1 in 20300. Suddenly, the laws if King Entropy come into effect!

If a protein crosses the line of useful-functionality, because it moves downwards through the mist, then the Kingdom of King Entropy enters, the land of the dead, where another law applies than on the peak of the mountain. On top of the mountain, it is light. the Angel of Natural Selection rules, but below the peak, underneath the mist of functionality, it is dark, Fool Coincidence plays with amino acids and King Entropy calls the shots.

King Entropy's strength

Figure 7 is a typical example of the decreasing order in the protein of a freely mutating gene, made up of 100 amino acids.

On the X-axis is the number of mutation, on the Y-axis the percentage of correspondence with the original protein (1 altered amino acid is 1%). The calculations were made by repeatedly allowing an arbitrary mutation to take place in one of the base pairs of the gene, and then to take a look at the degree of correspondence with the original protein.

All plateaus (the longer or shorter horizontal lines) are caused by mutations which have no effect, they continue to code for the same amino acid, which is caused by the structure of the genetic code.

An abrupt drop is caused by the appearance of a code for a stop signal. That results in a large part of the protein not being made any more. The chance that a stop signal will appear is 1 in 64, and therefore can occur several times in a graph of 250 mutations.

The sudden increase in order is caused by a previous stop signal coding for an amino acid again, which results in the protein regaining its original length. However, it is clearly visible that despite the return of the tail, the order in general just continues to decrease.

Every once in a while, a small increase can be seen. That is the work of Fool Coincidence who causes a wrong amino acid to become the right one again, which makes the graph rise 1%. The chance of that happening is bigger the more disordered it gets! The descent for the first 10 mutations is thus always steeply downwards. As order decreases, the plates become longer and the chance for a single percent increase becomes larger.

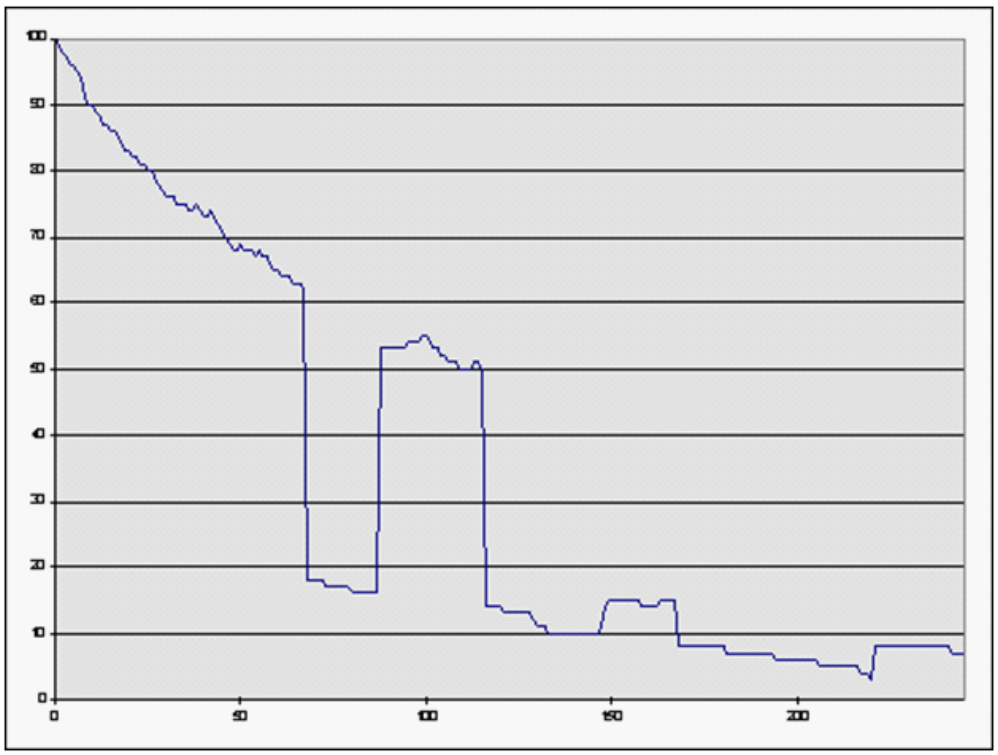


Figure 7, example of the decrease in order in a 'freely' mutating protein

All of this shows King Entropy's power. If I let my computer make this sort of calculations for the next five billion years, there would still be no increase in order, not even if I would enter all the possible useful combinations of amino acids, simply because the number of useful combinations pales in comparison to the number of useless combinations (see below).[12]

It is of the UTMOST IMPORTANCE that this argument – no new devoted, specialised genes originate through free mutation, or by sheer coincidence - is realized and understood. It is the essence of my argumentation, which by the way is completely in agreement with what the proponents of the evolution theory say themselves. (see 5.1.a).

Still, many people are not aware of this fact (or convinced of it!), as the conversation I had with a respected biologist makes clear:

H.R. : There is a lot of DNA which does not code, which does not have any function at this point in time. That does not mean that it cannot be switched on at any given moment. A gene which does not have a function at first can get a function by mutation.

Peter: But if it has no function, then it is also not selected for?

H.R.: No, then it is just hitching a ride. A great deal of your genetic material has no function at this point in time, but can gain a function at any moment. It is a reservoir which can be accessed at a time when that serves a purpose. The parts of the DNA which do not code for anything right now have all the freedom possible to mutate, without it having damaging consequences for the organism. That is the incubator for new characteristics. At a certain point in time, part of the DNA which is in that incubator can add a characteristic to the characteristics which already exist.

King Entropy says: 'NO WAY!' to this biologist.

In the first place, it is still not certain that DNA which does not code for proteins has no function. (see ch. 12) Apart from that, nothing originates by coincidence alone anyway, not even in the dead genes which no doubt can be found in the DNA. A protein made up of 300 amino acids ('a little one' according to this biologist) has 20300, that is 10390 possible combinations, which in comparison to the 1080 atoms in the universe is *infinitely* great. On the other hand, a human has at most 100,000 genes (or 105) which have a useful function. If you then assume that there are 100 million species (which is on the high side), that these genes are all different (which is absurd, since many genes are the same), and that over the course of five billion years, each year there have been that number of species with that same number of functioning genes (which is obviously not true), then there would be 5 x 108+5+9 is a maximum of 1023 functional genes.

That this number is *larger* than is realistic is due to the face that, theoretically speaking, each new protein has to build on what already exists. Not just any combination of amino acids can do something useful in a living organism. On the contrary, it has to have a precise structure in order to fill a specific function and to be able to work with other genes. It has to 'fit' in the structures and co-operations which are already present. That means that only a very small number of combinations can be useful in a specific species and that 1023 is somewhat exaggerated. Another indication of a very low number of useful protein sequences is the high number of *damaging* genes a mutation has had: only a very precise combination of amino acids has a useful role to play in living organisms, and the rest are discarded.

However, as yet we will suppose that there are still that many possibilities. The chance that a functional gene originates from a gene which was at first not functional by coincidence, is 1023 in 10390, which is 1 in 10367. That last number is still *infinitely* greater than the number of atoms in the universe and will therefore not have occurred even once in five billion years, or, if we give Fool Coincidence the insane benefit of the doubt: ... once.

Pure coincidence is *in no way* a useful mechanism for the origins of new genes. The only remaining option is that new genes evolve from *existing* genes (or copies of existing genes).

If the reader is still not convinced of this, there is no point in reading the rest of this chapter (or the next). For those readers, I will now describe a game which can occupy them until they are eventually convinced of the contrary:

Here is a description of a 'protein' with 142 amino letters (for which some 10185, which is *infinitely* many, combinations are possible):

nonewusefulspecialisedproteinsorproteinsequenceswilleveroriginatebypurecoinci

dencenotfromthednascrapheapandnotfromexistingproteinsjustnotatall

At some *arbitrary* (so not chosen) point, change a letter into an *arbitrary, coincidental* other letter, for as long as it takes until, *no matter what it takes*, the sentence reads that something useful can originate by pure coincidence (we just imagine the spaces, and no letters can be added or removed, only replaced). This game is closely analogous to 'mutating proteins', because the number of letters (20-26) is comparable to the number of amino acids and the number of nonsense-combinations in relation to the number of useful combinations is even *smaller* than in proteins, so that the chances of success increase. If enough people (or a few computers!) try it for long enough, surely it will work at least once...

> Now there will probably be people who want to steal my thunder. That's right, they will say, nothing useful originates through pure coincidence. But a small word can originate through coincidence. By 'selecting' that word and not selecting for each subsequent change in that word, and to continue like that until another new word appears somewhere, etc., at some point in time a lovely new sentence will appear. And of course, they are absolutely right!

However, the mechanism which is applied there is that of coincidence-plus-selection. The point we are at in the discussion is that of coincidence-without-selection. What I am asking of the reader is that he admits that coincidence-without-selection does not result in new proteins, not that he admits that coincidence-PLUS-selection does not result in new proteins. The central question which follows is, from what point onwards can selection occur? Can it occur from the point at which coincidental 'words' appear in a protein? Or can selection only occur when a more-or-less legible sentence is formed? In terms of proteins, that question means: From what number of protein combinations onwards is there a case of some useful functionality? Or, to put it differently: From what point at the foot of the Mount of Isolation can the Angel of Natural Selection start her work?

Well, I am sorry to have to say this, since it means that the reader who does not wish to follow me on this point will have to be left hanging with the above sentence for the rest of his days. but the smallest known proteins are about 100 amino acids long. The largest proteins form, from a molecular point of view, gigantic mountains, complexes, cathedrals of thousands of amino acids, but we will leave those out of the thick of this argument. In the here and now of biochemical daily life, the smallest useful proteins are about one hundred amino acids long. Later we will see that, in many case, the border in the foothills of the Mount of Isolation, from which point on the Angel of Natural Selection is able to do his work, is much higher.

As far as our game is concerned, this means that selection can only take place from about 100 letters on, because that is the first point at which any kind of functionality can be discussed. You are thus only finished when there is a complete and legible sentence of at least one hundred letters. We will overlook a few grammatical errors...

As encouragement for the persistent folk: there are lots fewer proteins with a length of around a hundred than there are possibilities to say that functional proteins can originate through coincidence with a 142-letter sentence. Compared with that, the chance that the above game will result in a proper sentence is larger than the chance that, in reality. a functional protein of about 100 amino acids will originate. The choice is yours: keep playing or read further?

4.The Valley of Dead Genes

In Figure 8, three proteins are portrayed, two of which are closely related to each other. This is because it could be possible for the structure of a certain protein to be so close to that of another protein that it could change into the other protein through mutation, without ever, at any point in time, losing its functionality to such a degree that it becomes a dead gene. This is depicted by the second peak next to the first, which, albeit through a small dip, can be reached without descending beneath the highest border, the 'line of death'.

In that case, it is conceivable that a protein could mutate from one peak to another, if the Angel of Natural Selection selects for that, at any rate. It is by the way a dangerous undertaking. One step too far across the border and the protein slips through the fingers of the Angel of Natural Selection, and immediately ends up in the valley of dead genes. Is this true? Is the Angel of Natural Selection so powerless on the other side of the border? Yes it is, take a look.

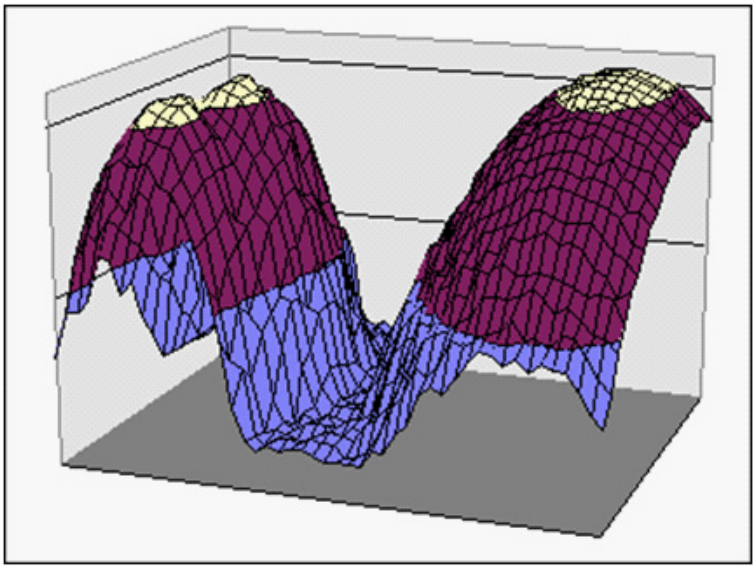


Figure 8, The Valley of Dead Genes

proteins die a thousand deaths

The white-eye allele (for fruit-flies, PMS) appears to cause a complete loss of normal gene function and thus an absence of eye pigment, while the other alleles cause a less drastic alternation of the normal gene function, and so the eyes contain different amounts of pigment. (…..) In fact, over 100 alleles of the white-eye gene have been discovered. Biology, pp. 247

As you can see, there are more than a hundred ways in which a protein can die, but there are only a few in which it can do what it has to do. If a protein, because of one or more mutations, falls below the functionality border and thus enters the kingdom of the dead, the organism loses the function which it performed. However, it makes no difference if the protein dies in one way or in another. In other words, a small peak with limited freedom of movement rises above the mist, and all around (the other hundred versions, the ones with different alleles) are gaping chasms.

resurrection is only possible in the beginning

Now the protein cannot simply be brought back to life. If a mutation happens in that gene again, it is a chance of 1 to 3 in 2700 (in a protein which has 300 amino acids[13]) that the right amino acid returns. In other words, there are at least about a thousand ways to destroy it further and one to restore it to its previous state.[14] This means that, after the first step across the border, the protein can only re-conquer its original function in very rare cases. After the second step across the border, the chance is 1 in 1,000,000 and only goes downhill from there. As soon as the border has been crossed, King Entropy's dogs come after the protein. There is almost no escape. Once arrived at the bottom, King Entropy's law applies: it is not permissible to take on any semblance of order.

In general terms, you can thus say that after one mutation across the border of functionality, there might be a way back through pure coincidence, but that after two or three mutations, the protein is so far gone that the way back is no longer a realistic option. In other words, the mist which hangs about the border of the kingdom of the dead is one or two mutations thick.

protein C is inaccessible

The third 'mountain' in the figure is a protein which differs structurally so much from the other two that it cannot be reached by mutation without losing its functionality and therefore becoming a dead gene which is not selected for.

Protein A can, as long as there is sufficient selection for it, mutate into protein B. Along the way, there will be many unfortunates who mutate in the wrong direction, but with sufficient selection pressure and sufficient time, it is possible. However, neither A nor B can mutate into protein C. Before they could get there, they would have to pass through the Valley of Dead Genes. And, as we have seen, King Entropy does not release his prisoners, so it is in no way possible for a protein, without the pressure of selection, to mutate 'upwards' along the steep cliffs to protein C.

Darwin's driving force, called natural selection, has no jurisdiction in the valley of dead genes!

5. A hidden path?

If you read about a 'function-acquiring mutation' (see ch. 5.f), you do not get the impression that it is such a problem for a protein to take on another function at all. Why not? Because the landscape looks different, more like Figure 9.

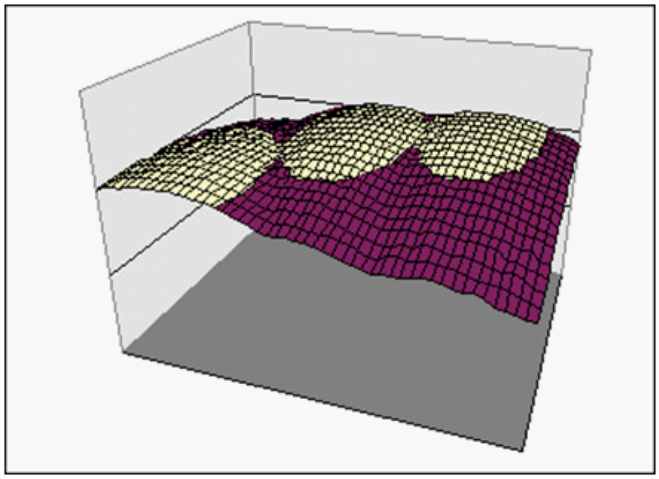


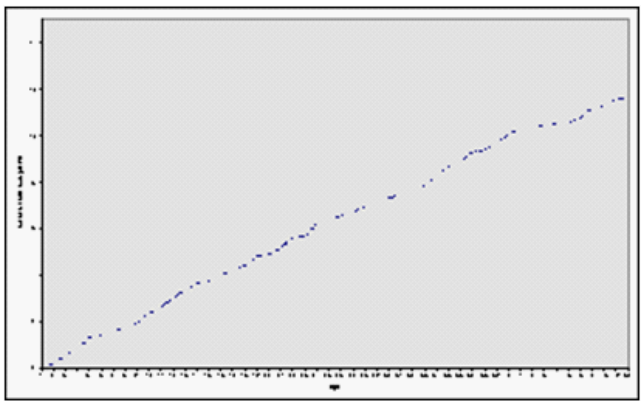
Figure 9, the Mount of Connectedness

The suggestion created by the name 'function-acquiring mutation' as the engine for evolutionary change is that ALL those different peaks are joined together in some way or another, that an already-mutating protein never has to completely lose its function, step across the border of the kingdom of the dead, and in this way, without ever leaving the jurisdiction of the Angel of Natural Selection, can achieve another function, and from that function another and another.

The question is, therefore, which is closer to reality? Gently sloping hills with, it is true, a border with the kingdom of the dead, but nevertheless full of peaks and connections through which every protein can be reached in some way or another, or isolated peaks surrounded by steep crags?

For evolution to (have) work(ed),[15] each protein must be accessible from another protein (see Graph 1), through an accumulation of small changes in function and without ever losing its function to any significant degree, which would cause the selection pressure to disappear.

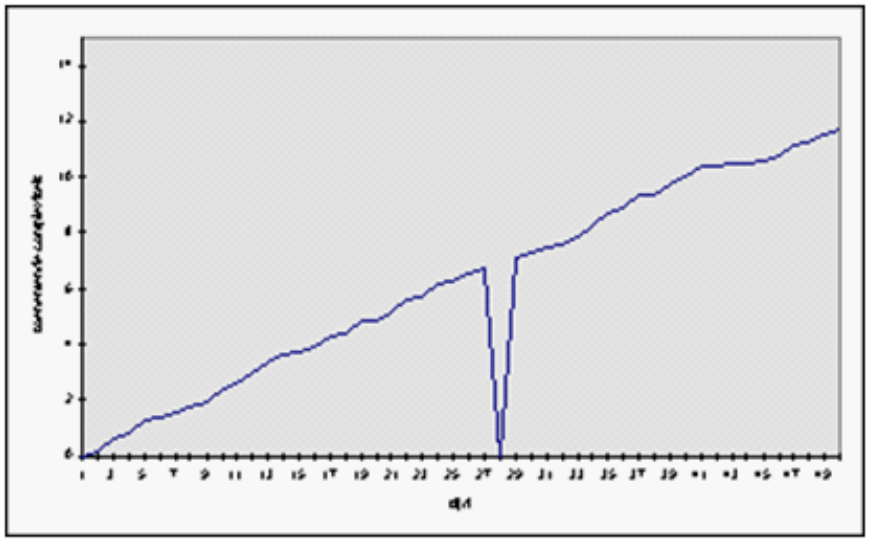
Graph 1, Uninterrupted increase in functionality is an absolute condition



In other words, there has to be a traceable path from every protein to another protein without it becoming a dead protein in between.

In other words, every peak of the mountain has to be able to be uninterruptedly connected with another peak without ending up under the selection border (see Graph 2 and 3.)

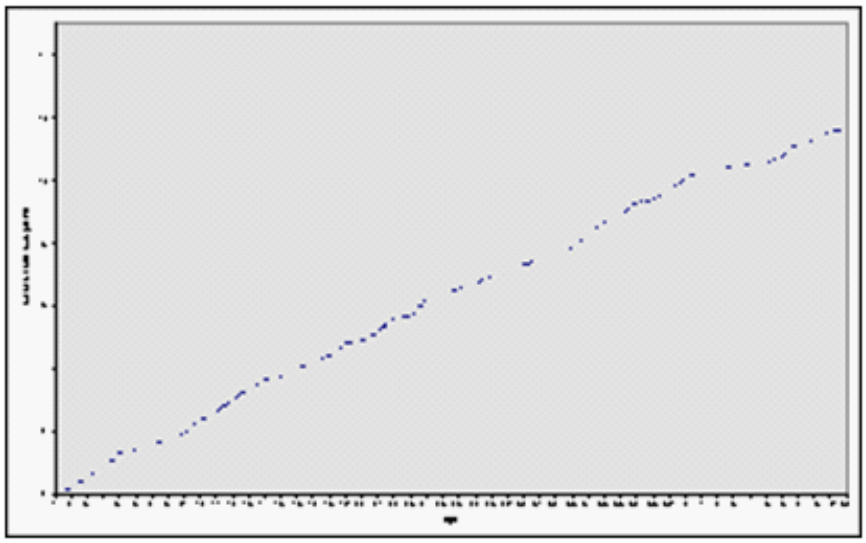
Graph >2, Interrupted increasing (or changing) functionality is an impossibility



In reality, matters are really this clear-cut: if even one such protein can be found which stands on an isolated peak, without any connection to other peaks, it is already proven that structural evolution is impossible! We will call a protein which fills these specifications a Lone Ranger.

Graph 3,

Another example of impossible interrupted increasing (or changing) functionality



7. Master-Crook Mutation

'Jumping' mechanisms for the origins of new genes

7. MASTER-CROOK MUTATION'S FAMILY

7.1 Identical-Twin-Brother Mutation Regulator-Gene

7.2 The Uncle of Duplication-to-Divergence

7.3 Uncle Transposon and the 'jumping genes'

7.4 Uncle Virus Invasion

7.5 Conclusions

We have seen that point mutations are insufficient to make new genes or to bring about adoption. Hope now lies in more radical genetic changes, which may be able to do it. It is about time we made acquaintance with Mr. Mutation's family.

We will start with his twin brother Mutation Regulator-Gene, because he is the most promising: he makes small mutations which effect enormous changes.

7.1 Identical-Twin-Brother Mutation

Regulator-Gene

In Figure 1, there are two depictions of the head of a fruit fly. The photo on the left is normal. There are two antennas between the eyes. In the photo on the right, however, you see that two legs have grown in the place where the antennas would normally be. It seems that a mutation in one gene, Antennapedia, is responsible. At first glance, this is a spectacular example of evolution: very small genetic changes, which result in very big changes in appearance. It has been suggested that the fruit fly's antennas are developed from what were previously legs mutations in regulator genes result in enormous changes in appearance

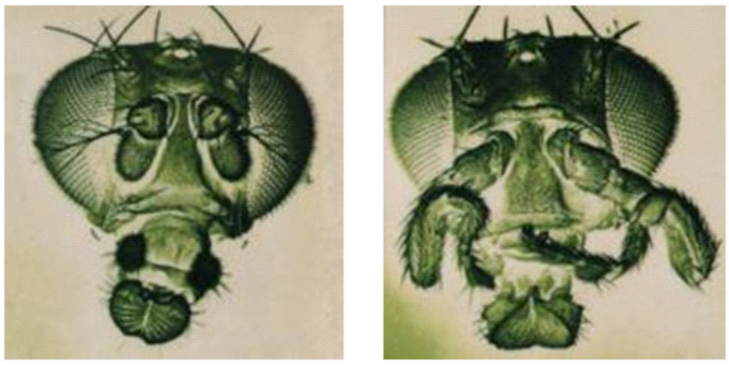


Figure 1 Twin-Brother Mutation Regulator-Gene at work, Genetic analysis pp.747

It can be even more striking. During the development from an egg cell through the larval stage to an adult fruit fly, the larva divides itself into various segments as can be seen in Figure 2.

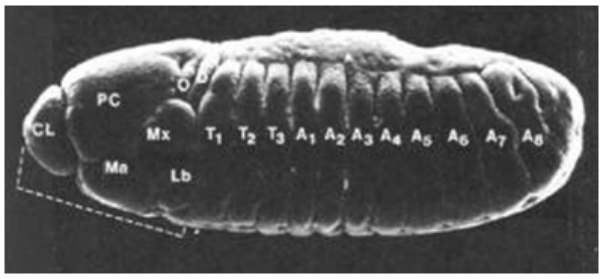


Figure 2.The segments of a fruit fly,

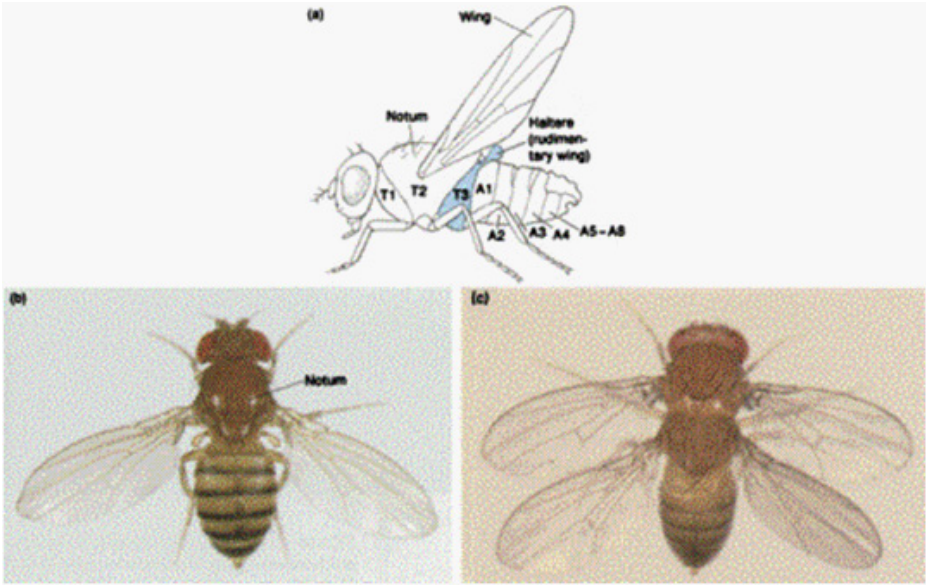
Genetic analysis pp. 752

The T2 segment usually develops into the part to which the wings are attached; the T3 segment divides the front and back sections of the body from each other and contains the balancing rods that the fruit fly uses to fly straight. Three mutations in regulator genes can

cause the T3 segment to develop as a T2 segment, so that a fruit fly comes into existence with four wings (see Figure 3)!

Figure 3. A fruit fly with four wings,

Genetic analysis, pp. 767



because of regulator mutations, a 'wrong turn' is made during growth

How is this possible? To understand this, it is necessary to understand something of the embryonic development from fertilized egg cell to adult fly. During that development, cells need to specialize. Some will end up in a wing, others will become back hairs, yet others will form the eyes, etc. How do these cells, which are constantly dividing and multiplying, know what they are supposed to become? During the very first cell divisions, all the cells are totipotent, which means that each cell can still grow into anything. As the growth progresses, *differentiation* arises. Groups of cells split off and such a group is destined to become, for example, segment T2. Within this group, cells split off again, for instance into one group that will make the wings and another that will make a leg. Within a leg, there is another division of labor. Some will make the foot, others the hair on the foot. Once a group of cells is split off, or differentiated, there is no way back, it can no longer do anything else but continue in the direction it is going and continue with the differentiation which belongs to that path.

Cells give each other signals, so that they know what their neighbors are doing. Partly by such means, they determine their position and certain groups of genes are turned on or off. Each cell has *all* the genetic information within itself (in the form of chromosomes in the cell nucleus) for the growth of the *entire* organism.

And what happens if a mutation occurs in such a regulator gene? Then a group of cells goes in the wrong direction. The growth plan is muddled. The group of cells that was supposed to make the antennas suddenly goes on with the genetic information for a leg, and they make a leg. Or, the group of cells that is supposed to make segment T3 suddenly thinks it has to make segment T2. Because the cells can communicate with each other, they still make everything fit neatly at the edges, so that it still becomes a living fly.

regulator mutations are changes *within* the existing genetic material

Twin Brother Mutation Regulator Gene is capable of considerable feats of prowess. He can muddle the entire *body blueprint* with large changes in appearance, but he is still not capable of going outside the banks of the 'gene pool', the existing genetic material which is already present. What Mutation Regulator-Gene does is a form of *degeneration*, of creating disorder where order used to be. The idea that antennae could have evolved from what previously were legs is absurd. If the genes that make an antenna were not present, they will not appear. If they are present, but are not used due to a mutation, and the genes for legs are used instead, that clearly has nothing to do with evolution or gene growth.

Furthermore, Mutation Regulator-Gene would, under normal circumstances (i.e. outside the laboratory), be deported by Angel Natural Selection *immediately*. Anyway, fruit flies without antennas or without balancing rods would not survive in nature.

Mutation Regulator-Gene is not responsible for macro-evolution. On the level of variation-within-a-species, Mutation Regulator-Gene could make the occasional change (think about the huge differences in build between kinds of dogs), but he is not married to Aunt Adoption. He does not bring new genes into the pool.

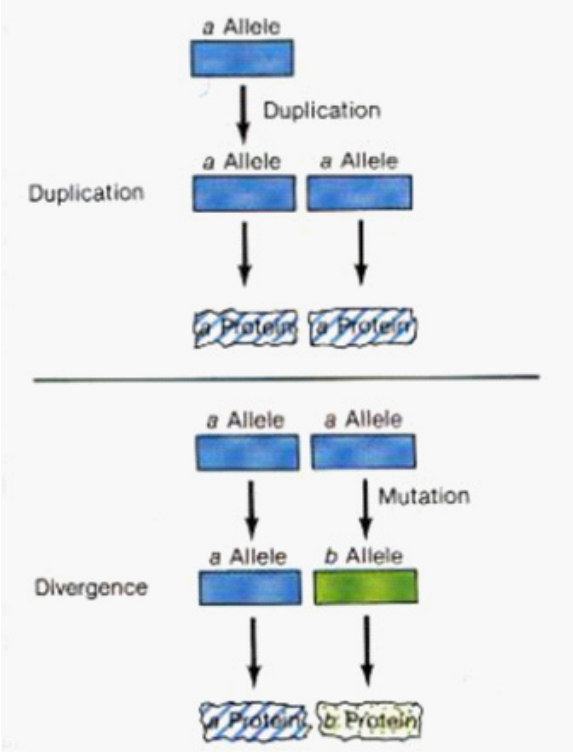
7.2 Uncle Duplication to Divergence

Gene duplication means that a gene is doubled. For instance, during recombination, a mistake is made, which gives one chromosome no gene and the other gets two. If a mutation occurs in one of the two genes, the other gene will still ensure proper functioning. In this way, a gene is, as it were, 'freed' in order to do something else. A mutation in this gene will not immediately result in the death of the organism or give it a serious disadvantage in the struggle for existence. It is 'free' to adopt a new function, and to be once more, whether subsequently or simultaneously, adopted by the community of genes.

*Biologists have discovered ….. that genes may undergo duplication and divergence so that an extra copy of a gene arises by a mutational process. This duplicated copy is then free, in a sense, to evolve: while the original diploid set is still present to produce the phenotype and is still influenced by natural selection[1], the duplicated allele may have an altered base sequence and thus may yield new proteins with novel properties..*Biology, pp. 1027

figure 4, duplication and divergence

Biology, pp. 1027



gene duplication occurs

Let's take a look at an example of such a gene duplication.

One example of a beneficial mutation comes from the mosquito Culex pipiens. In this organism, a gene that was involved with breaking down organophosphates - common insecticide ingredients -became duplicated. Progeny of the organism with this mutation quickly swept across the worldwide mosquito population. There are numerous examples of insects developing resistance to chemicals, especially DDT which was once heavily used in this country. And, most importantly, even though "good" mutations happen much less frequently than "bad" ones, organisms with "good" mutations thrive while organisms with "bad" ones die out.[2]

Chris Colby, The Talk.Origins Archive, Introduction to evolutionary biology

gene duplication is still not adoption

Gene duplication does occur, at any rate, but does it occur on such a large scale with such regularity that it can be seen as a practical mechanism for macro-evolution? We will leave that for the moment. The question is whether this is an example of adoption? Not really. It is an example of duplication. A lot more than just duplication is necessary for adoption. Besides, as you probably know, bacteria and insects can lose their resistance if the product they are resistant to is no longer used. Why? Because a gene duplication like that is always a deviation from normal. The balance in which the gene in question functions tilts 200% to one side, and this substance is made twice as fast or in twice the quantity. As a result of the high selection pressure which rests on it (every mosquito without this double gene dies!), it appears to bring great benefits, but under normal conditions it is probably a disadvantage (because they break down organic phosphates much faster than normal; the balance is disturbed). So the mosquitoes which survived and did not have that double gene slowly begin to regain the upper hand, which in the long run means that the species loses its resistance. However, such duplication could be permanent if all the other fellow members of the species had died out.

divergence' does not lead to adoption

Because duplication is absolutely not adoption, the main feature must be in divergence. Divergence literally means 'to split up'. The duplicated gene mutates away from the original gene. It starts moving away. But where to?

Suppose the entire mosquito community, as a result of the complete extinction of the original mosquitoes, inherits that double gene. On a sunny summer day, a mosquito is sitting on a reed sunbathing and, oops, a mutation happens in a gamete which causes the second gene to change. Offspring come into existence with a duplicated, moving-away, freely-mutating gene. But how can this gene now adopt a new function? As soon as it loses its original function, breaking down organic phosphates, all selection pressure on this second gene disappears (given that they have stopped using the pesticide; by the way, this is also a way in which the mosquitoes lose their resistance again!) If the gene has lost its function, it becomes a dead gene and the mosquitoes are left with a strange piece of DNA in the chromosomes, and Master-Crook Mutation can do nothing further with it, because it has fallen into the hands of King Entropy!

In other words, Uncle Duplication does exist. If Uncle Duplication is done with his work, he sometime gets the nickname Divergence, because it is absolutely conceivable that mutations occur in the duplicated gene. But actually, that divergence is the work of Master-Crook Mutation (they have agreed to co-operate). And Master-Crook Mutation has just been proven powerless to make new complicated protein structures without selection pressure. The Uncle of Duplication-to-Divergence is NOT married to Aunt Adoption, because that divergence immediately involves loss of function, after which the protein is ripped to pieces by King Entropy's dogs. Aunt Adoption and the Uncle of Duplication-to-Divergence can have no viable children. The Uncle of Duplication-to-Divergence is not capable of explaining structural gene growth and adoption.

7.3 Uncle Transposon and the 'jumping genes'

In the 50's, Barbara McClintock discovered the so-called 'jumping genes' in corn.

A pair of genes along the ninth chromosome, the Ac (activator) gene and the Ds (dissociation) gene (XXX), act in concert to turn on and off the genes that control color in the kernels. A signal from the Ac gene causes the Ds gene to jump to new positions along the chromosome, thus inactivating neighboring genes. This, in turn, causes abrupt changes in kernel pigmentation once the ears of corn develop. Biology, pp. 299.

This is surprising news. Genes which move around and turn other genes on and off. Are these Aunt Adoption's children? How do these jumping genes work?

jumping genes are pieces of DNA which move themselves

The kernels of corn in Figure 5 show the results of these jumping genes. It appears to be a transposon, which is inserted into a gene which makes anthocyanine. This causes the kernel of corn to lose its original color and become yellow. During the development of the seeds, however, it can happen that the transposon disappears from the gene again (indicated by Ac), which allows anthocyanine to be produced again. Further growth of the kernel through cell division causes all the cells which come out of this cell with the good gene to get their color back. This results in the appearance of a pattern of speckles on the kernel of corn.

The three rows show kernels in which the transposon disappeared from the gene early (top), late (bottom) and somewhere in between (middle).

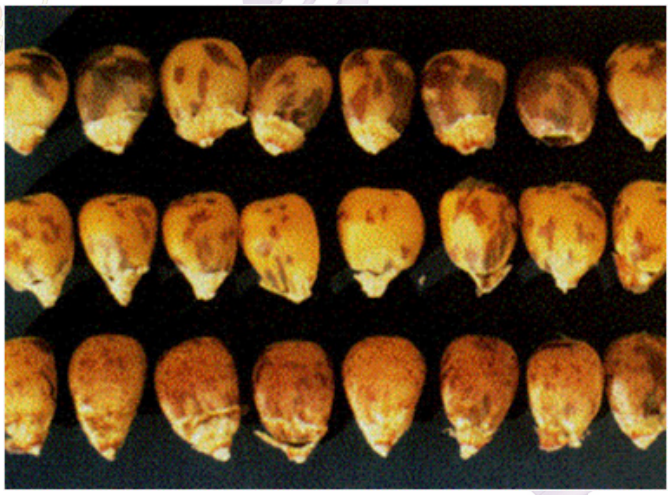
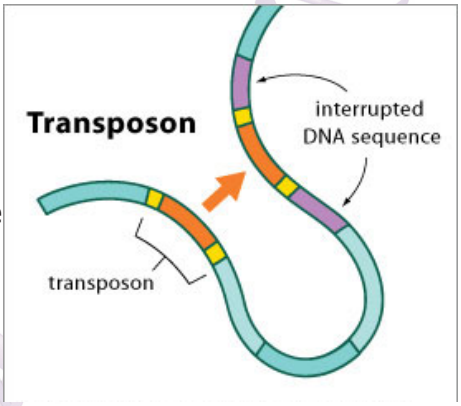


Figure 5. Uncle transposon at work in corn,

Cenetic analysis pp. 660

But what is a transposon? The name transposon comes from transposable or movable element.

Each transposon codes for the enzymes that specifically insert into the recipient DNA. This process has been described as illegitimate recombination because it requires no homology between donor and recipient DNAs. In contrast to general recombination, however, transpoition is a highly inefficient process: It occurs at a rate of only 10-7 to 10-4 events per generation. Biochemistry, pp. 1060.



A transposon is a specific piece of DNA that can be between 800 and 5,000 base pairs long. On the piece of DNA is a gene that codes for a protein which makes it possible for the transposon to settle elsewhere in the DNA. Nothing in DNA-country happens on its own. Everything is arranged by proteins (except for mutations). If a transposon wants to add itself to an existing piece of DNA, a protein is needed which cuts the host DNA and pastes the transposon in between and glues the edges neatly together again. Therefore, in a transposon, there is a gene that codes for that protein. The transposon also has a left and a right 'hand', two opposing pieces of DNA somewhere between 15 and 50 base pairs in length, which assist in copying and inserting the transposon.
One mutation in these 'hands' causes the transposon to cease working. The place in the host DNA also has to have a certain sequence of bases if the transposon is going to be able to insert itself. Afterwards, a transposon also needs to do something more than just copy itself and place itself in another piece of DNA. It thus contains code for one or more genes.

A transposon is a highly specialized piece of DNA with at least the codes for two complete proteins [3]

jumping genes are genetic viruses from another species

What must have happened in the corn is that (by a virus from an aphid, or by one of its own regulation mechanisms gone awry?) it was infected by a transposon, which has nested in chromosome 9. It is not capable of doing much else than producing the protein, which arranges its own shifting of place, which does occasionally happen. The (most likely) mutilated piece of transposon, which however does still have intact 'hands', can end up in a few specific places in the chromosome, with exactly that sequence of bases which the Shifting protein needs. In the kernels of corn, you then see a certain 'new' characteristic never seen before. But the basis of this 'new' characteristic is not a 'new' improved protein. It is only a variation on what was already present. The corn has gotten a gene in its DNA -- it is a special uncle of Master-Crook Mutation – but it cannot do anything with it. It creates a controlled form of destruction! Uncle Transposon is a White-Collar Criminal! Because Uncle Transposon has, in this case, been kind enough to carry out his actions only in non-essential genes, the damage he causes remains limited. He is not married to Aunt Adoption. What Uncle Transposon does is a form of degeneration of the corn genome.

Controlling elements (or transposons, PMS) in corn can inactivate a gene in which they reside, cause chromosome breaks (!!, PMS) and transpose to new locations within the genome.

Genetic Analysis, pp. 660

The similar base sequences of many eukaryotic (plant- or animal cells, PMS) transposons, as yeast, corn, and fruit flies, and retroviral genomes (and their dissimilarity to bacterial transposons) suggest that these transposons are degenerate retroviruses….A retrotransposon may therefore be considered an "internal virus". Biochemistry, pp. 1064, 1065

Because people are interested in just this kind of thing, they look for this, and such corn is artificially cultivated further. In free nature, where the Angel of Natural Selection rules, this corn would not survive. Humans, on the other hand, are capable of breaking loose from the strict laws of the Angel of Natural Selection, and applying un-natural selection.

jumping genes do not cause gene growth

Someone may say, But the corn 'adopted' these two genes. Still, that is in no way the kind of adoption which is meant, or is necessary for macro-evolution. In the first place, the corn has no use for a protein which constantly shifts pieces of its DNA, and that shifted piece is probably a dead gene, which can now only be shifted. This is not functional adoption, this is not a protein which takes the corn 'leaps' forward in its evolution. In which metabolic process is the protein adopted, other than that the Shifting gene is parasitic on the available means which are present (such as the Make-A-Copy protein which translates the gene)? Could this be the way in which one of the genes which is necessary for Darwin's most primitive eye can be adopted? Are the genes which make a cell light-sensitive transported from one organism to another in this way? Of course not. This kind of transposon only codes for its own selfish functions.

7.4 Uncle Virus Invasion

What follows is the story of the P elements in fruit flies, possibly once inserted by a virus:

Gene flow between more distantly related species occurs infrequently. This is called horizontal transfer. One interesting case of this involves genetic elements called P elements. Margaret Kidwell found that P elements were transferred from some species in the Drosophila willistoni

group to Drosophila melanogaster. These two species of fruit flies are distantly related and hybrids do not form. Their ranges do, however, overlap. The P elements were vectored into D. melanogaster via a parasitic mite that targets both these species. This mite punctures the exoskeleton of the flies and feeds on the "juices". Material, including DNA, from one fly can be transferred to another when the mite feeds. Since P elements actively move in the genome (they are themselves parasites of DNA), one incorporated itself into the genome of a melanogaster fly and subsequently spread through the species. Laboratory stocks of melanogaster caught prior to the 1940's lack of P elements. All natural populations today harbor them. [4] Chris Colby, The Talk.Origins Archive, Introduction to evolutionary biology

no new genes originate by virus invasions

After the story about the corn, this story speaks for itself, but it still surprises me. How is it that right-minded people come up with something like horizontal gene transfer? But then to also see that as a serious mechanism for the much-needed evolutionary variation across the borders of species?

I can find only one explanation for this: insufficient realization of the complex and specialized reality of proteins, insufficient realization that adoption, which is the 'loving' reception of a gene into the community of genes and the accompanying exact coding of the DNA, does not belong to the reality of proteins. If this is difficult to understand, think of Darwin's most primitive eye, the Leapfrog protein, or the twelve genes for 'light-sensitivity': can transposons insert the genes for this eye? So that the infected organism would suddenly be able to see? Through mites and viruses? And if that absurdity were true, that still says absolutely nothing about how those genes originated (which is what this is all about), but only about how they were shifted.

Uncle Virus Invasion is the twin brother of Uncle Transposon, and Aunt Adoption is also not married to Uncle Virus Invasion. Aunt Adoption is a widow. Or is Aunt Adoption still a virgin? No, Aunt Adoption is a widow. She was married to the Uncle of Duplication-to-Divergence, but because they could not have viable children together, they got divorced. Uncle Transposon, together with Uncle Virus Invasion, raped her. Her genome has been violated. Both of these uncles have left her with a bastard child that she did not conceive herself, the transposon, which is a cuckoo's egg: it kicks the other genes out of the nest.

And now? Aunt Adoption is bitter and disappointed. She was a nice woman. She dearly wanted children. But that did not happen. She had herself checked to see how that happened. And the results were surprising: it was genetically determined!

7.5 Conclusions

- Mutations in regulator genes cause great differences in external appearances which can bring about enormous variation within the existing genetic material and thus within the type. They do not add new information.
- The proposed mechanisms for punctuated macro-evolution cannot make adoption possible in any way, because they have no pre-prepared genes to insert which are neatly regulated and integrated into the rest of the genome. They only insert genetic material that comes from another species.
- The only way in which these genes from another species could then take on a function within this species is by accumulative gradual mutation, which has been shown (in the previous chapter) not to be able to cause adoption.

- There is therefore not one single concrete example of punctuated functional adoption known for new genes.
- The only correct conclusion is that adoption does not take place at all, with the possible exception of minimal functional alteration.
- Functional alteration is a form of degeneration.
- If adoption is structurally impossible, macro-evolution is not possible.

We have taken a look at the state of affairs in the evolutionary theory. Their proponents have been allowed to speak for themselves to indicate where we need to look. In the preceding material, I have named and gone over every (!) example from reality which they used and which I could find in the sources I had. If you think about the gigantic, complex genetic task which is necessary for Evolution to happen, the distinctly disappointing results of these examples, and the impossibility for proteins to take on the new specialized functions which are necessary for macro-evolution, only one conclusion remains: there is no macro-evolution. The Mutation family is capable of only two things, causing variation-on-the-same-genetic-theme and degeneration.

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[1] So there is no selection pressure on the duplicated gene. The conclusions are obvious...

[2] This last sentence is an excellent example of the dangers of confusing the different levels of evolution. (see the second point in paragraph 6.4.2). 'Good' mutations are also damage to or even elimination of genes, not new genes.

[3] It must be added that transposons are mostly active in bacteria (which through reproduction exchange pieces of DNA as transposons), viruses (which deposit their DNA in host cells and multiply themselves to the detriment of the host) and the immune system in higher animals (where it is strictly limited and never gets into sex cells).

[4] I use this example here, although this has little to do with a 'virus invasion;. However, I have not been able to find one single example such a 'virus invasion' and the P elements are most likely descended from some sort of retrovirus. Furthermore, Uncle Virus Invasion has so much in common with Uncle Transposon, where this example really belongs, that it does not really matter.

8. Adoption FAQ

Questions about adoption and gene growth

Metabolic adoption of genetic material from another species

Humans have been able to replace the gene for a growth hormone in a mouse with the gene for a human growth hormone. That resulted in a viable mouse which was twice the size of normal mice, as can be seen in Figure 1. It is reasonable to assume that growth hormone is an essential gene (without which there would be no mouse). This clearly shows that the human growth hormone has been metabolically adopted by the mouse. This removes the foundation from the whole reasoning behind adoption.

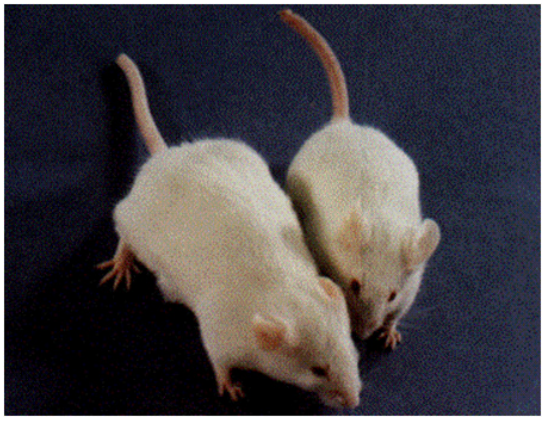


Figure 1. a transgenetic mouse, Genetic Analysis pp. 480

Plants or animals which have received genetic material from a different species by genetic manipulation are called transgenetic. The case of transplanting a human growth hormone into a mouse is not a form of metabolic adoption. Metabolic adoption is the 'loving' adoption of a gene that has undergone functional adoption as a mechanism which should occur in living nature. In that sense, there is no metabolic adoption.

'Making' the above transgenetic mouse is possible through the transplantation of a complete metabolism! Not only the human growth hormone, but also the promotors, the regulators, the repressors and other such things must be transplanted. It is then not adoption, in other words the taking up of and adding to, but the replacement of an existing metabolism. A child is not being adopted, it is being swapped! Apparently, there are enough correspondences between the human and mouse versions of the growth hormone to allow it to go well. And apparently people are able to acquire such insight and have access to such incredible intelligence that they are capable of such feats. However, this is about a goal-oriented, pre-planned, precisely worked out and guided process, based on years of experience and using highly advanced technologies, for which living nature has no equal (see the next answer under 'general'). That an intelligent human is capable of this says something about humans (that he is intelligent), not about evolution.

Figure 3, EOS Jan '97, pp. 42; a mouse with a human ear

humans can cross species

Humans are capable of bringing about a cross between a sheep and a goat (a so-called 'geep', see Figure 4) and of causing a human ear to grow on the back of a mouse (see Figure 3). This shows that there is no fundamental difference between species or types. In principle, people could design new plants and animals that have never existed before, and if humans can do that within decades or, if necessary, hundreds of years, it can happen by itself over billions of years.

The mouse

A human ear on the back of a mouse is possible because a mouse is used which (along with its hair) has lost its immune system (it lost the genes that build the immune system). That immune system, under normal conditions, is responsible for removing 'foreign' tissue from the body. The mouse no longer has such a system. The ear is a pre-fabricated shell, which is filled with human donor cells. These cells fill the ear-form and are fed by the skin on the mouse's back. Slowly, the original structure is broken down and replaced by human cells. However, those cells do retain the shape of the ear. It is possible that such an ear could be transplanted back to the person who donated the human cells.

All of this has nothing to do with our discussion. It would be a different matter if the mouse had the genes within itself to make a human ear and produce offspring which all had human ears on their backs.

The geep

The cross between a sheep and a goat happened because an eight-celled sheep embryo was joined with three eight-celled goat embryos. In the first stage of the embryo's development, every cell can still grow into each specific cell which is necessary in the body (brain cells, nerve cells, bone cells, etc.). As a result of this joining, those parts of the 'geep' which come from the sheep embryo end up as sheep and those parts which come from the goat cells end as goat. The result is half-sheep, half-goat, but it must be added that it is a shaky animal. Furthermore it is also possible that sheep and goats can fertilize each other, but most of the time the embryo dies during development. In some rare cases though viable offspring is produced. And that is the only reason why a viable animal is the result of such a geep cross. Sheep and goats belong to the same original type of animal (see chapter 15). This would not work between a frog and an elephant.

Figure 4, The DNA makers; a geep

Such animals, which have four parents, are called chimeras. If the sheep-goat chimera would be able to have offspring, sheep and/or goats would come out. It just depends on which cells formed the sex organs. The offspring would never be a geep. That means that this human experimentation has nothing at all to do with evolution, which requires changes in the offspring to be able to be passed on.

General

The human possibilities to create new species are much more limited than they appear. Humans also must work almost entirely from existing genetic material. Humans will never be able to make genes for new organs and place them in an organism in such a way that that organism receives functions which it never had before, something which mutation + natural selection are considered capable of.

What humans can do, which does not occur in nature, is the implantation of genetic material from a different species, which can do something useful (for humans), such as producing human insulin in a sheep or a cow. To that end, the mechanisms which occur in nature are sometimes used, such as retroviruses. However, these must first be made suitable for the purpose humans intend them for. In combination with that, techniques are used which do not occur in nature at all, such as the particle-gun method (literally shooting DNA at cells), electroporation (administering an electric shock to a cell so that small pores appear in the cell membrane, through which new DNA can enter), or micro-injection (injecting DNA into an embryo with a very small syringe).

What I mean to say is, humans are capable of breaking into the system and changing it. However, the way in which that happens can of course never serve as a model for macro-evolution and therefore also cannot be used as an argument in favor of it.

[1] FAQ stands for Frequently Asked Questions

9. The End Of The Biocosmic Drama

Master-Crook Mutation is subpoenaed

9. THE FINAL ACT OF THE BIOCOSMIC DRAMA

9.1 The end of the evolution theory

The following charges are made against Master-Crook Mutation

1. Every action in a cell is arranged and regulated by genes and proteins, except for mutations, which are caused by radiation or harmful substances. There are even quite a lot of proteins that attempt to prevent Master-Crook Mutation's work. This indicates the illegal nature of his activities.

2. He broke into the House of Variation and is posing as the rightful owner. However, in reality the House of Variation is owned by the mechanisms of natural variation, run by proteins. He claims to be the source of variation, whereas he is only a vessel that draws from an already-existing source of possibilities.

3. Master-Crook Mutation is not capable of lengthening proteins in a controllable way.

4. It is certain that 99% of Master-Crook Mutation's activities are destructive, harmful and deadly, not only for the proteins, but in over half of the cases also for the organism in which they reside.

5. At least two-thirds of the genes in each species do not vary. A large part of those genes must therefore be so specialized that they do not permit even one single alteration or those genes never had the chance to mutate, because life doesn't exist that long at all. Master-Crook Mutation has lied to us by pretending he was responsible for the origins of these genes.

6. Master-Crook Mutation is capable of minor functional alterations in some cases, in some genes and to a limited degree. He claims to be able to cause adoption, structural functional alteration, in all genes. This claim is untrue, because the structure of proteins is so complex, dedicated, and specialized that the function is lost, if not immediately, then within a few alterations, long before any mention can be made of new functionality.

7. Master-Crook Mutation claims that he, in cahoots with his family, can bring about macro-evolution. He is just a charlatan, an impostor.

Which competent judge is going to pass definitive judgment on him?[1]

One conclusion can be made, at any rate: we have been toyed with by Master-Crook Mutation. I suggest that we at least cease to place trust in him. I propose a vote of distrust. I recommend that we dismiss him from the position he now fills, that of director of the Evolution Company. I advise that we make him director of the waste processing plant Degeneration, where the rest of his family can be placed in a social, as far as I am concerned even subsidized, work program...

9.1 The end of the evolution theory

If we were now to make a small historical overview of the evolution of the evolution theory, it would look something like this:

Darwin:	There is infinite, spontaneous variation and a common ancestry for all life through natural selection.	1859
Mendel:	Variation arises according to standard patterns (and is therefore finite).	early 20th cent.
	(acceptance)	
neo-Darwinists:	Um, infinite variation arises through mutation.	1930's, 1940's
Eldredge and Gould:	Evolution happens in a punctuated progression rather than a gradual one.	1970's
Neoneo-Darwinists:	Um, no it didn't.	1980's
geneticists:	Um, there are jumping genes and other such radical changes.	
Scheele:	There is no structural gene growth and adoption; mutation is a form of degeneration. Biological change goes downhill.	nearly 2000
?:	um..	

And with that, we need to conclude the chapter on The-Origin-Of-The-Species-By-Natural-Selection! Natural selection does not seem to be capable of causing new genes to originate. Darwin cannot be held responsible for that. He could not know that his insight into the origins of varieties was right, but that it would turn out to be a genetic impossibility for the origins of types. That means the end of the evolution theory.

~ The End ~

If Darwin were still alive today, I would write him the following letter.

Dear Charles Darwin,

Thank you for your book The Origin of Species. You have been able to name the mechanism that brings about variation in the living nature that surrounds us. This was a great windfall for science, especially considering the concept of the immutability of species that was predominant in your time. However, the present molecular knowledge of DNA, genes, and proteins, which now appears to be the basis of heredity, has shown us that your ideas about the origins of non-related species – namely that these would be descended from common ancestors – appear not to be right.

The principle of natural selection which you discovered is active on the levels of individuals and population, but not on the molecular level of the single proteins. It appears that a large section of the genes which are essential for the viability of an organism do not evolve at all! In essence, in the basic structure, species or types are therefore also the same. The structure of the proteins furthermore appears to be so complex and specialized – to a degree you cannot even imagine – that it is impossible that even one single protein could come into existence by a coincidental arrangement of proteins within the long period of development you proposed.

The variation that can be observed in populations and in fossils, and the possibility that a species has for adapting, are apparently brought about by an internal built-in mechanism, which we call recombination. This mechanism, which I have called natural variation analogous to your 'natural selection', only draws from the existing internal genetic variation and information that is already present in a species.

The concept of mutation, which became known later, mainly brings about new variation by eliminating or damaging existing non-essential genes, but is, partly as a result of that, also the cause of a great deal of genetic impoverishment and hereditary diseases.

Our conclusion must therefore be that there is a much better case for typological variation or differentiation which cannot extend beyond its own borders, but which does have a myriad of possibilities within those borders. This is, by the way, something you already knew from experience from the breeders you knew: there is an end to the variability of a race on which selection takes place.

But whatever the case may be, both mutation and typological variation are in the end a form of genetic impoverishment and/or degeneration from the primitive type from which the variation arose. You understand that this is the complete opposite of what you proposed, namely that evolution from low to high complexity had taken place.

Should you be perturbed by this to any degree and wish therefore to subject some aspects thereof to further research, you may have a copy of my book free of charge; it has recently been published and covers this material. It has the not completely unexpected title of

Degeneration: the end of the evolution theory.

You can find it on the internet on www.evolution-is-degeneration.com

By the way, please do not take the title as a personal insult. You cannot be blamed for not knowing anything about what was not common knowledge in your time.

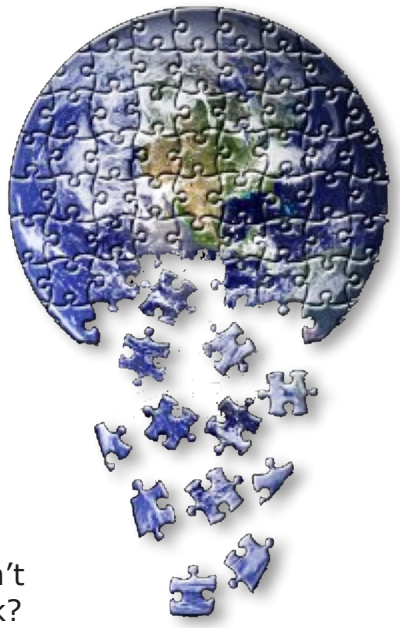
Sincerely and with the highest regard,

[1] I would like to be allowed to do so, but I am afraid that people will not give me the authority for that.

Peter Scheele

10. The Degeneration Theory

An alternative to the evolution theory



That is the alternative? If macro-evolution turns out to be impossible, what do we need to do then? Many of the proponents of the evolution theory say that this is the only thing we have, there is no other way, there is no other serious candidate, this is the way it has to be. This argument is the greatest threat to the logic of the previous section! Why should it matter that there are 'problems' with the evolution theory? That is the way science works, it is not yet finished. We will find out eventually. As long as there is no alternative, we will continue to believe.

This argument prompted me to make a serious counter-proposal. Didn't that happen a long time ago in the form of creationism, some may ask? Partly, since I think that it is one thing to claim that another person's point of view is wrong, but it is another matter altogether to come up with a substantiated alternative, a model for biological change, which can be proven or disproven by means of experimentation. That is, in my opinion, pretty much the problem with creationism: those who appear to be experts don't know much about it, and one common (justified?) complaint is; creationist ideas are not falsifiable.

The degeneration theory

I am going to make an attempt. The theory must have a name, and that is going to be: the degeneration theory. I will explain the general outlines of the degeneration theory, as a sort of first move, and as far as I am concerned, others can add to it and finish it, or polish it up. It is very good possible that new discoveries in the area of genetics make it necessary for (large) parts of the theory to be updated or changed, but I am willing to give it that room to grow.

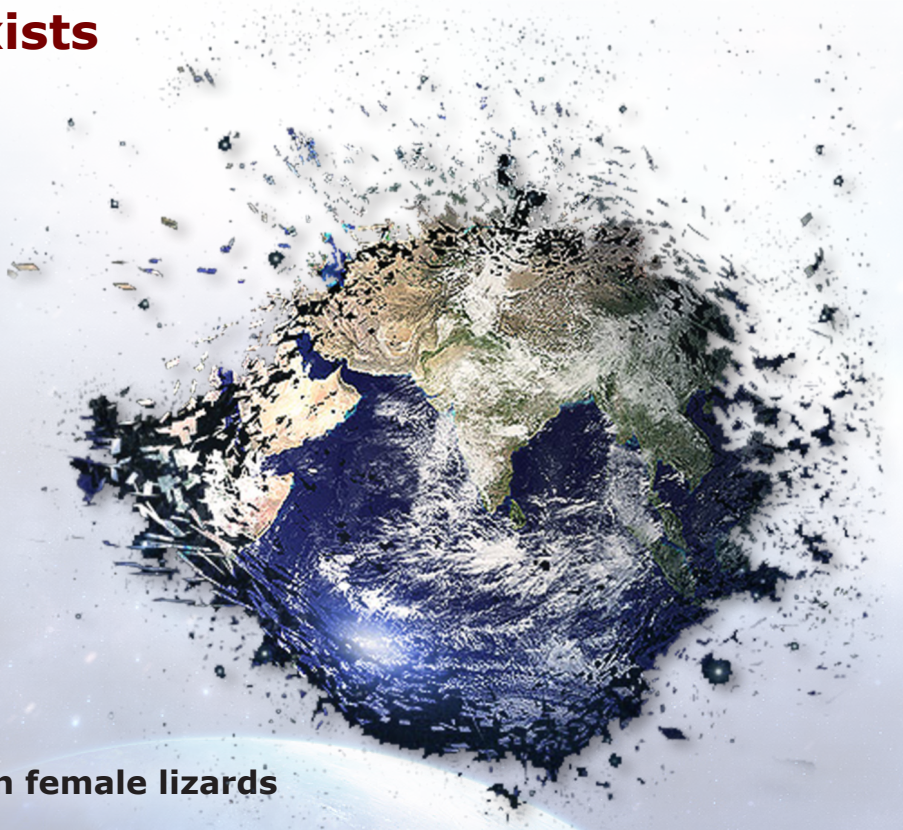
The degeneration theory covers five parts or ideas, namely:

1. **creation happened**
2. **variation exists**
3. **(typological) differentiation exists**
4. **degeneration exists**
5. **man is Spirit**

I will deal with and work through each of these ideas in a separate chapter; the third idea, that of typological differentiation, will have an extra chapter in order to discuss where the boundaries between types lie. I will keep to the above sequence for the chapters, with one exception, namely point 4 about degeneration. Because the theory is named after that concept, I will start there.

11. Degeneration Exists

(Not evolution)



11. DEGENERATION EXIST

11.1 There is degeneration

1. **mutations**
2. **hereditary diseases**
3. **old age**
4. **cancer**
5. **deadly genes**
6. **internal viruses**
7. **pseudo genes**
8. **asexual reproduction in female lizards**
9. **rudimentary organs**
10. **blind animals in the Movile cave**
11. **the flightless cormorant**
12. **jury-rigged design**

11.1.2 Conclusion

11.2 The natural lower boundary of degeneration.

11.3 The degeneration law

11.4 The beneficial degeneration

Degeneration FAQ

One aspect of the nature around us that is completely disregarded on a large scale is that there is degeneration!: pure genetic impoverishment of populations and species, and absolutely no genetic enrichment as is necessary for an evolution from unicellular organisms.

11.1 Degeneration exists

There are examples of this impoverishment and degeneration, and I will lay some of them out for you.

1.mutations

In the first place, there are mutations. Mutations are damage done to existing genes. And everyone agrees that 99% of mutations are such that absolutely nothing functional can come out of it anymore.

The evolution theory says that that remaining one percent, in combination with natural selection, leads to 'better' adaptation, and therefore to 'better' genes with 'better' proteins, or proteins with new functions, which in the end then leads to macro-evolution. The degeneration theory says simply that all mutations are damage to or even elimination of existing good genes, but in a number of cases could conceivably result in something which gives a 'survival advantage'. I will come back to this with an example at the end of this chapter.

Anyhow, degeneration (99%) is a better word to characterize the work of mutations than evolution (1%).

In Figure 1, a number of examples can be seen of what mutating degeneration can do to fruit flies: all sorts of twisted wing shapes, strange abdomens and tiny eyes. These are cases where, in nature, the fly would not be able to survive.

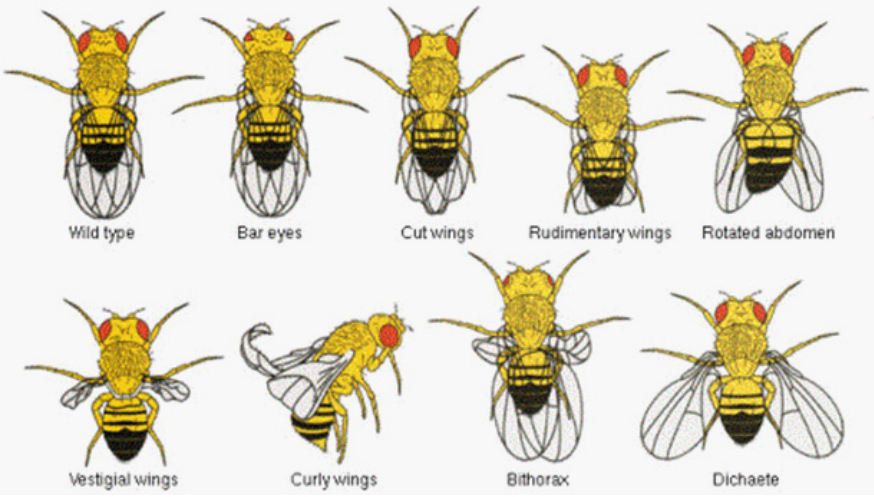


Figure 1. Mutation=degeneration, Genetic Analysis pp. 185

2. hereditary diseases

Humanity is burdened with an incredible amount of hereditary diseases. This happens not because Evolution still has some items on its list of things to do, but because mutations cause defects in genes that used to be all right. Most people have the 'good' genes. However, if someone has such a defective gene, that person has a hereditary disease, or is a 'carrier' of that disease. If this defective gene spreads throughout the human community, then that is a form of degeneration, not of evolution.

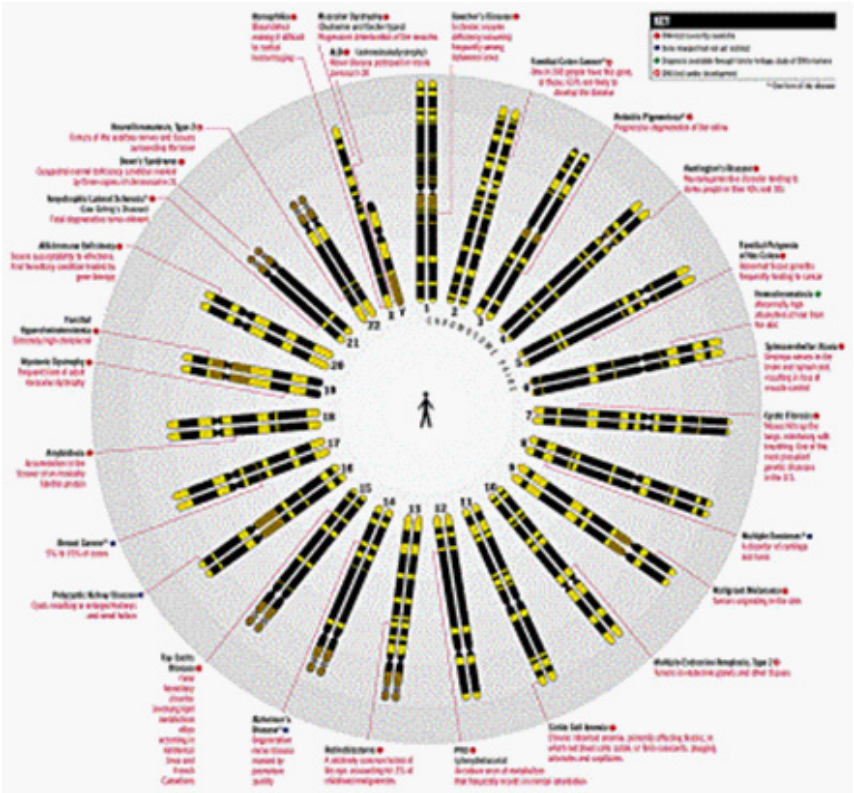


Figure 2.

The 23 chromosomes of a human with the places of the genes which a number of the better-known hereditary diseases cause if they are defective, Genetic Analysis pp.5

Since hereditary diseases originate by mutations of good functional genes, when we go back in time, we will find less and less of these damages in the human genome. It is estimated that every human being has 4 - 5 hidden lethal defects in its DNA. When we go back in time, the human population would have been much smaller then nowadays. Once there would have been only 10.000 people, or even 100. We all originated from this small

group. But this small group would NEVER have all the genetic defects we have today in our 6 billion people. That would not even be possible. But on the other hand, they would have had ALL the good functional genes, that most of us still have. The first (group of) human ancestors must have been genetically perfect!

There was a time when certain geneticists thought that they could create or get an Übermensch, a human who would be perfect in every way, by combining all the good genes of different people in one new human race. In the light of the degeneration theory, we can now say that our earliest ancestors must have been those Übermenschen! Genetically perfect! There was not a single hereditary disease in their genes.

And who can determine all of what we have lost along the way of degeneration? What will thus never return, because no one has it anymore? What did the dead genes in our DNA do before? Were our earliest ancestors, besides being undisturbed by all sorts of genetic defects and therefore hereditary diseases, also much more beautiful? Or more intelligent? Did they all have a photographic memory? Did they have a longer life span? Who will tell?

3. old age

Growing older is a fight against degeneration. More and more functions of life decrease, are damaged, cease to work. Quite a lot can be 'patched up' with medicines, but in the end, it is by definition a losing battle: everyone dies. Still, growing older has a genetic basis. If 'young' chromosomes are placed in 'old' cells, these old cells act like young cells (which indicates a genetic cause):

An interesting insight into this issue has emerged from studies in which nuclei .obtained from young cultured cells were fused with old cells which nuclei had been removed. Such cells, with their "young" nuclei and "old" cytoplasm, continue to divide like young cells

Cell and Molecular Biology, pp. 711

Another remarkable piece of data can be found in the syndrome of 'progéria', in which young children age extremely rapidly (see Figure 13). The ability to divide cells may have some relation with this:

The possibility that the process of cell aging and death is under genetic control was first suggested in 1961 when Leonard Hayflick reported that normal human fibroblasts. have a built-in limit to the number of times they can proliferate. His experiments revealed that fibroblasts taken from an embryo and grown in culture divide about 50 times before they deteriorate and die. In contrast, fibroblasts taken from adults multiply only 15-30-times before dying. And fibroblasts isolated from young children suffering from Werner's syndrome, a rare disease that causes youngsters to age prematurely, divide only 2-10 times in culture. Further evidence for a relationship between aging and a cell's proliferative capacity came with the discovery that the number of times a cell can divide in culture is related to the life span of an organism. Thus cells of the Galápagos tortoise, whose maximum life span is about 175 years, divide more than a 100 times in culture before dying, whereas cells obtained from mice, whose life expectancy is only a few years, divide fewer than 30 times.

Cell and Molecular Biology, pp. 709

Figure 3. a boy of twelve years old with progéria or Werner's syndrome (picture archive EO)

Another piece of data concerns DNA duplication during cell division. The proteins that arrange the duplication need a piece of the DNA to hold on to. With each duplication, a small piece of the DNA at the end is lost, and the chromosome becomes a little bit shorter. Now this is not a big problem, since the ends of human chromosomes have between 250 and 1500 copies of the same piece of DNA, with the code TTAGGG, also known as the TEL sequence. But once the pieces are gone, the chromosome itself and the genes thereupon are affected, which eventually leads to the death of the cell.

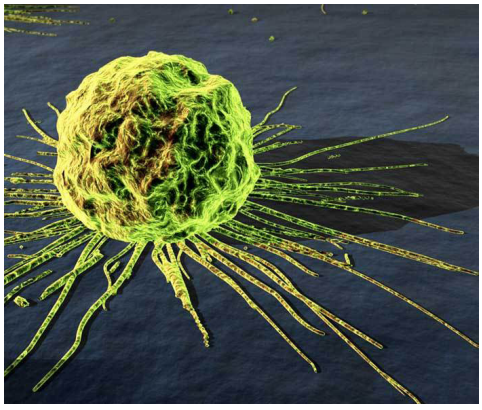
It is noticeable that in the line of cells from fertilized egg cell to sex cells, this 'shortening' does not happen. That 'line of sex cells' has eternal life! If that were not the case, only a few generations could come into existence, or perhaps even only one. It appears that there is a special enzyme, called telomerase, which can add the TEL sequence to the ends of chromosomes!

Since the somatic cells[1] of multi-cellular organisms, in fact, lack telomerase activity, this suggests that the loss of telomerase function in somatic cells is a basis for aging in multi-cellular organisms.

Biochemistry, pp. 1044

All these facts show that 'growing older' is programmed into the DNA. In the case of progéria, you see that it is possible for aging to happen much faster than normal. Would the opposite then be possible? That people once lived much longer than they do now? Or that our earliest ancestors maybe did have the telomerase function for somatic cells and therefore had some form of 'eternal life'? Did they lose that 'on the way to us'? Has the human race been exposed to a very serious form of degeneration?

4.cancer



Cancer is a form of degeneration of somatic cells (non-sex cells).That is the reason that mutations can happen in these cells without those mutations being passed on to the offspring. Cancer has a genetic basis. There are all sorts of proteins which arrange cell division. There are also proteins which keep an eye on the process to see if it goes well. Such a protein, called P53, checks if the DNA is all right, and if it is not, it allows the cell to die. P53 is sometimes called 'The Guardian of the Genome'. It is a kind of gatekeeper: if all the other mechanisms to preserve the DNA have failed, P53 initiates the self-destruction of the cell, so that the damaged DNA is prevented from spreading to many more cells.

But what if P53 itself is damaged by a mutation? Then cells can have 'eternal life': the programmed limited number of cell divisions no longer applies, self-destruction no longer kicks in, in the case of damage, in short, the cells continue to multiply unlimitedly and uncontrollably, without end, it becomes a cancerous tumor.[2]

When such damage occurs in sex cells and is passed on to the offspring, it is then a matter of a hereditary increased chance of cancer.

5.deadly genes

Under normal circumstances, mice have a dark gray-brown pelt. There are also mice with a yellow pelt. If these are crossed with normal mice, half will be yellow and half normal. That means that the yellow mouse was a heterozygote (two different alleles for a certain gene) and that the characteristic yellow (AY) is dominant to normal (A). However, if a yellow mouse is crossed with a yellow mouse, twice as many yellow mice as normal mice result, whereas the expectation would be that there would be three times as many yellow mice. The reason for this turned out to be that when a mouse became homozygotic (AYAY) for that yellow color, it is no longer viable. In the uterus of pregnant females, one quarter of the embryos was found dead.

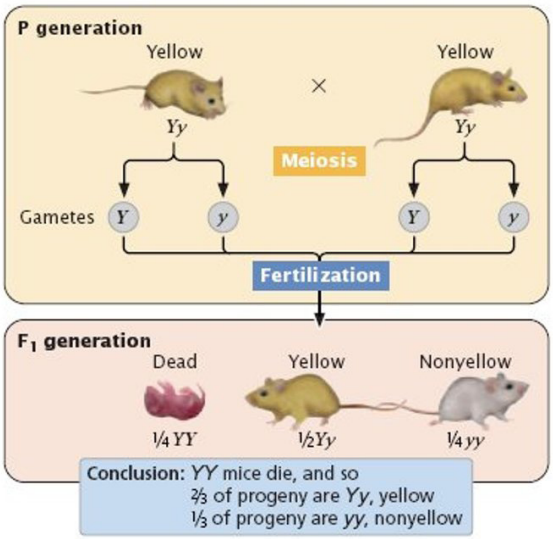


Figure 4: A nest of 'yellow' mice, Genetic analysis pp.97

The explanation for this must be that it concerns an essential protein, which, when it only occurs once, it (among other things) causes the pelt to be yellow, but its complete absence is lethal.

It turns out that there are a lot of these sort of lethal genes. Depending on what kind of gene it affects, it can result in death during the embryonic development, or later in life. Some cause death in heterozygosis, other only in homozygosis. There is a term for the complete collection of lethal genes that resides in a population or population group: genetic load. This is a clear form of degeneration. That this degeneration does not get out of hand and take over is simply because, again and again, they literally die out. However, due to new mutations in the same gene, they also come back again and again.

6.internal viruses

In chapter 7, we discussed the P-elements in fruit flies. That is DNA from another species which copies and shifts itself, and is responsible for a lot of mutation in the fruit flies' genome. We have seen that these 'internal viruses' can spread throughout a population in living nature (not just by human influence). At the present time, somewhere between 3% (Biochemistry, pp. 1064) and 10% (Genetic analysis, p. 650) of the DNA of fruit flies consists of this kind of 'rubbish'! It makes you wonder why the fruit flies are still alive! The reason is probably because the fruit flies have a lot of offspring, and all the offspring in which the genome is too messed up simply never grows. Only the fruit flies in which the transposons are located in places where they cannot do much damage can reproduce.

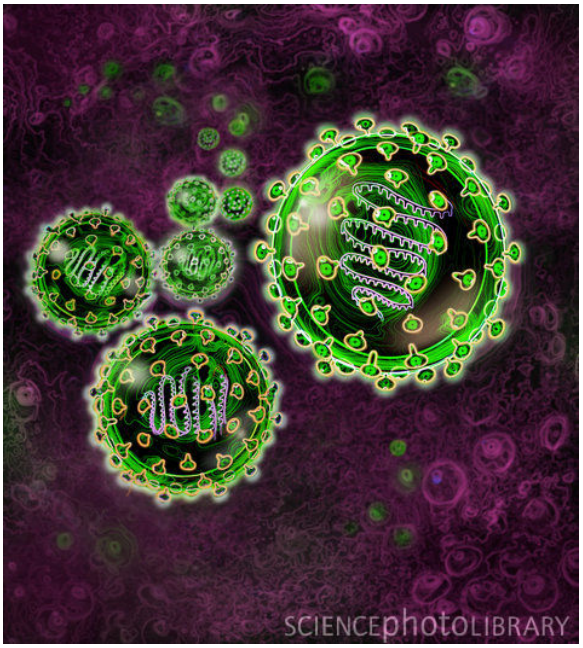
If you realize that the fruit flies did not have this muddying of their genome at first, you can see clearly that this is a form of degeneration. Is it possible that the extinction of an entire species could be caused by degeneration in this way?

In the 24 January '97 issue of Intermediair, there was an alarming article about these 'retrotransposons' with the title "The jumping brother of HIV." A few quotes:

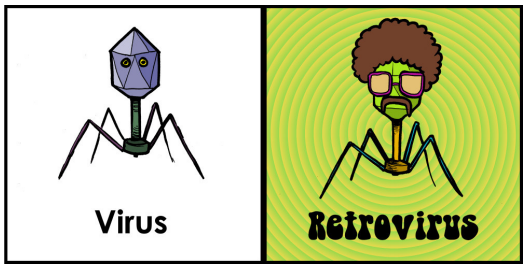
The retrotransposons or 'jumping genes' have existed for a long time and seem to do their carriers more harm than good.

Some have been active for an eternity. Others appear for a while, display increasing amounts of

mutations and then die, leaving the DNA of their host full of molecular debris.



Michael Tristen and his colleagues found indications of retroviruses (active and degenerated) in reptiles, amphibians and fish.



If the retrovirus genealogies of for example fish and mammals are hardly distinguishable from each other, that could mean that their parasites are closely related and therefore can transfer from one group to another without too much difficulty. And that would have worrying implications for the evolution of new diseases.

prediction: In the DNA of fossils, very few to absolutely no transposons are present.

7. pseudo genes

The phenomenon of dead genes or pseudo genes has already been extensively covered. To show that it is not made up, the next quote says:

There are other sites in the genome where nucleotide differences do not effect protein sequences. The genome of eukaryotes is loaded with 'dead genes' called pseudogenes. Pseudogenes are copies of working genes that have been inactivated by mutation. Most pseudogenes do not produce full proteins. They may be transcribed (There is made a matrix of, PMS), but not translated '(There are made no protein of, PMS). Or, they may be translated, but only a truncated protein is produced.

Chris Colby, The Talk.Origin Archive, Introduction to Evolutionary Biology.

Chris Colby suggests that dead genes are copied genes that have lost their function, but it seems to me that in many cases they could have been simply (for the viability) neutral genesthat had been damaged!

Dead genes are a clear form of impoverishment and degeneration. The more dead genes in a species, the more 'degenerated' (the DNA of) that species is.

8. asexual reproduction in female lizards

There are about fifteen known species of lizards (of the genus Cnemidophorus) that only have females. They reproduce asexually (called parthogenesis). The offspring is therefore also all genetically identical. Still, the females imitate sexual reproduction with each other during mating season. Feminine and masculine behavior alternates synchronous with the periods of ovulation. The sexual behavior stimulates ovulation. Isolated lizards reproduce less easily than those that simulate the sexual act. The lizards originated from species in which males were involved in reproduction

Figure 5, Biology Campbell, pp. 938; two mating female lizards

These lizards that reproduce asexually are often used as 'perfect' examples of evolution. However, it is clear that this is a serious form of degeneration. During meiosis – that is the cell division which ensures that sex cells come out of a cell with a single set of chromosomes each – something goes wrong and egg cells are produced which each have a double set of chromosomes, and therefore can develop into full-fledged lizards. Defects in the genes that arrange meiosis probably cause this. It is clear that the advantages of sexual reproduction, namely variation and therefore greater chances of survival, are lost in this process.

9.rudimentary organs

Rudimentary organs are actually 'reduced' organs. For instance, the lynx no longer has a tail and blindworms have subcutaneous vestigial legs, but are actually lizard-like.

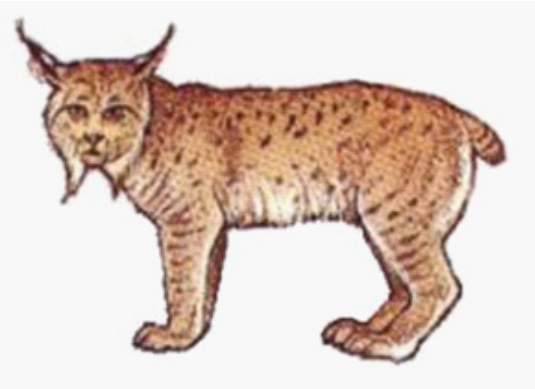


Figure 6, the tailless lynx

Some snakes also have vestigial hind legs, as can be seen in Figure 7. Did snakes once walk? Without legs, they must now crawl on their bellies, but they have been able to deal with it (or adapt, if you like), and have survived.

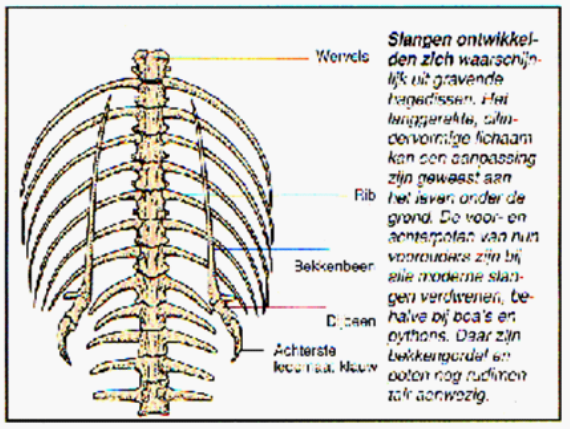
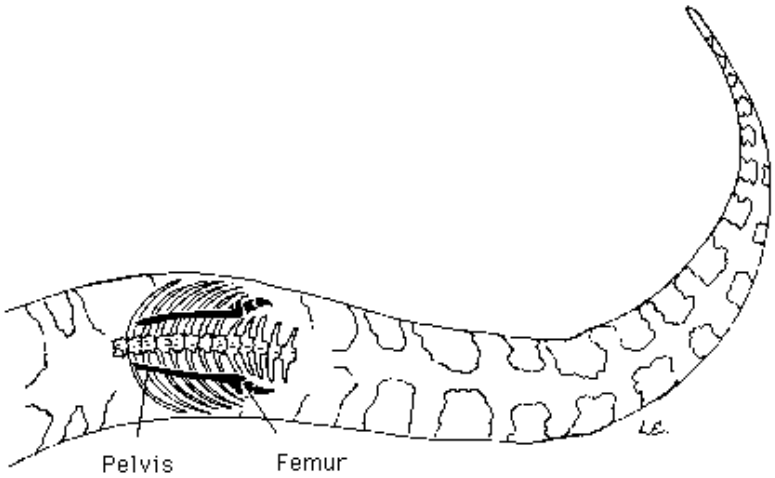


Figure 7 snake 'legs'

Rudimentary organs have always been presented as strong evidence for evolution, and for a common ancestry. In the light of our findings, however, only one conclusion is justified: Rudimentary organs are a form of degeneration, definitely not evolution.



10. blind animals in the Movile cave

In 1986, in western Romania, a cave was discovered without a natural entrance. Construction workers stumbled across one of the rooms. In the spaces, shut off from the outside world, forty-eight species of invertebrates were discovered, including spiders, leeches and scorpions. Because there is no light in that cave, these organisms have no eyes. A clear form of degeneration! A mutation that damages or limits sight would not be a disadvantage in that cave and can spread without problems. In the end, this resulted in a total loss of sight for the whole population.

Someone could say that this was a form of adaptation. And the advantage is that the organisms now do not need to develop eyes. However, even if that were so, it is still a form of genetic degeneration, of descent, of loss of functionality and of loss of genes.

Figure 8, a blind water scorpion

11. the flightless cormorant

The flightless cormorant of the Galapagos islands is the only member of its family which cannot fly. On the islands, it has no natural predators and there is an abundance of fish right by the coast, so that the necessity of flight is no longer present. Mutations that affect the ability of flight therefore had a chance to spread within the population, where they would normally result in the death of the individual. This phenomenon often occurs in birds on remote ocean islands.

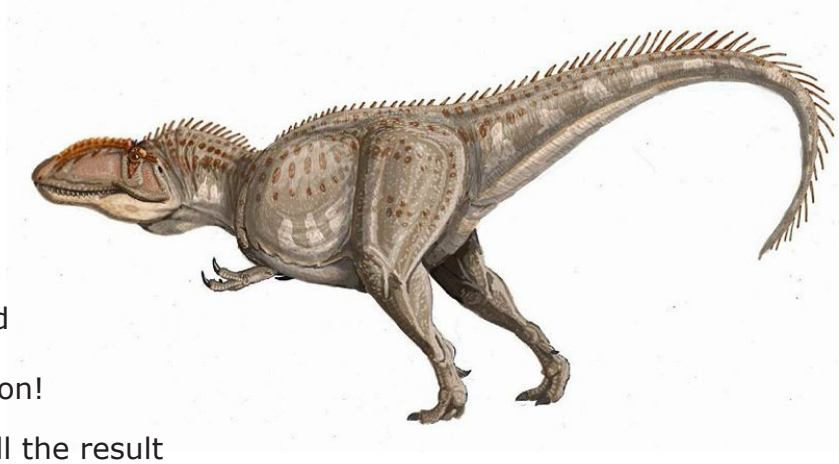
In the Dutch book De Evolutie van het Leven [The Evolution of Life] by Philip Whitfield, a Natuur & Techniek publication, this is brought up as an example of evolution, natural selection and adaptation, because it is to the benefit of the cormorant no longer to need to keep up the energy-consuming flight activity. However, it is actually clearly a form of degenerative adaptation.

Figure 9, Left: the Everglades Cormorant.
Right: The cormorant that 'forgot how to fly'.

12.jury-rigged design

In The Talk.Origins Archive, there is an article about 'jury-rigged design', which means something along the lines of: emergency solutions, emergency constructions, matters which, if they were designed, would indicate more an obtuse design than an intelligent designer. And because there are supposedly so many examples of jury-rigged design, it is absolutely not 'designed'. If an intelligent Designer would had created life, he would have had to approach a lot of things differently. And apparently, this is not the case, goes the logic; the imperfection of living nature indicates that it was not designed but that it had evolved.

Some of the examples used are the nerve in humans under the elbow (which hurts a lot when bumped, and is called the 'funny bone'), the wisdom teeth (some people get them, some do not) and the extremely small forelegs of Tyrannosaurus Rex.



These and many[3] of the other examples named can be easily understood in the light of degeneration and thus have nothing to do with design nor with evolution!

What we thus see in living nature is not all the result of design. What we now see is both design and deterioration. First there is creation, then comes degeneration, as with ALL things that are designed.

11.1.2 Conclusion

If you take a look at the above examples, there is no way of avoiding it! The evolution theory has an ENORMOUS problem with this. It has to explain why there is degeneration all around us! Exactly all those examples which are used to show that evolution exists turn out to be examples of degeneration. No one up to now has used this word (in this context), but it is so very clear, so obvious, so simple to recognize, that no one can deny it:

DEGENERATION DOES EXIST

and

MOST EXAMPLES GIVEN TO PROVE THAT THERE IS EVOLUTION ARE INSTEAD CLEAR EXAMPLES OF THE OPPOSITE: DEGENERATION

Degeneration exists. Degeneration is something we observe in the living nature that surrounds us. Why has no one seen this phenomenon for what it is? Are the spectacles through which we look at the world so colored that we have totally missed this? Have we been blinded? Did we not want to see it? These matters are always seen in the light of a slowly-progressing upward climb, whereas an objective, or perhaps a fresh view of the matter shows that there is a slow, steady downwards trend. And it should be clear to everyone that degeneration is much simpler than evolution. It is easier for a winged cormorant to lose its ability to fly, than for an flightless cormorant to gain that ability, even if it already has half of what it needs (namely degenerated wings). In other words: evolution is not just some random process in which natural selection choosing something. No, if evolution exists, then it has to rise against the cliffs of degeneration. It has to go against the wild flow of the degeneration-river. An impossibility, therefore!

From today onwards, 24 November 1997, the date of publication for this book, the same day that Darwin's book The Origin of Species was brought out, no one can wriggle out from underneath it anymore: there is no evolution from unicellular organisms to humans; in complete contrast to that, we have degeneration..!

11.2 The natural lower boundary of degeneration

Where does the boundary lie? How far can this degeneration still continue? What lies in store for us? It is not unthinkable that a species could become extinct because of pure degeneration and genetic impoverishment. Even more convincing, that is the case with the cheetah. In a documentary on the Discovery Channel, it was said that it was feared that the cheetahs would

become extinct due to genetic impoverishment. The Cheetah Conservation Foundation in Namibia writes on its Internet site, in an article called called;"Why does the cheetah lack genetic diversity?"

In most species, related individuals share about 80 percent of the same genes. With the cheetah, this figure rises to approximately 99 percent. The genetic inbreeding in cheetahs has led to low survivorship (a large number of animals dying), poor sperm quality, and greater susceptibility to disease. Inbred animals suffer from a lack of genetic diversity. This means cheetahs lack the ability to adjust to sudden changes in the environment, such as disease epidemics, and have unusually high susceptibility to certain viruses.

On the other hand, there is normally also a natural lower boundary to degeneration, and that is the age at which an individual can still reproduce. If degeneration progresses so far that the organism no longer gets a chance to reproduce itself, that form of degeneration also dies out along with that degenerated organism, simply because it does not reproduce. The most serious form of degeneration is therefore when a species is just barely capable of reproducing and then dies, if it balances on the edge of survival, one surviving, another just not quite.

One example of this is the day-fly or ephemera. This creature spends most of its life as a larva under water. At some point in time, the larva climbs upward along a stalk and sheds its skin, like a dragonfly. During that one day, it sheds its skin once more and then mating and fertilization takes place. The fertilized female falls into the water, where she drowns. But before she is definitively dead, she releases the eggs, which slowly sink to the bottom of the water. It is noteworthy that the day-flies do not have mouths, because they do not have to eat in that one day.[4]

How was this able to come into existence? It seems to me that (comparable with what is also happening in the case of progéria) the process of maturing is accelerated here in some way, by one or more genetic defects. That same day, they shed their skins a second time and the flies are also fertile. Perhaps these flies had a mouth in the beginning and could eat. A new mutation caused the flies to be unable to eat. Still, they were not at a disadvantage, because they could also reproduce already on the first day. Maybe they even had the advantage, because while the other flies were eating, they were attempting to reproduce. In this way, the mutation could spread throughout the whole population. Finally, with the passing of time, the mouth-sections disappeared completely, because that was no longer selected for. The females drown from exhaustion (having eaten nothing all day) as they expel their eggs at the last moment. This is a very definitive form of degeneration. It can't go further than that.

All this would mean that species that live much longer than is absolutely necessary to produce independent offspring, are less degenerated. I do not say this because that is what the data shows. There is no data on this matter. I say this as a logical consequence of a number of observations. This is so new that no one has as yet done research in this area, so I cannot check it. It seems to me that it would offer an extremely interesting field of research for biologists though. That is why I will risk making another prediction:

prediction

The genome of organisms which live (much) longer than is necessary to reproduce is (probably) less degenerated than that of comparable organisms which reproduce and die soon afterwards.

I came across a confirmation of this in EOS Magazine, April '97 issue, in the article "Aging, is there a way out" by Mayke Visser, when it talked about the phenomenon that osseous fish, turtles, sea anemones and other organisms appear not to age:

It is obvious that we ask ourselves what these youthful organisms have found to avoid getting old and decrepit. Still, this is not a good question. It turns out after closer scrutiny that the species that stay young so long typically belong to the oldest and most primitive groups on earth. It seems as though staying young was standard then and that aging is a relatively new process.

natural selection

All this also offers a whole different perspective on natural selection. It is not the 'driving force of the evolutionary motor', but a tough judge, a master of healing with a passionate hatred of festering wounds, an angel of death which battles against degeneration: if your genome is too severely damaged, if you have too many bad genes, you are not allowed to pass them on, you are not allowed to reproduce, in many cases you even have to die at once. Natural selection is an automatic mechanism that keeps degeneration in check, ensures that species do not fall under the lower boundary of reproductivity. (see figure below)

Figure 10, Natural selection guards against too serious degeneration, if it means that the carrier cannot no longer reproduce

11.3 The degeneration law

The examples named above, especially the blind water scorpion, the flightless cormorant, and the day-fly, show a simple and logical, but as far as I know not yet formulated, biological law. It goes as follows:

A species or population has a tendency in the long run to lose those characteristics that it does not absolutely need to survive.

For clarification: that is 'tendency' and 'in the long run'. That means in practice, in terms of a human life span, that it can take a very long time before it is done. Furthermore: the time it takes, depends on the largeness of the population. The larger a population, the slower degeneration occurs. The smaller a population, the quicker it will impoverish and degenerate over time.

The reason for this 'law' is mutation and that is called genetic drift. If a certain characteristic (flight, sight, or whatever) is no longer a determining factor for the survival of the species, a mutation which damages that characteristic will not be selected out. The carrier of this mutant characteristic can therefore reproduce in peace and by sheer coincidence; the lost characteristic can spread throughout the entire population. This coincidental spreading of genes, which does not particularly take place due to selection, is a familiar concept, called genetic drift. Genetic drift is sheer coincidence: who mates with who and how many offspring do they have, which can reproduce again, etc. But other factors such as this also play a part: can a mutant gene 'hitch a ride' with a very beneficial gene, because it is very close to this beneficial gene on the chromosome?. This makes the chance that the two become separated by recombination very small. Because the beneficial gene is selected for, the mutant 'hitches a ride' and also

spreads itself throughout the population. This arbitrary aspect of genetic drift can just as easily mean that a mutant characteristic disappears again by pure coincidence! But in the long run, a mutation will damage that characteristic again, so that it can once more spread itself by genetic drift. However, if at a certain point in time every individual of the population has become homozygous for that damaged characteristic, there is no way back, because the original undamaged gene has been lost. And that means that a population in the end has a tendency to lose that characteristic. It can be clear that the degeneration law is an appropriate name for this law.[5]

11.4 beneficial degeneration

Now that we have seen that degeneration exists, we need to come to a noteworthy conclusion: sometimes a certain form of degeneration can be beneficial! we could call that beneficial degeneration. It is then (overall) beneficial to the carrier, but surely degeneration at the DNA-level. An example will make it clear.

Sickle-cell anemia is caused by one change in the gene for hemoglobin, in which one amino acid (Glutamine) is exchanged for another (Valine). Hemoglobin is a robot-protein that resides in red blood cells and fastens onto an oxygen molecule and transports it throughout the body. As you may understand, this is a very essential protein. This one mistake causes a lot of problems, and has a very distinctive feature, namely that the red blood cells are no longer round, but sickle-shaped, as in Figure11.

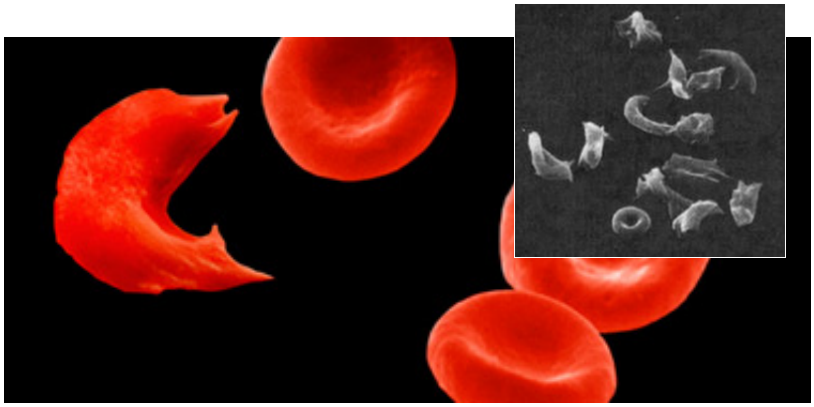


Figure 11.normal and 'sickle'-shaped red blood cells. Genetic Analysis pp. 93

People who are homozygous (both parts of the gene are for the wrong hemoglobin) suffer from serious ailments that can even end in death. People who are heterozygous (one right and one wrong allele) have mild ailments because both kinds of hemoglobin are produced and both kinds of red blood cells also occur. The deviation appears as it were at half strength and is therefore not as serious. However, carriers have one very great benefit: they are resistant to malaria! Ordinarily speaking, such a deviation conveys so much disadvantage (read: death) that they have little chance to spread. But because they are resistant to malaria, in areas where a lot of malaria is around, the gene does get the chance to spread, because there are many people with the right hemoglobin who die of malaria. So although sickle-cell anemia is a clear form of degeneration – damage to an essential gene– yet it bestows a survival benefit. And with that, it is a form of beneficial degeneration.

In the same line, for example, mutations can arise in bacteria that are resistant to an antibiotic or mould. If that mould or antibiotic is not around, that mutation may be detrimental (or neutral). If the mould or antibiotic is present, the mutation is beneficial.

One detrimental effect can thus be surpassed by another benefit. The benefit under certain circumstances can be so great (for instance sheer survival) that the detriment (a somewhat weaker individual) is insignificant. For those circumstances, 'better adapted' individuals are obtained, but genetically, disorder has still been introduced, degeneration has taken place.

In this way, a juiced-up motorcycle can be faster than the normal variant from which it originated, and thieves with such a fast motorcycle may have better chances of survival because

they are able to escape from the police. A (much more complex) motor will never be able to arise from an accumulation of those kinds of changes through.

In living creatures this kind of damage can also appear, which is dependent on the circumstances and thus is beneficial. The fact that it is beneficial under the circumstances, however, may not seduce us into denying the true nature of the genetic change: that it is still just degeneration. Under those specific circumstances, it is then beneficial degeneration.

DEGENERATION FAQ

frequently-asked questions about degeneration

the rate of degeneration

:Does degeneration still occur today and, if so, at what rate?

:Yes, there certainly is. Degeneration still goes on, but the rate is not that fast. In humans, on average one mutation per individual appears, which does not always have to have a noticeable effect. Only when such a mutation spreads itself throughout a large part of a population can you call it degeneration. In the plant and animal worlds, degeneration is swiftly punished by the death of the individual.

The rate of degeneration is faster in smaller populations than in large one, because it takes much longer in a large population before every individual has lost the original 'good' genes,

everything was good in the past

:Was everything better in the past than it is now

:If everything was better is difficult to say, but genetically, plants and animals would have been less degenerated, more original and therefore indeed 'better' or healthier.

Degeneration is not in conflict with evolution

:Degeneration is not in conflict with evolution but is the flip side of evolution! 'Survival of the fittest' already indicates that there are those less than fit, which is degeneration.

:Of course the 'fittest' or 'most qualified' individuals of degenerating species will survive. But even these 'fittest' individuals do not climb upwards in relation to their ancestors (i.e. evolution), but remain equal to them or descend slowly (i.e. degeneration). Those individuals that descend rapidly down the ladder of degeneration will lose the struggle for existence to those individuals who remain 'healthier'. But even if that is taken into account, one still cannot say that the latter evolved, that is increase in complexity. The surviving 'fit' individuals are also subject to degeneration. The least-degenerated individuals are the ones who survive the longest. Natural selection is the medicine for degeneration, not the engine for

evolution. The moment that natural selection lapses, as with the flightless cormorant because there were no predators on the remote islands, you see that degeneration strikes.

In other words, all life on earth is subject to degeneration, no species climbs 'upwards'. If a species has a tendency to lose that genetic information which it does not necessarily need to survive, within periods of hundreds of years, then over periods of millions of years, no new information will be added, which it apparently couldn't even use in a short period of time. If a snail crawls one centimeter upward during the day and falls ten centimeter downwards during the night, it will never get higher. And, to bring it back to the matter at hand, it is precisely the examples of degeneration that are often used as examples of evolution! However, there are no examples at all of evolution going across the borders of types and increasing in complexity (unless the chaos created in the DNA by degeneration will be called 'an increase in complexity').

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[1] Somatic cells include almost all the cells of the body, except for the ones which make up the 'line of sex cells'. The line of sex cells consists of those cells which, from the fertilized egg cell to the mature individual, make the organs and cells from which the sex cells come.

[2] Actually, three or four genes must be damaged by mutations before cells receive eternal life, because the mechanisms are much more complex. But the idea stays the same.

[3] Not all the examples are forms of degeneration. In their enthusiasm, they dragged in a lot of things which have nothing to do with 'bad design', such as plaice that have two eyes on one side. That does not indicate a bad design at all (those fish swim on one side, after all) but it does indicate a designer with a sense of humor!

[4] source: Discovery, Wild Things, broadcast 20-5-97

[5] By the way, there is also a biological law, called the law if Dollo, which is about the irreversibility of evolution. It says that 'in the phylogenetic development, features, once lost, do not return. (Winkler Prins Encyclopedia)! The degeneration law and the law of Dollo make a nice pair...

12. Creation Happened

(Not evolution)

12. CREATION HAPPENED

12.1 The DNA is programmed

12.2 A creator?

12.3 Multiple origins

If natural selection wasn't able to grab the specialized, complex robots that life uses from the hold of King Entropy, what is? Is there perhaps another force at work? One we haven't discovered yet? Should we cling to a materialistic vision that tells us that the proteins had to be formed this way, because it is 'implied in the nature of the matter'? Or do we have to call to life a new kind of vitality, which tells us that the proteins form themselves into their complex structures, by a magic motor, a vital force? Should we call upon God and hold Him responsible for withdrawing the proteins from the unlimited grayness of average sequences? The answer is no. No. No, and once again No.

Proteins are encoded into the DNA. They cannot compose themselves spontaneously into their specialized order and the DNA does not know how proteins function, it only encodes. The DNA is information: a molecular hard disk with data, with metabolic programs, a growth program, a man-or-woman program, thousands of give-a-signal-to-the-brain routines and so on.

The DNA is programmed. It no more originated by itself than the zeros and ones on a hard disk originated by mistakes in copying. And it is ridiculous to keep holding on to the mechanism of the clerical errors, by just establishing that they are accompanied by a materialistic, magic, vital or even god-like power. Mutation is a form of degeneration, not the driving force behind evolution. It is a bit disappointing, but there is no structural evolution and there has never been structural evolution. If a not-yet-discovered power causes gene growth, and with their help makes beautiful, wonderful new genetic robots, which bring about all sorts of new functions and make new organs etcetera., why don't we observe this? Why are the fruit flies still fruit flies when their genetic mess has been increased by more than 3%? These insects can reproduce themselves in large numbers within four days and are studied intensively. Why don't we regularly discover all sorts of proteins in the fruit flies which were not there before and which help the insect in its development/evolution towards a higher complexity, a tiny leap if you are a gradualist, or a giant leap if you are a punctualist? The fruit fly does not have to turn in to a dragonfly right away, but one single entirely new protein that was adopted would support our belief in evolution immensely.

No. If these things would happen, we don't really need a force like that to explain it, do we Richard? If they didn't happen, we shouldn't have to involve such a force in order to maintain our belief in it.

12.1 The DNA is programmed

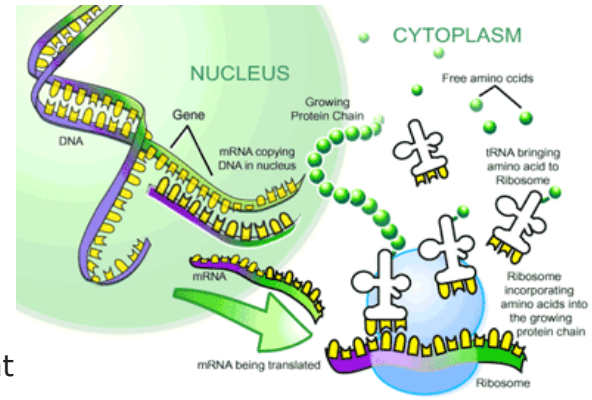
Try to follow me in the next argumentation:

1. Evolutionists believe that matter has molded itself spontaneously into the intelligent form that can be found in the DNA.
2. Humans, who are intelligent beings, can design DNA sequences and produce specific proteins with their help.
3. It is 20300 times as simple to suppose that an intelligent alien has designed the DNA and this life.

I will clarify myself.

DNA is the bearer of information and thus of knowledge. Information and knowledge are the products of intelligence. Matter cannot spontaneously take on an intelligent form.

A human is the only living creature that is capable of getting to the bottom of the structure of his existence and even tampering with it. This proves a high level of intelligence. However, man's intelligence is not capable of knowing all. The structure of proteins is so complex and the possibilities are so great (>20300) which would mean that man would be involved in it for the rest of his existence. Should man have that knowledge, then he could design robot-proteins that would do exactly what he wanted them to do. For the time being, (the next 20300), he will have to make do with whatever is present in nature and perhaps tamper with it so that it will do something which comes close to what he wants it to do.



No other life form is capable of reaching the same level of achievement as man. Only the combination of intelligence and knowledge which man has constructed can reach that. It is a clear sign of a lack of intelligence, however, to think that the intelligence that lies in the DNA originated spontaneously. There is no other possibility than that some sort of 'occurrence of creation' has taken place. 'A programming of the DNA'. The only reasonable alternative that remains is I-do-not-know. I can agree with this as well in a certain way. However, in the meantime, I will keep on working on this option.

Humans are the 'hackers' of DNA. They have cracked the code (well, 'some code' might be better) and now they are breaking in. In computer science, various levels of programming exist. The best-known programming language is Basic in one or another form, or javascript is well known too. But if you program in language like that, you don't type ones and zeros, but words. The interpreter translates these words into a sequence of ones and zeros, so that the microprocessor understands them. Programming on the level of ones and zeros is virtually impossible, because you then have to keep your eye on where each word starts and what word it is, etc. That is why people use programs to aid in writing other programs. The first level after the zeros and ones

is called assembler, a programming language in which you can directly type in instructions or words which are then translated into zeros and ones for the microprocessor. But this is still difficult for programming. That is why so-called higher programming languages exist in which a more 'human' instruction can be given, such as PRINT or GOTO in Basic. If a software developer publishes a program, the instructions written in a higher programming language becomes complicated, so this is translated into zeros and ones and put on a disk. If you buy a program in the store, you don't buy the instructions for that programming language, you buy the zeros and ones.

When hackers want to crack a game's security code for instance, they have to do this on the level of the zeros and ones. They have to make a zero out of a one and a one into a zero, or to replace one instruction with another. Genetic manipulation takes place on that same level: the changing of the sequence of base pairs (the A's, T's, C's and G's) in the DNA. Man has developed all kinds of resources to make it easier for him, but it is still 'hacking', not programming. Another problem is that when you are given a row of ones and zeros, it is impossible to recover the original programming language and the help programs used to create it. They are not supplied. Only the end result is visible. Thus, if we send a program made up of zeros and ones and a computer to Mars, the aliens will never be able to recover the original programming software (Basic, C, C++ or whatever the program is written in.)

So when we're talking about an occurrence of creation, you should not think of our own sad attempts and say: it does not exist. Humans hack, they don't program. This creation-occurrence included (among other things) the programming of the DNA. Therefore, we have to state that it is impossible for us to recover how this was done. The implements, the programming language, the help programs, the 'tools' are not supplied. It is very simple: we just don't know, and we will never find out through scientific research either. Now don't get irritated right away. Evolutionists would never be able to recover what would have happened before the Big Bang (for instance), so there will always be something that we can never discover.[1]

This should not bother us too much. It does however not alter the fact that you can conclude that something like creation must have happened. Science is then like trying to go back as far as you can and recover all of what happened afterwards and attempt to get to the bottom of how it all works today.

The DNA is only the physical carrier of the intelligence and knowledge that is hidden in it, it is not that intelligence itself, just as a computer program is the physical carrier of the intelligence put in to it but is not actually intelligent itself.

12.2 A creator?

Regarding that alien, there are a couple of things we can derive from 'his' creation:

In the first place, it is intelligent, or it could never have put the intelligence, the information and the structure into the DNA that is now present. The extent of that intelligence is exponential to ours. It has to know everything about atoms, molecules, chemistry, and so on, and master them all completely. Let us say, just to keep it simple, that his intelligence is 20300 times the sum of all the intelligences of all the biochemists that ever lived. We cracked and hacked the code, but he (or she or it?) designed it. And then you in order to do this, he (or or she or it) had to be in complete command of the matter.

This alien is not-organic! Because it has designed or programmed organic life itself, it cannot be organic. In the same way, the programmer of the program code (zeros and ones) is not a program of zeros and ones himself. The programmer could have used another program, but he cannot be made of zeros and ones himself. Therefore, organic life simply cannot be designed by another organic life form.

In the same way we can state that the programmer of life is itself not subject to what we call 'death', since 'death' is a typical property of organical life. We could go one like this for a while…

It is non-sexual. Sexuality is a characteristic of some organic life. Bacteria are neither male nor female. Sex is a feature that is entwined in our lives. The programmer of the DNA is responsible for programming sex(uality). It will no more be sexual than it will be organic.

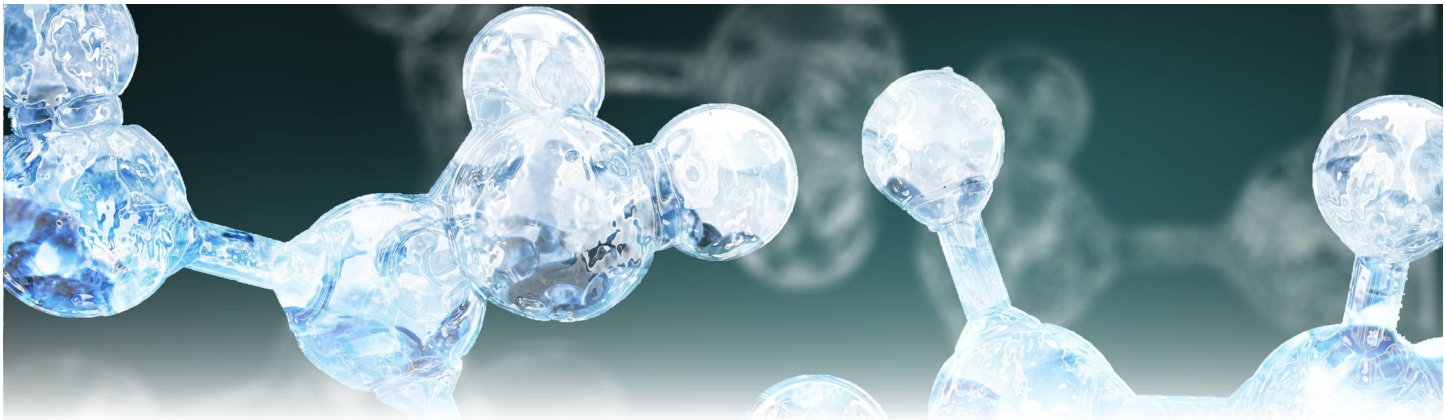
It is at least personal, or has a personality. The maker of something is always more than its creation; it is never less or it could not have created it. People are intelligent and have a personality. The programmer of life is also at least 'some kind of' 'personal' it can never be just an intelligent force. This immediately causes a problem since 'it' is non-sexual and 'he' is at the same time personal. So, do we use 'it', 'him', or 'her' to refer to him (?)? Not using a word that already entails a lot of meaning, prejudice, and/or association like God, alien, etc., I will call this 'entity' the Creator. Should I write that with a lowercase or a capital C? Allow me to use a capital. The Creator made us. We can show at least a bit of respect. Also, I have to make a choice about which pronoun I will use to indicate him. Forgive me for the shortcomings of our language, but I am choosing for the third person masculine (probably because I am male myself, and maybe because we are used to doing it that way.)

There we are with this intelligent, non-organic, non-sexual, not mortal, but personal Creator®.

Immediately, we have a lot of questions we want to ask. Why does degeneration exist? Are we practice material; is he doing it again somewhere else, but better this time around? Did he initiate life and then leave it alone? Or is he still hanging around somewhere? Would we be able to find out more about him? Why is death programmed into our genes?

All questions which cannot be answered here, because they exceed the limitations of biological science! This is how it is. The degeneration theory tells us that creation happened, and then it stops when it is looked at from a scientific point of view, since that cannot be reproduced by experiments. This absolutely does not mean that it makes it untrue. It is very hard for science as such to investigate occurrences which happened once, a long time ago, to study the how and why of it all. This does not alter the fact that with some logical scientific thinking it can be deduced and confirmed that something like a creation-event must have happened.

Another interesting question that arises when thinking about this Creator® is: why did he create us in such a way that we are able to get to the bottom of our own existence and even take it in hand? Or, in other words, why has he created us in such a way that we have a self-awareness of an order that does not occur anywhere else in living nature? Why has he made us intelligent, so that we can get to the bottom of the basis or carrier of our life, the DNA? Why has he made us so intelligent that we can hack 'his' code?



12.3 Multiple origins

A subsequent aspect of the creation part of the degeneration theory is that the origins of life are multiple, as opposed to what the evolution theory states, namely that there is a single origin of life. This means that the Creator created various different types of organic, living beings which cannot be derived to or from each other, which differ enormously from each other in complexity and form, but which were/are capable of great variety. I will return to this point later on.

This multiple origin does not imply that all current species were created the same as they now present themselves to us. Design isn't the opposite of change, as the discussion on this topic seems to suggest regularly. On the contrary, a robot is just as well designed as a machine, but a robot is still capable – to a certain degree – of manipulating and adapting to changes. Variability does not rule out design. Multiple origins, therefore, do not mean that there were the same species, or as many species, in the beginning of life as we observe now.

Design is not the opposite of biological change. On the contrary: design can very well implicate adaptation to give the design more survivability.

Prediction: Science implies that one should be able to discuss a theory and put it to the test. This is a bit difficult with regard to creation, as we discussed, but I still think that I can make a few predictions that could reinforce trust in this issue if they were to prove correct.

Prediction: The amount of DNA in the single (i.e. haploid) set of chromosomes is called the C-value. A bacterium is made up of one kind of cell. The more complex organisms get, the more cells there are in that organism: bone cells, liver cells, muscles, nerve cells and the like. Reasonable speaking, you would expect that the more complex an organism is, the more DNA is present. This proves not to be the case. Below you can see a graph on which the average amount of kinds of cells in an organism is rendered vertically and the length of the DNA in base pairs in rendered horizontally. The unexpected values are what is known as the C-value paradox.

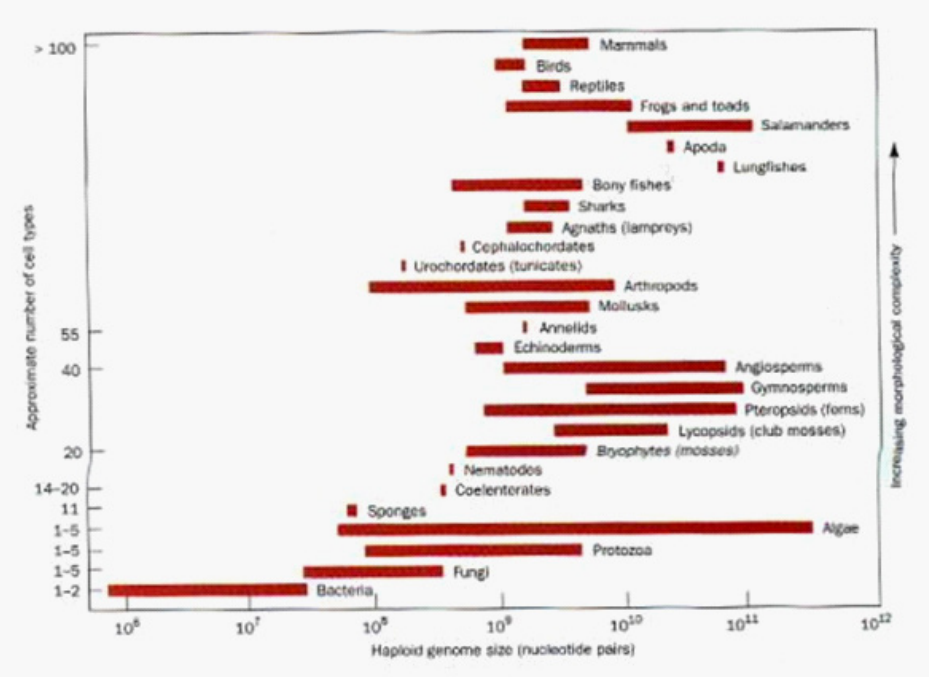


Figure 1, the C-value paradox, based on Biochemistry, pp. 1134.

A few examples from this: The genome of lungfish is 10 to 15 times as great as that of mammals. E. coli (that bacteria from the lab) has 3,000 genes which code for proteins. Man has a genome that is more than 600 time the size of the bacteria's, but only codes for 13 times as many proteins.[2] Certain plants and amphibians have 10 times as much DNA as humans. Another figure is that, in most organisms, only 5 to 10 percent of the DNA codes for proteins!

Why do we find these large differences and why do we have that superfluous DNA?

A complete explanation for the various aspects of the C value paradox is yet to emerge, but they seem to suggest the existence of large amounts of DNA that perform no obvious genetic function. Cell and molecular biology, pp. 443

These 'unexplainable' figures are responsible for people viewing this DNA as junk DNA. Which, according to me, is a typical evolutionistic statement. A Creator® wouldn't put a superfluous, pointless burden like this in the DNA.[3] On the other hand, the differences in the amounts of DNA do not pose a problem for a creation-hypothesis: in one way or another, this DNA will have its own reason and function in each species. Now we have already seen that the genome of the fruit flies has been muddied with 'internal viruses'. We have also discussed the phenomenon of the dead genes, and duplication of the chromosomes, etcetera., can sometimes occur. But these matters still cannot determine just the major differences.

The prediction therefore is as follows:

Not including certain forms of degeneration, such as internal viruses and dead genes or even duplication of (parts of) the genome in certain species, the greater part of the DNA fulfils a useful function in every species. The part of the DNA that does not code for proteins (which is about 70% in total) is therefore not junk DNA.(The other 25% is generally divided into: 5% genes, 10% structural code like the TEL sequences, 10% (?) junk.)

This would implies that we will still be surprised by some of the developments in the area of genetics in years to come. The outlines of such a surprise are already starting to take shape:

The protein-coding genes amount to at most only 10% of the total DNA. Little is known about the remainder. Initially, the strange short-circuit was made which led to nothing and was described as junk DNA. However, there are indications that the *junk* DNA also contains some coded information, albeit in a language we cannot decipher...Prof. dr. Arnold van den Hooff

With great surprise, the biologist observes how a total organism, a human being, forms itself from an embryonic cell, and that the improbable complexity of a living being is the result of the early dialogue between the genes. When an embryo comes into existence, it is like a symphony played without a single false note. So is there, despite everything, no cryptography in the DNA? Luc Montagnier, the French DNA researcher and discoverer of the AIDS virus, in Natuur & Techniek, December 1996, 'Cancer: doubt the genes".

The idea is that non-coding DNA plays a part in the communication between the cells themselves, and therefore supply a correct embryonic development and ensure the correct preservation of the organism (new cells are constantly made which should 'know' what they should become).

prediction: The genetic code has 64 possibilities for 20 amino acids and a stop codon. These 64 possibilities arrange the amino acids in such a way that the third symbol often does not mean a change in amino acid. This means that it is less sensitive to mutations.

Some amino acids are coded in 6 different ways, others only one. This is the prediction: generally and on average, those amino acids that are coded for more often are proportionally also more often used in the proteins. Often-used amino acids thus run less of a risk of being changed by mutation. It is pointless to frequently code for amino acids that are almost never used.

This prediction follows from the idea that there was someone who thought about it and that mutations should be prevented.

Creation FAQ

questions about the concept of creation

degeneration and creation are mutually exclusive

The fact that degeneration exists does not allow for a Creator® to exist who has made everything beautiful.

Across from the building in which my office is located is a big Catholic church. From my window, I can see it directly. To the left and right of the large doors, two statues are mounted in recesses in the wall. The statues look awful. Acid rain has affected them greatly and almost none of their original shapeliness has survived. They are degenerated. But still, when you see such a statue, you know that it was once created. The degeneration of the statue and its creation do not exclude each other. On the contrary, degeneration is only possible after creation.

is the universe also designed

Did the Creator® create both the universe and the earth??

We cannot conclude this from the data we have discussed. However, it is the case that the earth's atmosphere is completely dependent on and is determined by the living beings which inhabit it. Plants produce the oxygen in the atmosphere and the ozone layer originates from oxygen, to name only two. The atmosphere and life are intertwined in such a way that you can suppose that the Creator® also designed the atmosphere.

predators

Why did the Creator® develop such aggressiveness in nature and create predators?

I read a noteworthy article in EOS, December '96 issue, which is represented in Figure 1. The crocodile seems to have been a vegetarian at some point. This means without a doubt that the Creator® did not create the crocodile to be a predator and this thus evokes the question whether this was also the case for the other predators. It is known of felines that they still eat grass in order to 'keep the digestion going'! It could therefore be so that the aggression in nature is also a kind of deterioration.

Why would this transition have happened? It could have been because degeneration occurred combined with rivalry over vegetable food sources. Because of degeneration, many weak animals originated which made easy prey for the stronger species. Due to (mutating?) variation and adaptation and to increasing aggression, it has become second nature and cannot be reversed.

THE CROCODILE WAS ONCE A VEGATARIAN


KROKODIL WAS OOIT VEGETARIËR

Een van de meest gevreesde vleeseters van het dierenrijk was ooit een onschuldig planteneter. Dat blijkt uit gecombineerd Chinees-Canadees onderzoek aan een honderd twintig miljoen jaar oud krokodilleskelet uit de Chinese provincie Hubei. Biologen constateerden dat het dier van achter naar voren moet hebben gekauwd. Dat is typisch voor planteneters. Ook de vorm van de tanden – plat in plaats van de karakteristieke scherpe krokodilletanden – wijst op een plantaardig dieet. Waarschijnlijk at het dier gras. De conclusie is bijzonder, vooral omdat alle bestaande krokodillerassen gelijksoortige tanden hebben. Wat de krokodil betreft heeft de evolutie dus stevig met het vegetarisme afgerekend. Het bedenken van een geschikte naam voor de uitgestorven soort was niet zo moeilijk: Chimaerasuchus paradoxus. 'Chimaira' komt van het Griekse mythologische dier, 'Souchos' verwijst naar de Griekse god Sebek met zijn krokodillekop en 'paradoxos' betekent 'vreemd'.

Figure 2. Article in EOS of Dec '96

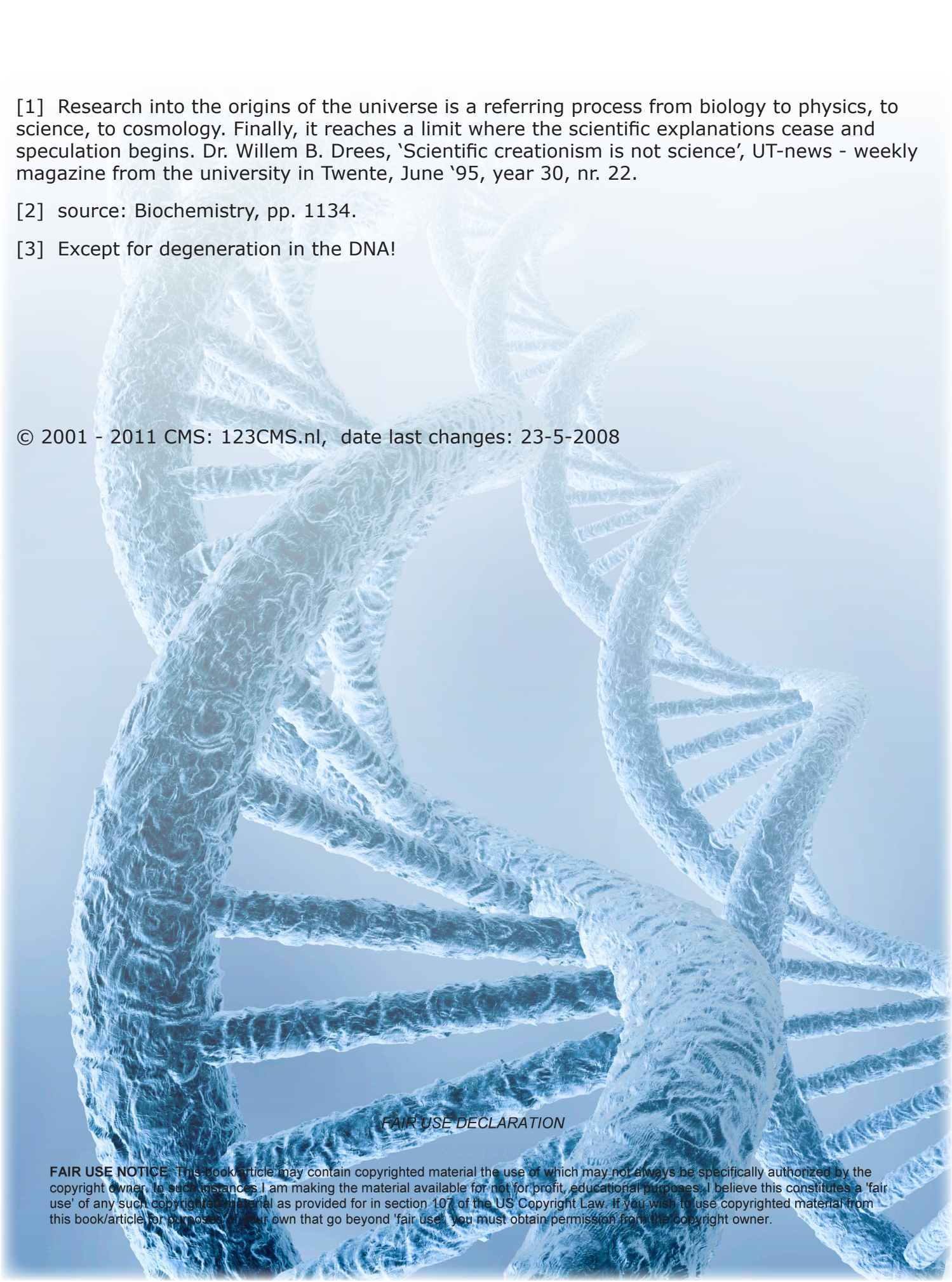
One of the most feared carnivores of the animal kingdom once was an innocent herbivore. This is evident from a combined Chinese-Canadian investigation of a 120,000,000-year-old crocodile skeleton found in the Chinese province Hubei. Biologists established that the animal must have chewed from back to front, which is typical for herbivores. The shape of the teeth too – flat instead of the characteristically sharp crocodile teeth – points to a diet of plants. The animal most probably ate grass. The conclusion is extraordinary, especially because all existing crocodile species have similar teeth. As far as the crocodile is concerned, evolution has thus settled accounts with vegetarianism. Thinking up a suitable name for the extinct species wasn't hard at all: Chimaerasouchus paradoxus. 'Chimaera' comes from the Greek mythological animal, 'souchos' refers to the Greek god Sebek who had the head of a crocodile, and 'paradoxus' means strange.

Another noteworthy item that is closely connected to this is that, according to the specialists, the panda actually has the digestive system and teeth of a predator. But it eats bamboo!?! It is either simple for a species to change diet, or the panda has never made this change even though it could have.

[1] Research into the origins of the universe is a referring process from biology to physics, to science, to cosmology. Finally, it reaches a limit where the scientific explanations cease and speculation begins. Dr. Willem B. Drees, 'Scientific creationism is not science', UT-news - weekly magazine from the university in Twente, June '95, year 30, nr. 22.

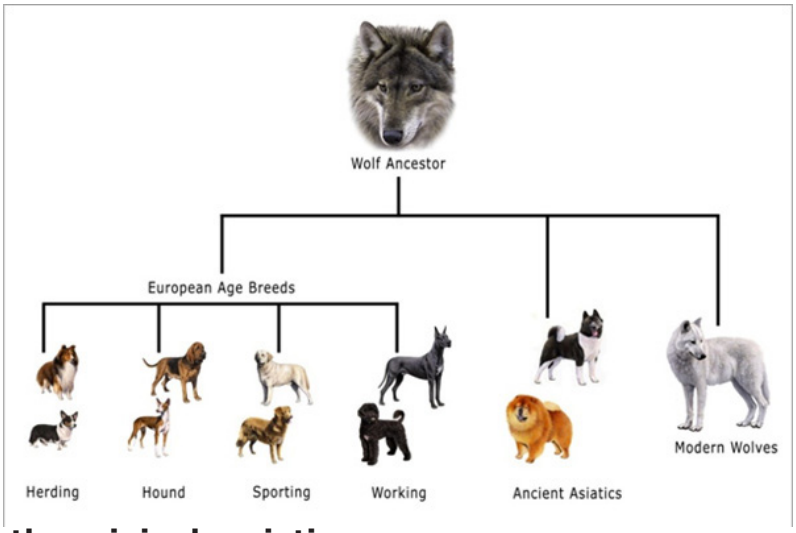
[2] source: Biochemistry, pp. 1134.

[3] Except for degeneration in the DNA!



13. Variation Exists

(Not evolution)



Variation exists. That is clear. But new variation also arises. Just think about the dachshund and the St. Bernard. They did not exist at first. Or think about the flightless cormorant. There is biological change, which is variation-on-the-same-theme. However, in the discussion on evolution, such variation is always seen as an argument or proof for evolution, which in my opinion is completely unjustified. If one calls (the appearance of new) variation 'evolution', then there is indeed evolution. But that has absolutely nothing to do with the suggested evolution of ALL species from common ancestors. This is more a kind of confusion of concepts than an accurate representation of the reality around us.

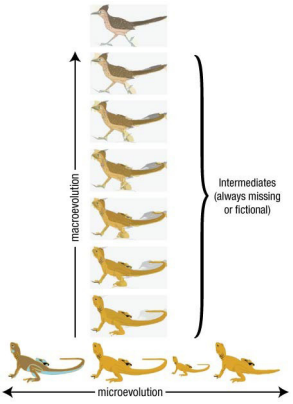
13.1 variation is not proof for evolution

Comparably, I could try to justify pedophilia (just to name something). If you keep the definition of 'sex' broad enough, anything goes. If I define *sex* as: treating each other in a physically affectionate manner (which some people do), then almost everything we do is *sex*: a friendly handshake and/or kiss in greeting, a touch, an arm around the shoulders, a hug, it is all *sex*. And there's nothing wrong with that, now is there? Well, if a grown man wants to have *sex* with a younger child, then that is just his way of showing love, as every one of us does daily. We all have *sex* with each other daily!

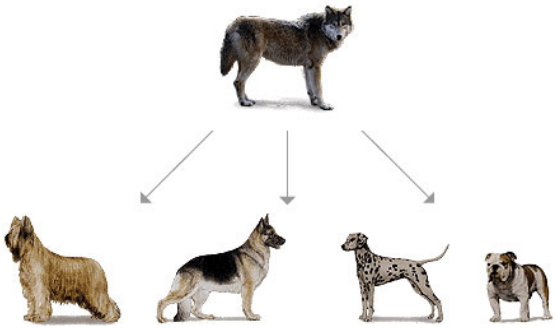
This is a confusion of concepts. If you keep the definition broad enough, anything goes. If you define evolution as 'the origins of new variants', then suddenly there is also evolution. But evolution is much more than just the origins of new variation. Evolution is variation across the natural boundaries of species.[1] Evolution is also the spontaneous origin of the first life. Evolution is also adoption, the origins of completely new, complex, specialized, dedicated robot-proteins. Evolution is the acquiring of new traits. But all these things are not suddenly true because variation can come into existence which some people call evolution!

With such a confusion of concepts, you can introduce arguments that have nothing to do with the matter. In the case of the broad definition of sex, you can use normal daily interactions between people as an argument to justify pedophilia, while everyone knows that they have nothing to do with each other. The problem lies not in the way we interact with each other, nor in how we view pedophilia; the problem lies solely in the definition of the word sex.

If you define the word 'evolution' broadly enough, you can bring in all sorts of arguments that do not really have anything to do with the discussion. There are proponents of the evolution theory who say that evolution is proven. However, what they actually refer to is that new variation can arise. But that is not what the discussion here is about at all. Variation indeed exists, new variation arises (we will see how later), but that variation never crosses the boundaries of species or types.



In other words: I am forced to stop using the word 'evolution' (any more), because it is a word that is used too broadly. It means one thing for one person and another thing to another person. Even the words micro-evolution and macro-evolution can be confusing, because in micro-evolution, the distinction is not made between evolution-of-proteins and variation + natural selection. If someone says that micro-evolution exists, what do they mean? That proteins evolve or that variation exists? Variation exists, but proteins do not evolve into more complex structures, as we have seen, and there are 'mountain peaks' on which there is some freedom of mutation. Besides, if we use the word evolution, or micro-evolution, for the origins of new variety, that suggests that there is a slow increase in complexity, a progression from low to high. That is contained in the word evolution. Darwin gave it that meaning. But now degeneration exists! If the word evolution just meant change or maybe even development and was only used as meaning that, it would be a different story, because biological change does indeed exist.



The strict definition of the word evolution in genetics is 'the movement of gene frequencies in a population'. That means: look at all the variants of the genes in the whole population and count how many there are of each. Do that again a few generations later and the percentages will be different, moved. This is a real life process. You can call that evolution if you want to, as long as you don't get all the other forms of evolution along for the ride. Personally, I think that the movement of gene frequencies is pre-eminently the normal variability of a species, because this movement is created completely by the system of natural variation: recombination.

The word 'macro-evolution' covers it pretty well, as far as I am concerned; it refers to the large-scale structural changes necessary to change from one type to another (more complex) type, such as for instance from a reptile or a dinosaur to a bird.

See Table 1 for all terms and their connections.

the terms	What they mean/involve	theory or practice?
macro-evolution	Transition from one type to another	Is theory
(micro-) evolution	Origins of variation and degeneration	Is observed
Molecular evolution	Change in function of existing proteins	Is possible in a very limited way
	Origins of new groups of co-operating genes	Is theory

Table 1, the usage of the terms in a row

So the degeneration theory says that variation exists. And that variation can change over time. New variation can arise and old variation can die out. But that is and remains variation on the same theme. It has nothing to do with macro-evolution. If someone wants to remove the foundation for the ideas relating to the degeneration theory, then no example of variation can be used as evidence for macro-evolution. That is not the point of the discussion, because the degeneration theory does not deny that biological change exists.

13.2 How does variation arise?

What does the degeneration theory say about variation? How does variation arise?

Mutations are usually seen as one of or even the source of variation. But the degeneration theory's concept of variation says that this is a misconception. Mutations are a source of destruction. The true, literal source of variation has been shut up inside the genome of species for a long time. It consists of (in the case of the structural genes which code for proteins) an abundance of genetic material. Mutations damage those genes, which upsets balances and/or causes 'new' characteristics to appear. However, those characteristics were already contained within the organism.

Another reason to see mutations as only[2] destructive (for genetic information) is the DNA's anti-mutation attitude, which codes for all sorts of mechanisms that try to prevent or even repair mutations. I will describe one: mismatch repair (that is the repairs to non-matching base pairs).

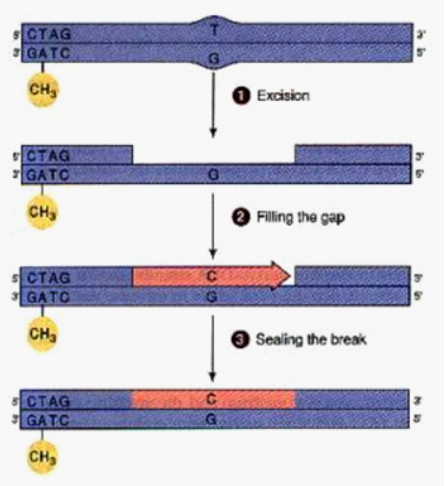


Figure 1; Mismatch repair; based on Cell and molecular biology, pp 95

An example of the DNA's anti-mutation attitude: mismatch repair

During DNA duplication, under the influence of so-called mutagenic chemicals or radiation, it can happen that the right bases are not opposite each other, such as a T opposite a G, where a C should have been. Certain robot proteins recognize this situation and cut out a piece of the wrong half. Other proteins see this 'empty' piece of DNA and refill it with the correct base.

But how do the robot proteins 'know' which half is wrong? If they remove the wrong half, they fixate the mutation instead of removing it! In some way, they have to determine which was the original half and which was added later. This happens by a process called DNA-methylization. Each time the sequence GATC occurs in the DNA, a molecule (methyl or CH3) is attached to it, as a sort of label. This happens some time after DNA duplication. That means that for a certain amount of time after duplication, there is a label hanging on just one side and not on the other. And that is how the Mismatch-Repair protein knows which half to remove! Cool, isn't it? [3]

In other words, precision prevention and repair of mistakes mutations are programmed into the genome, or designed if you will. The fact that mutations still occur, due to radiation and harmful substances among other things, is therefore actually an inadvertent or unintentional effect.

Would life exist if there were no mutations? Of course there would, and we would really miss all that degeneration, wouldn't we. It would be a lot more pleasant.

Would there still be variation if there were no mutations? The answer to that question is also: yes! As a result of the built-in designed, system of natural variation:

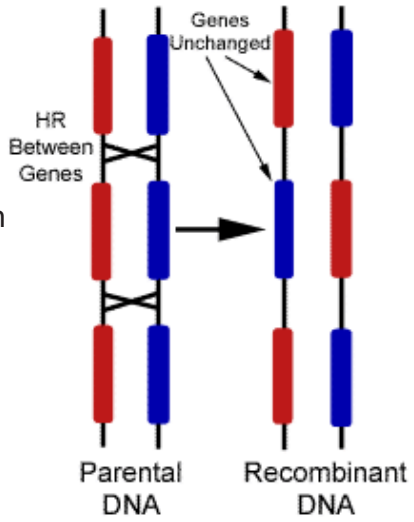
1. The system of natural variation

The system of natural variation is comprised of the following parts (in non-bacteria; bacteria have different mechanisms to bring about variation):

- Sexual reproduction between a male and a female, so that the offspring can receive a mixture of the characteristics of the parents.
- The double chromosomes; sex cells receive one of the two chromosomes, so that a double set of chromosomes arises during fertilization.
- Recombination, the exchange of pieces of chromosomes and therefore of the genes that are on them, which causes new combinations to be made.
- An overabundance of neutral genes.

The most characteristic elements of natural variation are recombination and the overabundance of neutral genes, but in the broader sense it thus includes the entire process of sexual reproduction.

Recombination is the programmed exchange of pieces of chromosomes, arranged completely by proteins (and therefore by the Creator®), which takes place between the double, diploid chromosomes.[4] This causes more or less arbitrary new combinations of genes to arise, to the extent that the genes were heterozygous and/or are different in the two parents. There is of course no variation in the homozygotic genes that the parents have in common. It is the new combinations that give rise to new variation.



The overabundance of neutral genes is an important element of the system of natural variation, because if there were only essential genes, which could not be turned 'off', then there would never be variation. Because there is an overabundance of neutral genes, there can be a lot of variation and new variation can arise again from that variation.

http://creationwiki.org/Genetic_recombination

The overabundance of genes consists of or is found out to be, among other things:

- The apparently large number of genes that permit themselves to be turned 'off', without it having consequences worth mentioning for the viability of the individual.
- The way in which the production of proteins is regulated: by promotors and repressors, which, respectively, stimulate or suppress production of the protein. Change in, or maybe even elimination of a promotor or repressor results in a change in expression of the gene, so that a greater or lesser quantity of a protein is produced. This can cause an external feature of an individual to become different. (The mechanism of gene regulation is described in chapter 6.2 in the example of the breakdown of lactose in bacteria.)
- In that way, for instance, a mutation in the repressor of a growth hormone could result in a larger individual, whereas a mutation in a promoter would produce a smaller individual.
- The way in which many neutral genes often work together in a metabolic path, that is to say one after the other, in order to get a certain end result, instead of one single protein taking charge of the whole process, or several genes that are dependent on each other's so if one is lost, the others won't work either (see the example of the determination of fur color in mammals below, at point 8) Because of this, when different genes are dysfunctional, it has his effects on the phenotype of the individual.

2.Neutral genes give legal variation

Let's take a look at the neutral genes, that is to say, the genes which, when they are eliminated, do not influence viability, but also do not immediately give the organism a handicap or disease (as with the tolerant genes).That these genes exist can be clear:

Genes exist as either dominant or recessive alleles. The frequently encountered normal, or wild-type, allele usually is dominant to the rare mutant form. A recessive allele often has lost part or all of its ability to perform the function of the normal allele. In a heterozygote, one copy of the dominant allele may provide enough of a given gene's normal function to support the development of a normal phenotype. Biology, pp 246.

Because these genes apparently can be turned 'off', it then by definition concerns neutral genes, if they do not cause an obvious disease or handicap.

It is a bit difficult to determine how many there are, but for argument's sake, let us assume an unfavorable situation, that is to say a very small number.

Chris Colby suggested that 20% of genes in mammals are variable. Let us then assume that 19% produce handicaps in humans (which is exaggeratedly high), so that a mere 1% are truly neutral genes. There would then be 1% of 30,000 is 300 neutral genes. Because they are not essential, these mainly play a role in external appearances, such as color, size, shape, etc. This gives you 2300 possible combinations, which is more than 1090. Once again taking the total number of atoms in the universe into account, 1080, we can see that that is enormous! It is simply incomprehensible. If we then think about the fact that a great deal of the non-coding DNA very probably plays a part in communication between cells during embryonic development, which then has even more influence on external appearances, the possible combinations become much greater. All of this is more than enough to explain all variation within species, without needing additional assistance from mutations as a *source* of new variation (see point 4).

This built-in possibility for variation in *neutral genes* will be called *legal variation*.

3.The starting shot for all variation: the *original variation*

The only thing necessary for this true *source* of variation to get started is a male and a female which together are heterozygous at least once (one allel 'on' and one allel 'off') for all *neutral* genes. All species and sub-species that we see today and in the fossils and which could come into existence in the future then come from these heterozygotic primal-types. If there are now between 10 and 100 million species, then there were perhaps an estimated 10,000 to 100,000 *primal-types* that differed from each other in complexity, structure and appearance.

This natural, original source of variation will be called *original variation*.

It seems a bit speculative to assume that the *primal-types* were heterozygotic for all neutral genes, but there is certainly a case to be made for that idea. If they weren't heterozygotic, if there was no heterozygosis among the neutral genes, then that means that for thousands of years every descendant must have been an exact clone of his parents! Only after the passage of a long, long time would enough non-damaging mutations present themselves for any variation to emerge. It is just not acceptable that the Creator® would design the entire system of *natural variation*, and thereafter, for such a long time, wouldn't do anything with it.

On the other hand, not *all* genes would have been different. Those genes essential to life would most probably have been the same on both diploid chromosomes in the male and the female.

4. Mutations cause *legal, legitimate* and *illegal variation*

Mutations are now capable of three things:

1. They create a non functional allel of a neutral gene. Which is a form of legal variation. This legal variation is a form of original variation. It produces a new external 'effect' when it is homozygotic, which could also have emerged from the original variation. In this way, a mutation draws from the source.
2. They manipulate a neutral gene, which means that it does not lose its function, but does start behaving differently. This is also legal variation, because it occurs in neutral genes. But it is not a form of original variation! It makes a derivative gene that (most probably) was never present in the primal-types. To distinguish it from the previous form, we will call this legitimate variation: it is permitted, it is possible, but it was not originally present. This specific realm of legitimate variation is also the realm that is known today as molecular evolution. This is also drawing from the source.
3. They damage an essential or tolerant gene. This is a form of illegal variation. All the examples in chapter 11 on degeneration are examples of illegal variation. Mutations in original neutral genes could also perhaps throw a wrench into the workings of other mechanisms in such a way that they make a mess after all (such as transposons?). That is then of course also illegal variation. It means muddying or poisoning the source.

The definitions of terms are therefore:

Original variation: The original variation in the primal-types and the mutating variation in neutral genes (point 1).

Legitimate variation: The mutating variation in neutral genes that produces something 'new' (point 2).

Legal variation: Original and legitimate variation, or every form of mutating variation in neutral genes (to the extent that they do not foul up the workings of essential metabolisms).

Illegal variation: The mutating variation in non-neutral genes (point 3).

The remarkable thing about this is that mutations, as long as they take place in *neutral genes*, bring about all sorts of *new variation*, whereas that is fundamentally a form of original variation, intended or made possible by the Creator®.

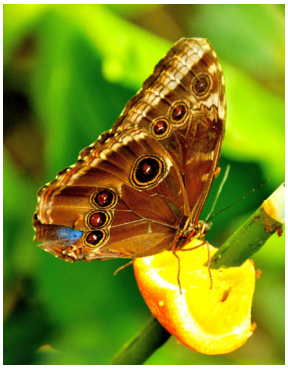
For instance, the male and female primal-type both have AaBbCcDd. From that, a population arises at a certain point in time in which only the alleles A, B, c, D, and d appear. The alleles a, b, and C have disappeared. All individuals are then homozygotic for A, B, and c, and are thus AABBcc. Variation among the individuals is caused by the alleles D and d. If then at a certain point gene A is damaged by a mutation, the combination aa can emerge again within the population and 'new' variation can be observed. However, this variation was already present in the primal-types, and has arisen *again* due to the mutation.

In that sense, it is not so amazing that the impression is created that 'new variation originates by mutation', whereas in reality the elimination of a gene is what this kind of new variation does. That is why it is incorrect to speak of mutations as a 'source of variation.' Mutations are a 'bucket of variation'. They draw from the source of the overabundance-of-neutral-genes.

Mutations are not a source of new variation itself, they are at its best a bucket that draws from the already built in source, the abundance of possibilities in the form of neutral genes. In most cases though they muddy or poison the source

5. Patterns and colors are legal variation

Some typical examples of legal variation are the rich variations in colors, patterns, stripes, spots, shapes and other things in the fur, feathers and skin.



In an article called *Evolution on the wing* about the formation of eyes on butterfly wings, in *Nature*, volume 384 from November '96, Paul M. Brakefield and his colleagues wrote:

The mutants described here show that genes also exist with large phenotypic effects on eyespot development (including size) that have no perceptible effect on other wing or body patterns.

...

These results in butterflies may have general implications for the evolution of color patterns in animals. The diversity of color patterns in other species taxa, such as fish, snakes, birds and various insect orders, may involve analogous developmental pathways that are uncoupled (Italic PMS) from those that control the formation of body structures. Indeed, single or small numbers of loci control dramatic features of color pattern in snakes, land snails and fish. The ability to manipulate eyespot patterns make butterflies more accessible experimentally, but it will be important to learn how color patterns in other taxa develop and evolve.

The idea that the genes for the eyes on butterfly wings are separate, so working by themselves, separate from the genes that build the butterfly wing, shows that the idea of neutral genes, that determine the external (or variation-causing) features, is right.

The results of the last 20 years of research on the genetic basis of adaptation has led us to a great Darwinian paradox. *Those (genes) that are obviously variable within natural populations do not seem to lie at the basis of many major adaptive changes, while those (genes) that seemingly do constitute the foundation of many, if not most, major adaptive changes apparently are not variable within natural populations.* (Emphasis in original) John McDonald, University of Georgia, cited from Darwin's Black Box,p.28

Apparently, there are genes which (are intended to) cause variation and other genes that determine the essence of the type and do not vary. This too is a confirmation of the concept of the neutral and *essential* genes.

6. Build and figure belong to legal variation

Another form of legal variation is, in a certain way, the build or figure of a variant. There are plainly small dogs and big hounds. The same type can thus be 'delivered' in a big version and a little version. The 'parts' of a species can also vary: big ears, little ears; short tail, long tail; short hair, long hair, etc. As we saw with the over-grown mouse in chapter 8, it is possible to get exactly the same type but twice as big, by changing one group of co-operating genes, namely that of the human growth hormone. From the primal-type, eliminating a promoter gene on the existing growth hormone will produce a smaller individual, whereas eliminating a repressor gene will produce a larger individual. Turning a growth hormone on and off in the 'parts' of a species produces variation in the size of these parts.

Mutating illegal variation would also be able to produce a smaller individual by damaging to the growth hormone itself, which makes it do its work less well. But I am not certain that the growth hormone would permit such mutations. However, this is about the principle, to explain the difference between illegal and legal variation.

	essential	tolerant	neutral	
Homozygotic 'on'	ok	ok	ok	
Heterozygotic	dead handicap	handicap?	ok	original variation
Homozygotic 'off'	dead	handicap	ok	
	no variation	**illegal variation**	**legal variation**	

Table 2, the broad connection between the kinds of genes and the kinds of variation

7. (Neutral) genes are like 'switches' for characteristics

Variation is actually, in all cases, a form of combination of existing genes, which serve as a kind of 'switch' for external characteristics (although actually metabolic processes are the basis of this).

In bell peppers, four genes are involved which determine the color. All peppers are green at first. Gene Y ensures that the chlorophyll, which gives it the green color, is removed from the pepper. Gene R determines whether the pigment will be red or yellow. Genes C1 en C2 determines the amount of pigment and work almost identically, but support each other. Less red results in orange and less yellow results in lemon yellow.

Figure 2, GA, pp. 108; a number of the possible colors of bell peppers

		R		**r**	
		Y	**y**	**Y**	**y**
C1	C1	Red	Brown	Yellow	Greenish-yellow
	c1	Orange	Greenish-brown	Lemon yellow	Green-yellowish
c2	C1	Orange	Greenish-brown	Lemon yellow	Green-yellowish
	c1	Light orange	Dark green	White	Green

Table 3, The possible combinations of genes with the resultant colors

The final color is therefore dependent on which combination of genes is on.

(NEW) variation = (NEW) combination

In the hard reality of life, natural selection selects from these combinations.

The combinations of genes are mainly made up of genes or alleles that are 'on' or 'off'. Genes that are 'on' are genes that code for a protein, which fulfils a useful practical function. These are then functional or living genes. Genes that are 'off' are genes that may still code for a protein, but that no longer performs a practical function in the organism, that no longer makes an external difference. They are then dead genes or dead alleles.

If a gene is 'on', then a protein is made and that protein takes care of some characteristic in the organism. If the gene is 'off', then that particular characteristic is not present in the organism, even if a protein is still being produced.

We will now pause at length with an article from Nature from Nov. '96, 'Evolution on the Wing', in which the process is described by which an eye on a butterfly wing is formed during embryonic development. We there see a number of examples of genes, how they function, how we can classify them, and how they are 'switches' for certain characteristics.

Butterfly eyes

A regulator gene with the name Distal-less (Dll) causes the origin of the eye. In Figure 3 is a schematic representation of how that works.

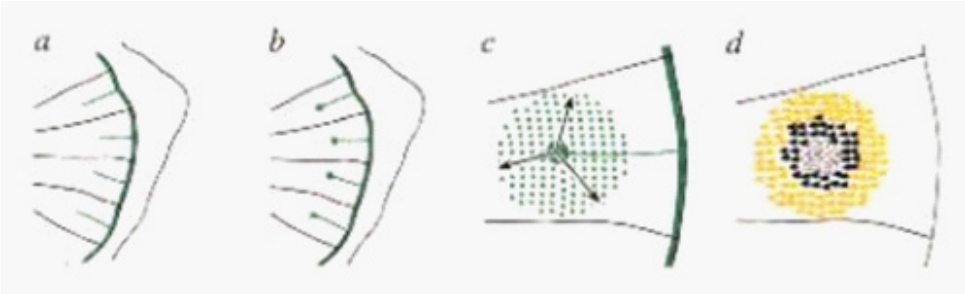


Figure 3, development of an eye on a butterfly wing

a) A pre-pattern of Dll expression emerges in the larvae in the form of stripes between the pipes in the wing.

b) 'Focuses' are determined, where Dll expression stabilizes (the circles).

c) In the pupa, a signal goes out from a focus to the surrounding cells.

d) The cells that receive the signal produce a certain color depending on the distance to the focus and the location on the wing.

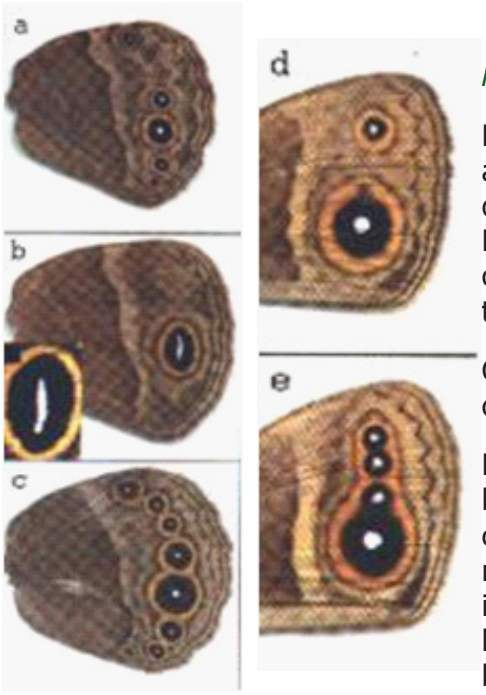


Figure 4, Mutations on back and front wings of Bicyclus anynana

Normally, a Bicyclus anynanas back wing looks like Figure 4a and the front wing looks like 4d. Three mutations have been discovered which cause deviating patterns: Cyclops, Spotty and Bigeye. Cyclops changes the shape of the back wing and causes one big eye (4b), when it is heterozygote. Homozygotices die in the embryo stage.

Cyclops can therefore be classified as an essential gene, which causes illegal variation.

Bigeye causes a marked enlargement of the eye in the homozygote (4c). Bigeye could therefore be a neutral gene that causes legal variation, even if it is a mutation. Spotty causes a number of extra locations where eyes develop, as in 4e. Spotty is then probably an allele of a neutral gene that brings about legal variation. The gene Dll also occurs in butterfly species that have no eyes. However, it then does not concentrate in a focus.

I suspect that Dll is an essential gene and that another gene (or more) is involved in the formation of the focus (called Focus?)

The above makes it clear how variation is brought about by means of already existing (!!) genes. That variation is expressed by genes that are turned on or off like switches, depending on the alleles that are passed by the parents.

The authors of the article in Nature also say:

> *Extensive analyses of the monophyletic Lepidoptera indicate that roughly 15,000 species wing patterns have evolved within ~100 million years by modifications to a common set of pattern elements*. (Italic PMS) Evolution on the wing, Nature, pp 236, Nov. '96

Evolution thus appears to be no more than variation-on-the-same-theme!

An interesting aspect that follows from this phenomenon is that it contradicts with the concept of 'gradual evolution'. Many characteristics are just switched off (or on)), instead that it takes thousands of generations before it is as perfect as can before a certain environment.

8. Genes can also act as 'switches' for each other

Besides the fact that neutral genes are themselves like switches for the characteristics the proteins cause in the organism, genes can also be switches for other groups of genes, so that if they are on, they give a number of other genes the chance to give their characteristics to the individual, or if they are off, all those other gene are immediately turned off, e.g. lose their effect.

Gender determination in fruit flies is dependent on one gene (and not just in fruit flies).

> *The Sex gene is essentially a toggle switch that is permanently locked into an "on" position in females or an "off" position in males.* Genetic analysis, pp. 708

In one case the feminine gene is activated, in the other case the masculine gene is activated.

The fur color of a lot of mammals is partly determined by four genes: A, B, C, D.

'A' cause so-called 'agouti' hair. Agouti is actually black hair with a yellow bit almost on the tip. It causes a grayish, sometimes slightly brownish color over the entire fur, such as in house mice or wild rabbits. If the gene is lost, the yellow bit disappears from the fur and the fur becomes uniform in color.

'B' determines the color of the hair. Present (B) causes black hair. Absent (b) causes brown hair. Now you can make a table to determine the end result of the fur color:

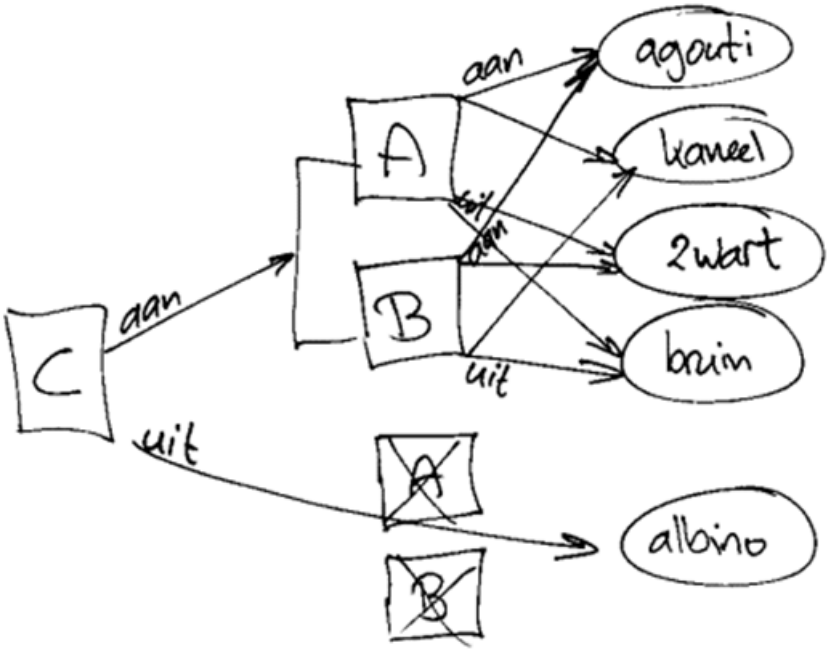
	B	b
A	agouti	cinnamon
a	black	brown

Ab produces brown hair with a yellow band, which produces a special cinnamon-like color.

The C gene produces (the predecessor of) the brown pigment. The B-gene then makes it black. In this way, the C gene determines whether color is produced at all. If this gene does not function at all, the carrier will be albino no matter what genes A and B have as alleles. The C gene thus serves as a 'switch' for the genes A and B. If C is on, then A and B may determine

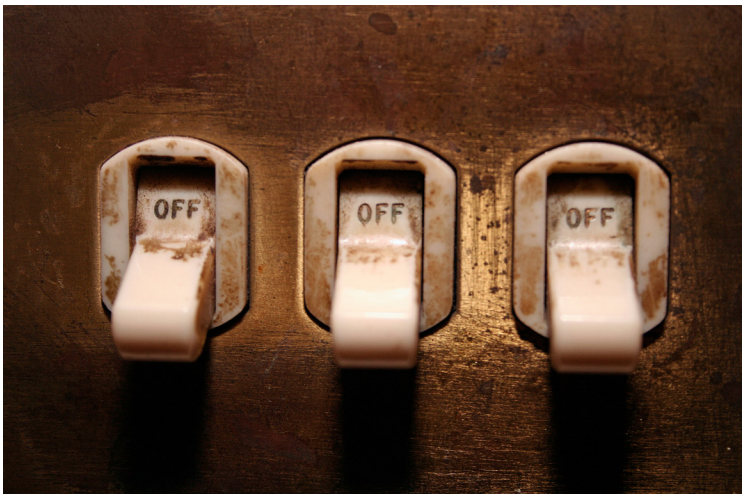
what the fur will look like (read: they add respectively a yellow piece and/or make the pigment black). If gene C is off, A and B have nothing more to contribute. See Figure 5.[5]

Figure 5, switch chart for fur color in mice



C can be seen as a positive switch for genes A and B. If C is on, A and B can do something. C's function is serial in relation to A and B, whereas the functions and/or characteristics of A and B are parallel in relation to each other.

The fact that there are three genes which each have the responsibility for a step in the process of making pigment shows the idea of the overabundance of genes again. It is not inconceivable that the same could be done by just one more complicated protein. But in that case, so much variation in fur color could not have arisen.



Could there also be negative switches? Genes that switch other genes on when they go off. Could there also be double switches? Genes that in one case turn on this group of proteins, and in another case a different group. The gender gene is indeed such a gene, as we have seen, but could there also be neutral genes like that? So that with one single on or off switch, a whole range of variation possibilities becomes available? I suspect that this is the case, but I have not been able to find any convincing examples as yet. That is not because they do not exist, but because the way the functions of the genes are described in the books on the subject is completely different (they do not talk about 'on' and 'off'). That makes it impossible for me to establish with any certainty whether negative switches could be involved.

Prediction

In the neutral genes (within the same type) are genes that can act as a negative switch for other genes. That is to say, if the gene is off, the other genes have the opportunity to be expressed. Double switches will also occur, that is to say that such a gene allows different genes to be expressed when it is on then when it is off.

9. Why variation?

One question that could come up is, why would the Creator® have put this potential for variation into the types? It is of course a bit difficult for me to speak for him, but the answer is fairly obvious. The evolution theory says that animals (have to) adapt to changing circumstances. However, if life started with a pair of each type, their descendants would have to populate the

entire earth, in which there are inarguable very many different 'circumstances'. Because of their huge built-in variability, each type would find a different path in countless climates and biotopes.

On the other hand, the ability has apparently been given to man to comprehend the foundations of heredity and therefore variation. That means that man is capable of influencing that variation, breeding with it. It is therefore not unthinkable that the Creator® wanted man to control nature (partly) to his own use, and to breed grains, grasses, sheep, dogs and cows which could serve as food, or could be a help or companion.

13.3 Conclusions/summary

- Variation exists.
- New variation originates.
- The originating of new variation cannot be used as evidence for evolution.
- There are neutral genes that are separate from other, essential genes and which determine the external features.
- Mutation is not necessarily needed to get variation. Heterozygosis in the neutral genes in the parental pair of the primal-types is sufficient.
- Mutation adds to existing variation not because it is a source of variation itself, but because it draws from the source.
- The true source of all variation is the existing genome of a species, which contains an overabundance of neutral genes. The system of natural variation combines and varies from this source.
- Variation in neutral genes (usually) a form of legal, original variation.
- Variation in essential and tolerant genes (usually) illegal variation.
- Genes are like 'switches' for the characteristics that they represent.
- There are also genes that can switch (the characteristics of)other genes on or off.

Kind of genes	Results in	
Essential	macro-evolution	Does not occur
Tolerant	degeneration	Does occur
Neutral	variation, micro-'evolution', natural selection	Does occur

Table 4, the kinds of genes and their effects

VARIATION FAQ

Questions about the concept of variation

How do you explain polymorphic allelesy?

It is known that one gene can have many different alleles (polymorphic alleles), well over ten. These alleles could only have arisen by mutation, because if all variation would come from a pair of primal-types, there would never be more than four different alleles of the same gene! (Because both the male and the female have each gene double, and 2x2 = 4.)

Of course mutations cause 'new' alleles, but they are not new in the sense of adoption (taking on a fundamentally different function than the one the gene already had.) They are different than the original allele, since one or maybe a few amino acids in the protein are different. If there are multiple alleles of a gene, they are always derived from one or more of the original four. Sometimes there are multiple variants, or rather mutants, of one original allele, which cause deviation in external appearances. One protein has several functional parts, like a robot can have arms, legs, motors, etc. A mutation does not necessarily have to completely disable the protein, but can cause it to work less well or only under certain circumstances.

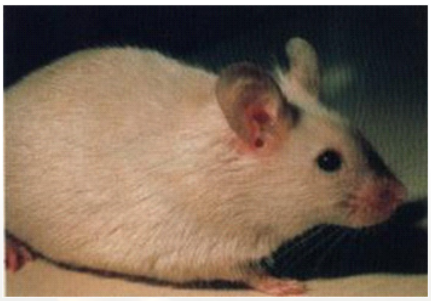


Figure 6, GA, pp. 100; a 'Himalayan' mouse, with white fur and a dark face and ears

In this way, a special mutation of the C gene in the fur of mammals ensures that not all pigment disappears from the animal. Only on the tips of feet, tail, ears and head, the 'extremities', does pigment still appear. It only functions on 'low temperatures'. In Figure 6 you can see the Himalayan mouse with such fur. The Siamese cat is also an example. The allele is indicated by ch (h for Himalaya). The only explanation is that this allele of the C gene is only partly damaged. When it is totally damaged, and thus has totally lost its function, a completely albino mouse results, that even has red eyes.

Test:

Because the concept of variation assumes that all variation can originate from a pair of primal-types, there can never be more than four original functional alleles per gene, which cannot be traced back to each other when mutations are taken into account. Thus, if more than four alleles for one gene are found within one type[6], which fulfill a practical function (and which cannot be traced to each other without losing their functionality in the process), then that would be a serious objection to the idea of creation.

Prediction:

Someday (in higher animals) two functional alleles will be found for the same essential gene, which are not derived from each other by accumulative mutation without having lost their function in the meantime (for instance two different versions of a growth hormone).

It would then be quite possible that a certain degree of variation is permitted in essential genes in this way, which is not lethal in homozygotes. A mutation in such an allele that eliminated it then would be deadly.

If such ‘double functional essential alleles’ are found within the same type, they clearly belong to the original variation and therefore confirm the concept of original variation, because variation in essential genes, which do not permit mutation, is otherwise a complete impossibility!

[1] In chapter 14, I will come back to determining those boundaries between non-related species extensively. In anticipation of that, I can already say that those boundaries do NOT coincide with our understanding of species. They are, in many cases, bigger, and it is therefore better to speak of types, which is what I will do

[2] In the case of beneficial degeneration, it is still about damage.

[3] This was definitely given some thought!

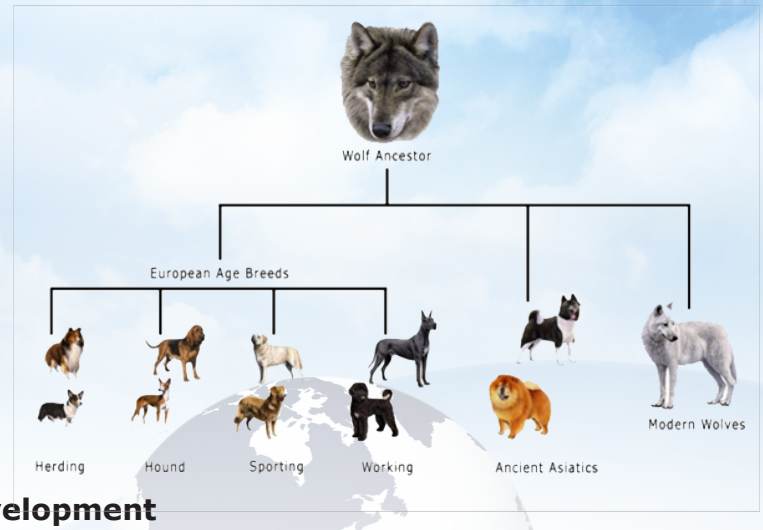
[4] Recombination or crossing-over takes place at specific locations on the DNA, the so-called chi-points. That means that recombination will not take place in the middle of a gene or another vital spot in the DNA. On which chi-points the crossing-over will take place, however, is coincidental.

[5] The C-gene is called epistatic, which literally means ‘to cause to stand’, or ‘to dominate’. It turns the others off. However, it should be seen that different proteins each have their own task in a metabolic process, in which one makes the product for the next. If a protein drops out at the beginning of the process, the next ones can no longer do anything

[6] Predominantly in the higher animals. It is quite possible that reproduction between different types can happen in lower animals or plants, which means that more than four original functional alleles are found

14. Typological Differentiation

The origins of the difference between Reynard the Fox and Wile E. Coyote



The idea of the ur-types has already been introduced. Now, a number of phenomena as we know and observe them today will be described and worked out into a general genetic model which explains them quite well.

1.Going back in time

There are now many dogs, in all shapes and sizes. If you go back in time, you find fewer dogs, fewer sizes, and less variation. Via a ur-dog, you finally arrive at the ur-wolf. This ur-wolf has the potential in itself to bring forth all the varieties we see now. The varieties which come forth from the ur-wolf no longer have that potential. Horses, ponies, donkeys, zebras, same story: they go back to a sort of ur-horse. Cows, bison and aurochs, same thing. Go back in time and you see the ur-ox. Lions, tigers, panthers: a ur-cat, We know that all these animals are of the same type and often can (still) cross with each other, even if the hybrids which result are often infertile.

Go back in time and you will find less variation and a ur-type which was the basis for all the variation which came forth from it.

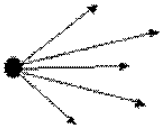


Figure 1, ur-types which bring forth variation

explanation: In the ur-wolf, all the variation was already there, shut up, in the form of neutral genes. The ur-wolf has the potential for enormous variation, what I will thus call the variation potential. All that is necessary for that potential variation to be expressed is the 'turning off', the elimination or, to a greater or lesser degree, damage of one or more neutral genes.[1] The amount of variation which can arise from a ur-type is therefore dependent on the number of neutral genes. The variation potential can thus be expressed in a number: the total number of functional neutral genes in a type. The greater that number, the greater the variation potential.

If you go back in time, you see less variation, less degeneration, and thus 'better', more 'potent' ur-types, and not common ancestors which climb from simple to complex, or from fewer genes to more genes.

Prediction: The fossil ancestors of the present species are richer in genes than all their present descendants together. [2]

2.Continual breeding

Every breeder knows that continual breeding with a certain race is a dead end. It ends somewhere, it does not go further.

There were also other reasons why the nineteenth-century naturalists rejected Darwin's idea of gradual development by natural selection. To begin with, they were not impressed with Darwin's example of breeding new races via goal-oriented selection by humans, because they knew that that could go on for a while, but that the possibilities would be exhausted. It is a dead end. To put it in modern language: 'Such a selection removes genetic information from the populations, it is always 'downhill' and never 'uphill', as is required for the macro-evolution from amoeba to human' (Bruinsma).A. van den Beukel, Met andere ogen [Through different eyes], pp. 114

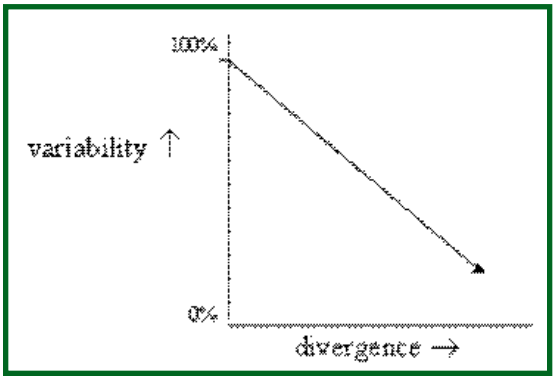


Figure 2, decrease in variability in continual breeding.

The species which descend from the ur-wolf can also bring forth variation, but not as much as the ur-wolf. Many dog races can come out of one dog, but no coyotes or foxes any more. In other words, as the variation increases, the potential for variation decreases. Or, better but more difficult: as the divergence increases, that is growing towards another variant, the variation potential or variability decreases. See Figure 2.

Explanation: As more neutral genes turn 'off' and are lost in a population, fewer neutral genes are left to bring about variation. 100 neutral genes can bring about more variation than 50. Once the neutral genes are 'out', the only way they can be put 'on' again is by crossing with individuals in which those genes are 'on'. Only in very rare cases will they become functional again by mutation.[3]

This shows that selection, whether natural or artificial, involves impoverishment of the genetic material! First there is no variation. Next, variation arises because some genes turn off. Selection then takes place, because that happens to be beneficial, and that means that a number of genes have been lost. (Natural) Selection means gene loss, not gene growth! (Natural) Selection is not the driving force behind macro-evolution, but the driving force of divergence, the appearance of variation due to gene loss. Actually, that was already present in the word selection. This set of genes is chosen instead of that, process of elimination, selection, you and not you. And with that, genes disappear from the population.

Zonkeys, Ligers, and Wolphins, Oh My!

http://www.answersingenesis.org/articles/aid/v3/n1/zonkeys-ligers-wholphins

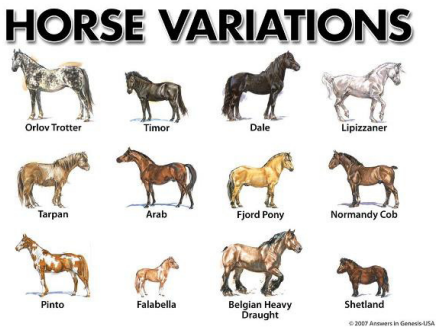
3. 'Breeding back'

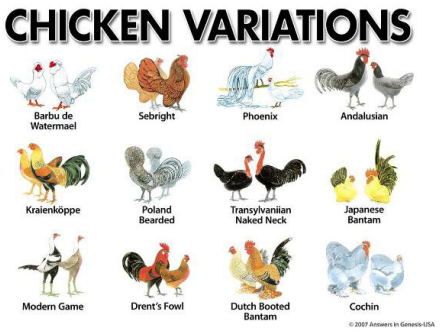
A third phenomenon is that if you cross different variants with each other, you get a sort of common denominator. From different bred races of pigeons, the rock pigeon will return, Darwin proposed:

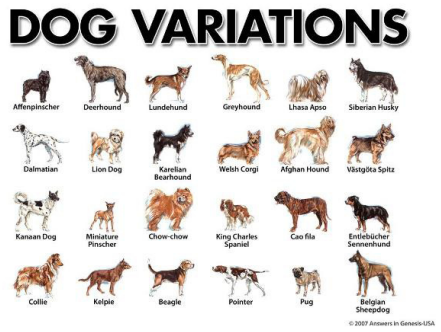
> Moreover, when birds belonging to two or more distinct breeds are crossed, none of which are blue or have any of the marks of the rock-pigeon , the mongrel offspring are very apt suddenly to acquire these characters. To give one instance out of several which I have observed:- I crossed some white fantails, which breed very true, with some black barbs- and it so happens that blue varieties of barbs are so rare that I never heard of an instance in England; and the mongrels were black, brown, and mottled. I also crossed a barb with a spot, which is a white bird with a red tail and red spot on the forehead, and which notoriously breeds very true; the mongrels were dusky and mottled. I then crossed one of the mongrel barb-fantails with a mongrel barb-spot, and they produced a bird of a beautiful blue color, with the white loins, double black wing-bar, and barred and white-edged tail-feathers, as any wild-rock pigeon! We can understand these facts, on the well-known principle of reversion to ancestral characters, if all the domestic breeds are descended from the rock-pigeon. [4]
>
> Charles Darwin, The Origin of Species

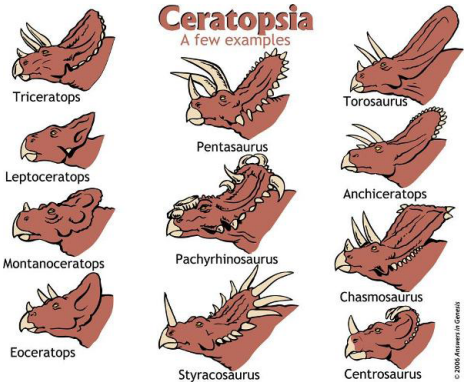
In this way, they have now bred certain ur-oxen back, even though they were extinct, and they now are call Heck bulls:

> The auroch is the only confirmed race of the European domesticated cow. The auroch was a countryside-dweller. In the Stone Age, this animal was not yet rare in the Netherlands. In Germany, bulls which resemble the ur-cow were bred back from domesticated cows which were descended from the ur-cow, and can there be seen in zoos.
>
> Winkler Prins Encyclopedia









Zonkey, Zorses, and Mules

These hybrids are the result of mating within the family Equidae. As we've said before, zonkeys are the result of mating a male zebra and a female donkey; zorses are the result of mating a male zebra and a female horse; and mules are the result of mating a male donkey and a female horse.

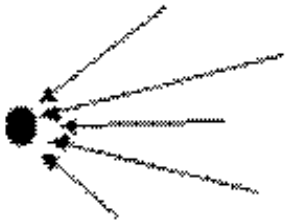


Figure 3, Breeding back to the original type

Explanation: By cross-breeding, more neutral genes are 'on' in the offspring than in the different varieties. One variety has these neutral genes 'off', the other variety has other ones. By cross-breeding, only those genes remain 'off which both varieties had as 'off'. In this way, after sufficient cross-breeding, they go back to the mother type, from which the varieties involved were descended.

It then follows that it is impossible to return to the main type from a pure-bred daughter variant (see Figure 4). It lacks a number of genes and will never get them back, except by cross-breeding with sister variants which do have those genes. After such a cross-breeding, selection can happen again in order to result in new variation.

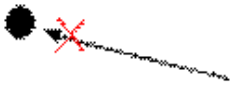


Figure 4, Breeding back from one sub-species is not possible

The following experiment was carried out on fruit flies, to test if they can react genetically to gravity, the so-called geotaxis experiment. A funnel-shaped network of 105 decision chambers was fabricated, connected to each other with one-way doors. Each room had two exits, one going up and one going down (see Figure 5). To reach the food at the end of the network, the flies had to choose 14 times if they wanted to fly up or down. The flies which ended up in the top three rooms and the ones which ended up in the bottom three rooms were selected and, using these 'High' and 'Low' flyers separately, they were bred and selected further. After twelve generations, there were pretty much only fruit flies which flew upwards in the High group and pretty much only those which flew downwards in the Low group.

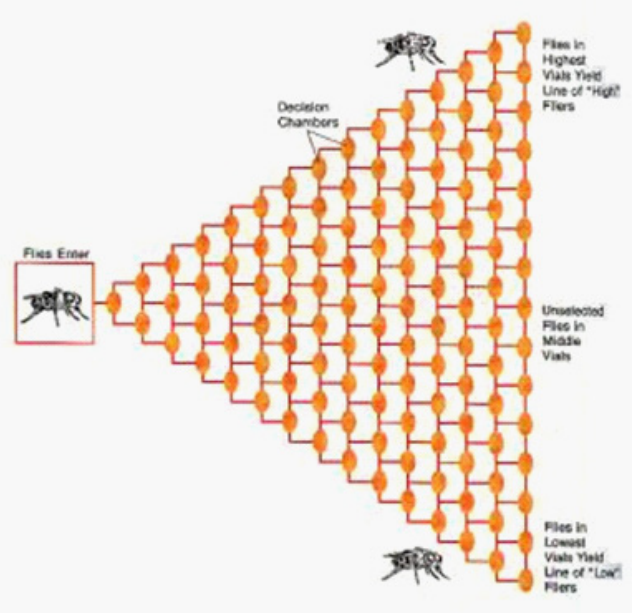


Figure 5, Biology, pp. 1036; the geotaxis experiment

But after the selection pressure disappeared, the high- and low-flyers stabilized in both populations, so that there were again high-, middle-, and low-flyers. However, in an experiment where the selection pressure remained for 600 generations, and then disappeared, both populations remained completely stable, one as pure high-flyers and the other as pure low-flyers. Geneticists have established that three loci are responsible for that.

Explanation: In the 600-generation populations, a certain combination of genes has been determined, some homozygotic on, some homozygotic off. In the twelve-generation populations, the combinations were not yet definitive, that is to say, there were still heterozygotic individuals. That is why, after some time had passed, the original average distribution could return.

Prediction: After cross-breeding the two populations of definitive high-flyers and definitive low-flyers, the original average returns.

No true low-flyers can be bred by selection from the definitive high-flyers, nor can true high-flyers be bred by selection from the definitive low-flyers. Their genetic material is so impoverished that an about-face is no longer possible as long as they live. [5]

The results of these predictions seems to be obvious, but it is still important, because according to the evolution theory, variation comes into existence by mutation, and according to the idea of typological differentiation, by existing neutral genes turning off. Once genes have turned off, they can, under normal circumstances, no longer be turned on again by mutation. There is no way back. And that is clearly shown by this experiment with an obvious result.

Prediction: The quagga is a kind of zebra which lived on the African savannahs; the last specimen died as the result of an intensive hunt in 1883. Scientists are now trying to breed them back from normal zebras by selecting specimens with a brown, scarcely striped hide for many generations.

- If the quagga is a daughter variant of the zebra, this should be possible.
- If the zebra and the quagga are both daughter variants of the same mother type, this will definitely fail. If you then want to get the quagga back, the zebra must first be cross-bred with a close relative in a nearby region, country or continent (a donkey-like relative, for example), and then selection can take place for the brown striped hide. In this way, the genes which have been lost in the zebra are inserted again, which were in the related variant (and in which other genes had been lost). In the long run, this method should then certainly result in the quagga again.
- If the quagga itself was the mother type for the zebra, cross-breeding with a variant should result in the quagga, even immediately

4. Reproductive isolation

A typical phenomenon is that some species can have offspring together, like the horse and the donkey, which however is then not fertile (any more). In some cases, sub-species which are known to be descended from the same species cannot produce offspring together at all, such as the Ensatina salamanders.

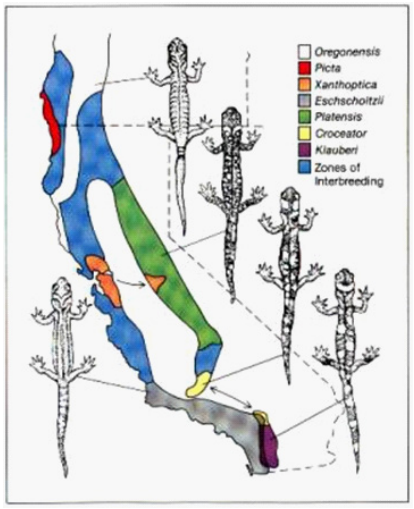


Figure 6,

Seven.... Hier mist een zin

subspecies may interbreed with variants living in neighboring or overlapping ranges, but cannot interbreed with individuals from more distant parts of the cline. The cline extends through the costal and Sierra Nevada mountains of California. The arrows indicate sites where subspecies have "jumped" across geographical regions in which no Ensatina subspecies live.

Biology, pp. 1058

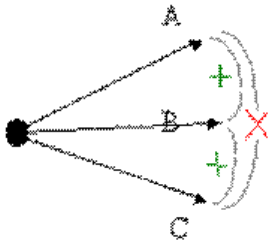


Figure 7, A can cross with B and B can cross with C, but not A with C.

This phenomenon is called *reproductive isolation*: reproduction no longer occurs between sub-species which are descended from each other. The causes for that can vary widely:

1.	**Ecological isolation:**	**Different sections of the environment are used.**
2.	**Behavioral isolation:**	**Behavioral difference result in a cessation of mating.**
3.	**Mechanical isolation:**	**Reproduction can no longer occur, because the reproductive organs are no longer accessible.**
4.	**Gamete-isolation:**	**Egg and sperm cells can no longer join together on a molecular level.**
5.	**Time-related isolation:**	**The time at which the species mates differs so greatly that almost no crossing occurs.**
6.	**Non-viability:**	**The hybrids die before reaching reproductive age.**
7.	**Sterility:**	**Hybrids are infertile.**
8.	**Hybrid-breakdown:**	**Reduced viability or fertility in the second or later generations.**

Explanation: In the first place, it cannot be other than that the Creator® *meant* for varieties to come into existence; otherwise there would not be such an abundance of neutral genes and those specialised mechanisms to bring about variation would not exist. If varieties were to be crossed with each other for a long time, the tendency would always be present to return to the ur-type. If Darwin's pigeons mate in the wild, the rock pigeon will result. That would mean that if varieties originate in the wild, it would be very easy for them to regress to the ur-type, if there were no mechanism which prevented cross-breeding in related species. In other words, it is actually logical that this happens.

On the other hand, the last three phenomena (6, 7, and 8) worry me. The reader has already noticed a considerable aversion towards everything in disorder, which is not 'neatly' arranged (that is to say, caused by designed proteins). These last three phenomena are not 'neatly arranged'. They do not indicate a *design*, they do not indicate that 'some thought has gone into this'. It is more a matter of 'give it a try', if it doesn't work, oh too bad. It clashes with my idea of an intelligent Creator® who thought it up as it is. It more indicates *degeneration*: the genome of a variant can, because of the different forms of degeneration, deviate to such a degree from the original that 'problems' arise in cross-breeding. It could for instance be possible that in recombination, pieces of non-homologous chromosome are exchanged. In inbreeding, this can result in a variant which is no longer compatible with other variants, and in cross-breeding, one of the 'strange effects' named above could result.

Still, something more needs to be said. Actually, I expect (predominantly in the lower types) that there is also a genetic mechanism which makes it *impossible* for variants to have offspring, which is arranged more 'neatly' than the just-let-the-foetus-develop-and-we-will-see-if-it-works method. This could be

in what is mentioned in point 4 as molecular barriers for fertilization, since there could be neutral genes[6] which cause variation in the receptors of gametes. An egg cell and a sperm cell must 'recognize' each other before the chain reaction can be initiated which brings about fertilization. If such a *legal* variability in gamete-recognition does indeed occur, that strengthens the case for the *ur-types*, because a *designed, intentional, regulated* genetic mechanism is then seen, which must bring about *differentiation* from the ur-types, must prevent 'everything tending towards the main type'. This needs to be raised to prediction status.

Prediction: In some types (predominantly in the lower species and perhaps especially in insects?), there is a legitimate genetic mechanism, which is not based on mutation or degeneration, which furthers differentiation of variants by making it impossible for them to fertilized each other. Perhaps this has something to do with gamete-recognition. As far as the salamanders are concerned[7], there are two possibilities. Either it is a form of degeneration, or it is a form of intentional, because it is arranged by genes, differentiation. In the first case, the whole genome has gotten compatibility, and it is less homologous to the mother type. In the second case, it is homologous, but no fertilization takes place.

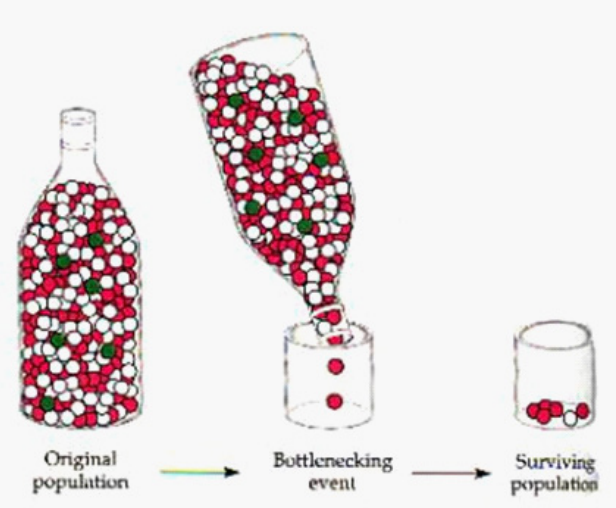
5. An explosion in variation

Some of the most dramatic random changes in gene frequencies take place when individuals leave a large population and take up residence away from other members of their own species. If these few "pioneers" succeed in starting a new population, its gene pool[8] will reflect only the genotypes that happen to be present in the founders. As a result, the new gene pool may differ substantially from that of the original population; for example, there may be, by change, a higher frequency of a rare allele or a lower frequency of certain alleles that are common in the parental gene pool. This kind of change in gene frequencies is called the founder effect. Biology, pp. 1025

For instance: two people of the 200 founders of the Amish community in Lancaster County, Pennsylvania, had the recessive allele for Ellis-van Creveld syndrome, which in homozygotic carriers causes shortened limbs and six fingers on each hand. In this community (where people do not marry outsiders), this deviation occurs more often than anywhere else in the world!

A special form of the founder-effect happens every season when many individuals in a large population (especially the young) die, and only a few are able to reproduce after the winter. This is called a bottleneck.

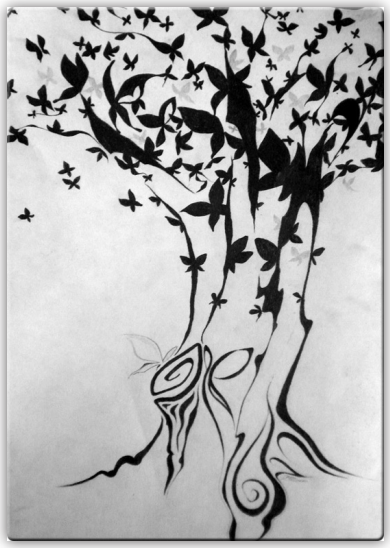
figure 8, the bottleneck effect, biology pp.422



Edwin Bryant, from the university in Houston, carried out an experiment in which he bred further with 1, 4, and 16 pairs from a population of a few thousand house flies. The expectation was that there would be less variation after this bottleneck than in the large population, because of course there are more different alleles in flies in a large population than in a small one.

The unexpected result was greatly increased variability in the post bottleneck population. Those houseflies had more variable wing sizes and shapes, head proportions, and limb dimensions as a result. No accepted explanation of this counterintuitive finding has appeared, but it is clear that population geneticists cannot predict with confidence the consequences of bottlenecks.

Biology, pp. 1026



In living nature, something similar can occur:

An enterprising British scientist, E. B. Ford of Oxford University, showed that normalizing selection does not always follow this pattern. An avid observer of moths and butterflies, Ford kept track of the phenotypes of a population of marsh fritillary butterflies for fifteen years. When he began, the population was small and highly homogeneous in size, body shape, and wing-color patterns. Suddenly, however, a four-year population explosion toke place, and during this time, butterflies showed a great variation in both color patterns and basic body morphology. Then the population stabilized again, larger than before, with a "new" phenotype that was quite distinct from the original one. Ford could not establish the exact cause of the remarkable changes.

Biology, pp. 1037

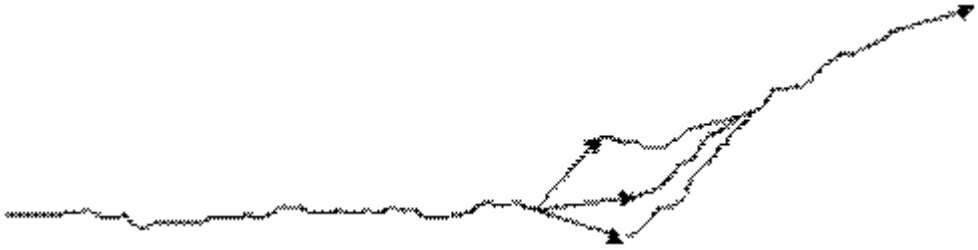
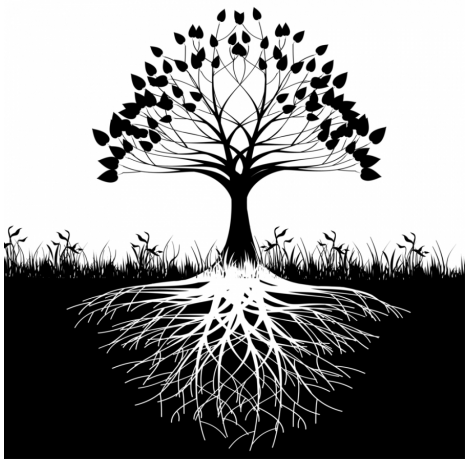


Figure 9, An explosion in variation with subsequent stabilization

Explanation: These are two examples of what I will call an explosion in variation; the first seems to be in conflict with the founder-effect.

The founder-effect is in principle always an impoverishment of genetic material. It is possible that a number of neutral genes are lost, because they are not taken to the new population by any individual, and the chance of deviations increases because if there is damage present in tolerant (as in the case of the Amish) or essential genes, the chance is much greater that they spread throughout the population. The increased chance of inbreeding of course plays a significant part in this.



However, one side-effect of the founder-effect is a small explosion in variation! It is a logical consequence, since the chance that a neutral gene is 'turned off' homozygotically in a large population is nowhere near as large as in a small population. In a large population, such an allele 'drifts' through all sorts of individuals in different generations, and only by chance does it happen with higher frequency. The chance that the carrier mates with an individual who has exactly the same allele is therefore small. Only if that happens do you see a difference in appearance, and only then would selection be able to take place for it. However, a bottleneck, as in the founder effect, with the accompanying high degree of inbreeding, ensures that a great many neutral genes which are 'off' become homozygotic, and then 'suddenly'

result in a change in appearance. (Just as a reminder, functional alleles of neutral genes are almost always dominant and will thus only result in a outward or phenotypic effect when they are homozygotically 'off'.) This will show up in the second generation, because that is where the increased inbreeding plays a part. Depending on the degree of heterozygosis in the founders, there will logically be a larger or smaller explosion in variation from the second generation onwards.

This is good for another

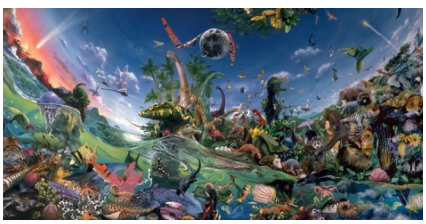
prediction: Gnus are in a large population, which does not display much variation to the naked eye. If a bottleneck were created of 1, 4, or 16 pairs, then you would be able to discover more variation in the offspring than in the large population.[9]

Of course, this will also work for many more species in large populations.

The first explosion in variation

This allows us to imagine an interesting phenomenon which must have taken place fairly soon after the creation of the ur-types. All that was needed to fill the earth with the variety we see now, among others, was a pair of each type which is at least together heterozygous for all the neutral genes. That means that for each neutral gene, at least one of the male or female does not have a functional gene on the corresponding place on the other chromosome.[10] The first offspring from these 'founders' will then not have looked very different from their parents. Each offspring inherits on average half of the alleles which are 'on' and half of the alleles which are 'off', but as yet, none of them are homozygotic 'off'. Only when these offspring breed with each other do a number of genes 'jump' to double 'off', with the accompanying changes in appearance. Because the ur-types were maximally heterozygous (namely for all neutral genes), an enormous explosion in variation must have taken place fairly soon during their expansion. The offspring naturally looked for all sorts of 'empty' new environments, and as a result, a great differentiation arose from the beginning. The trend was set at the beginning, with consequences that we still see in the fact that certain species and sub-species only occur in certain geographic regions. That geographic distribution was caused by the fact that the immediate offspring of the ur-types certainly did not receive all the same functional alleles, and dispersed further and differentiated further. Natural selection (or 'natural election') did the rest, so that certain combinations of genes held sway in certain surroundings but did not occur at all in other parts of the world.

The process by which 'gene frequencies' shift and in the end a number of the original genes are lost and the others get the upper hand in a population, we will call divergence (which is a much better word to describe that process than evolution). The process by which one set of genes disappears from one population and a different set from a different population is then called differentiation. Because both divergence and differentiation take place from the same (ur-)type, it is typological divergence and typological differentiation.



The butterflies

What could have happened to the swamp butterflies? There are a few possibilities. In the first place, a bottleneck could have taken place with the subsequent explosion in variation, which would mean that the new variants would do better than the previous ones. One reason why that explosion in variation took place at that moment and not in previous years could be that one or more alleles were turned off by mutations, which had always been on before. I remind you that Darwin's pigeons show a greater variation after differentiation and before breeding back, and that that great variation regresses to one theme, that of the rock pigeon, after mixture. A greater variation can arise from gene loss! This could have happened to the butterflies.

Another possibility is that, by cross-breeding with a butterfly from a nearby population, a number of genes were turned on again, which were off at first. That would result in the same kind of explosion in variation, but then not as a result of a bottleneck, but by regression.

14.2 Conclusions

The phenomena mentioned above lead to the concept of typological differentiation, namely:

- going back in time yields one original type;
- there is an end to variation within the same species because selection involves genetic impoverishment;
- mixing sub-species results in regression to a main type whereas one single sub-species cannot be brought back;
- the incapacity to reproduce (by variants);
- variation is brought about by the same genes (previous chapter);
- the founder effect results in an increase in variation, whereas it is an impoverishment of genetic material.

In short, there were ur-types which could not be traced to each other and did not originate from each other, from which all variation originated within those types we now observe. The origin of that variation is differentiation from the ur-type on. The variants are genetically poorer than the ur-type itself! A fanning out and multiplication thus takes place from the ur-type on, but that fanning out goes downwards. Each sub-species keeps, preserves, conserves different genes in the environment in which it lives than a sister species which lives in different circumstance. Reynard the Fox and Wile E. Coyote descended from the ur-wolf in this way. A certain race can itself fan out again, for instance from the ur-dog to all the dog races which we now have, or from the first collies to all the collie sub-species. Or a race can be mixed with one or more other races in order to go back up the ladder of differentiation a bit, to start again from that point with fanning out and selection.

It seems to me that the concept of typological differentiation is so simple, so obvious, and so in agreement with the observations, that a die-hard evolutionist cannot ignore this phenomenon either. Typological differentiation just does exist. The myriad of dog races, which can still be cross-bred with each other, shows this: a lot of variation on the same theme and never across the boundary of the theme or type. If you mix all the races of dogs, you will get the main type back: the ur-dog or perhaps even a wolf-like specimen.

The wealth of genes, or the wealth of genetic information, in the ur-type is the problem for the evolution theory. How did they get there? Not by selection, because that is impoverishment. Not by gene growth, because that is impossible. Creation is the only reasonable alternative.

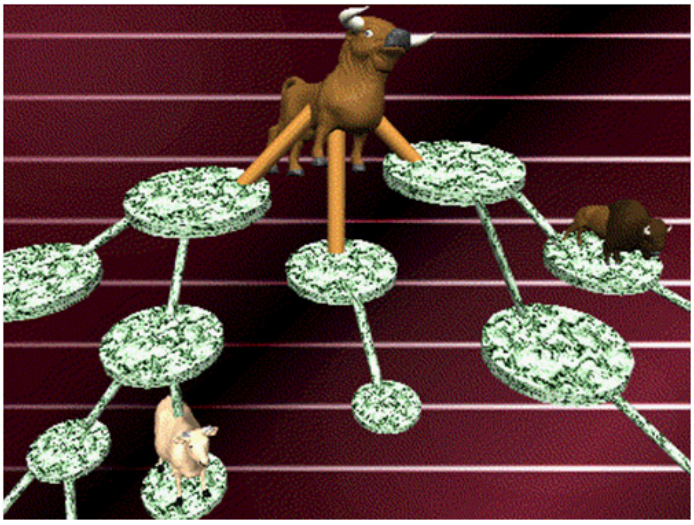


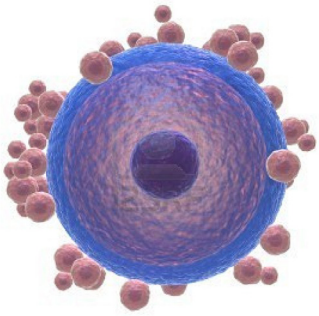
Figure 10, a depiction of Typological Differentiation

In figure 10, I have tried to give a graphic representation of the concept of typological differentiation. The ur-type is at the top, in this case the ur-cow. Three lines start from that point (in reality, it was probably many more). Each line comes to a plateau. That shows a successful sub-species, which is able to flourish in a certain environment and therefore multiplies rapidly. However, one or more lines also go forth from each plateau. They are (for example) individuals or even variants which split off and are then successful in their own way in a different environment and thus also end on a plateau. Because of the founder effect, they are genetically impoverished in comparison with the original species from which they split off. That is why the next plateaus are lower than the previous ones.

Finally, from a certain branch, the cow originated and, from another, the auroch. In the beginning, there was only one species. The ur-cow. After time had passed, more variation can be observed, but the potential for variation decreases with each variant. Some variants have only originated recently; others have been able to maintain themselves over long periods of time. Yet others have become extinct.

14.3 A comparison with embryonic development

The embryonic development of an organism shows in a very simple, clear and I hope convincing way what the concept of typological differentiation involves, and that by the differentiation (that's what it's called) of the cells themselves. When a human egg cell is fertilized, this one cell has the potential to grow into everything that makes a human a human. Sex cells can come out of it, but so can liver cells and brain cells, or bone cells to form a skeleton. Mammals have more than a hundred different kinds of cells, while bacteria are made up of only one (kind of) cell. When the fertilized egg begins to divide, the resulting cells can all still develop into any of those hundred specialised cells. Those cells are called totipotent. But at a certain point in time, body shapes become visible and organs and such are formed. The cells begin to specialize. They differentiate. There is no way back for differentiated cells. Once a cell's fate is determined, no more change is possible. In this small-scale differentiation, you can see an image of large-scale differentiation:



- From that one egg cell (i.e. ur-type), all 100 specialised cell types can grow (i.e. the source of all the variation which comes from it).
- The egg cell looks nothing like a bone cell, or a nerve cell, but it still has the (genetic) potential within itself to grow into such a cell (i.e. differentiation and variation), and therefore it happens.
- A fish embryo (a different type) does not have the same built-in possibility for variation, and that is why the differentiation into a bone cell will never happen in a fish.
- A direction, once taken, means that the cell can never switch over to another cell type (i.e. reproductive isolation).

Although embryology has been used from the beginning by evolutionists to show the similarities between different types and demonstrate a common ancestry, the differentiation of the 'totipotent' egg cell is a dramatic presentation of the opposite: nothing will come out that wasn't already there – what does come out was already present.

14.4 Summary of TD

- Life began with ur-types which could not be traced to or from each other, and life consists of main types which cannot be traced to or from each other. The ur-types and the main types are most probably phenotypically almost identical. The ur-types, however, were at least heterozygous for all their neutral genes. The main types originate by crossing all the daughter variants and will become completely homozygous only with great difficulty.
- There is one mother type for the various daughter variants, which is the source of all the variability which flows forth from it. That source consists in fact of the abundance of neutral genes, which permit themselves to be turned 'off' (which is (mostly?) becoming homozygotic recessive) or become damaged.
- Differentiation is the process by which the built-in variation is expressed, a daughter variant 'goes in a certain direction', in other words that a few neutral genes make a definitive place for themselves as homozygotic recessive in a population, because that gives an adaptive advantage. This means that genetic information is lost in the daughter variant. It is a genetic impoverishment.
- Natural selection determines which combination of neutral genes is most favorable in different or changing circumstances.
- Degeneration (namely: mutation, chromosomal reordering, deletions, internal viruses, duplications, and the suchlike) can affect the genome of a daughter variant and alienate it from other daughter variants or even from the main type to such a degree that crossing is no longer possible and/or no longer results in viable offspring.
- 'Breeding back' to a previous point of divergence (the point at which two or more daughter variants separated ways) is possible by cross-breeding between those daughter variants. That is therefore inevitably another increase in genetic material! 'Uphill'!!! That has the illusion of evolution: mixing genetic material. But that is only possible because the daughter variants belong to the same type. Just like differentiation is an impoverishment, mixing is an enrichment. In one daughter variant, one group of neutral genes was off; in the other, another was turned off. By mixing, the offspring receives the original functional alleles back from both groups of neutral genes. This 'mixing' can only happen if at least all essential genes are exactly identical![11]
- The closer a variant is to the ur-type, the more potential for variation. The more differentiated it is, the more variation that can be observed, but the less potential for variation the sub-species have.
- Mixing the sub-species yields the main type; the main type cannot return from one sub-species which breeds true, mixing with other sub-species is always necessary; the other functional genes must come from them.
- A species never 'climbs' higher than the variable part of its genome allows.

ur-type The heterozygotic link from which all variation within the same species has come, which we can still observe today and in the fossil records. The ur-wolf and the ur-cow are examples. The ur-types no longer exist and have probably never been fossilized, because the variation which came from them was enormous and began working immediately.

mixed type The result of cross-breeding between two different variants, also called hybrids.

original type The species from which two or more sub-variants descended. An example is the dog, from which the many dog races are descended. The ur-wolf is the original type for the wolf and the dog. The dog is the original type for the greyhound and the Great Dane.

main type The sum or cross of all variants within the same type (insofar as they are still able to produce offspring). This cross-breeding could result in a species which strongly resembles the ur-type.

type Every type has had one link with ur-types, has many original types and ends towards one main type in cross-breeding. Two types which differ from each other have never had a common ancestor.

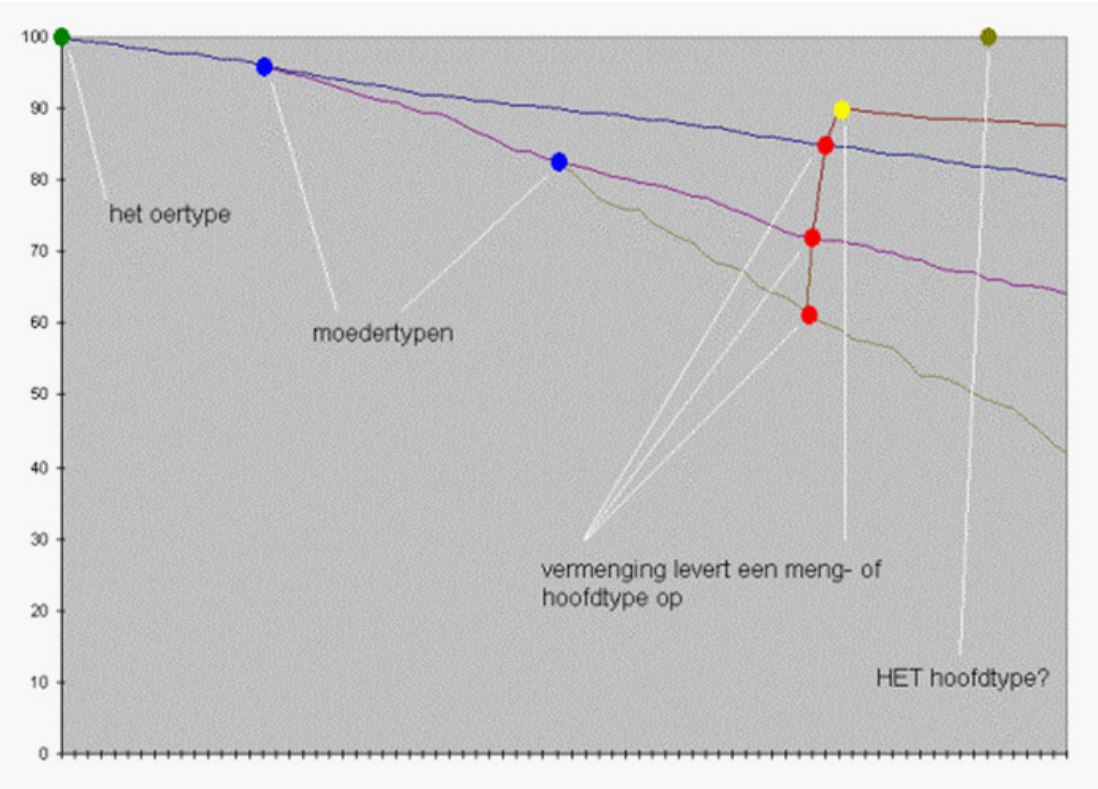


Figure 11, 3 sub-species and the connection between the type-names

intermezzo

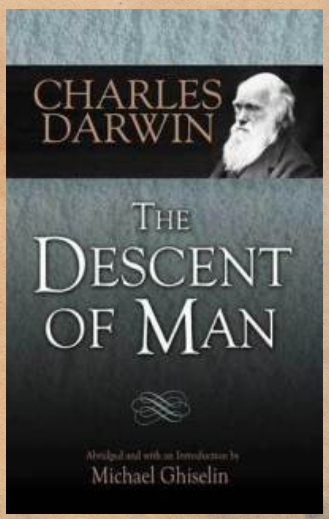
mixed race in humans

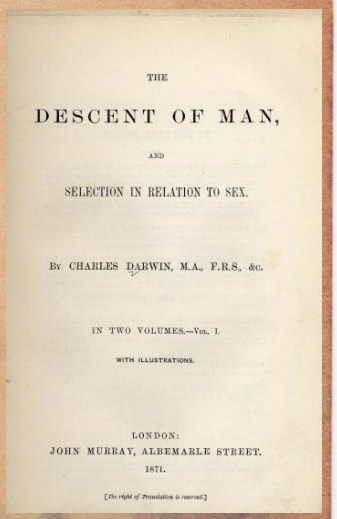
These matters lead to a surprising conclusion: the more mixing of human races, the 'healthier', or at any rate genetically richer, the offspring will be. The example of the Amish shows that clearly. Whenever these people mix with other population groups, the Ellis-van Creveld syndrome would (almost) not need to occur at all. By mixing, the offspring returns (a bit) to the main type, which is richer in genetic material that the differentiated sub-races. The chance of inbreeding and with that the chance of visibility (or homozygosis) for a great deal of hereditary diseases is many times smaller when you have children with someone from another people than with someone from your own village, where people have lived for hundreds of years and married each other and had children, and then remained in the village. Mixed race is the best defense against degeneration.

That also shows that Hitler had it totally wrong! Hitler applied Darwin's principles of the right of the strongest, survival of the fittest and adaptation to humans and human races. This, by the way, was completely based on Darwin's text:

The enquirer would next come to the important point, whether man tends to increase at so rapid a rate, as to lead to occasional severe struggles for existence; and consequently to beneficial variations, whether in body or mind, being preserved, and injurious ones eliminated. Do the races or species of men, whichever term may be applied, encroach on and replace one another, so that some finally become extinct? We shall see that all these questions, as indeed is obvious in respect to most of them, must be answered in the affirmative, in the same manner as with the lower animals.

Charles Darwin, The Descent of Man




THE

DESCENT OF MAN,

AND

SELECTION IN RELATION TO SEX.

By CHARLES DARWIN, M.A., F.R.S., &c.

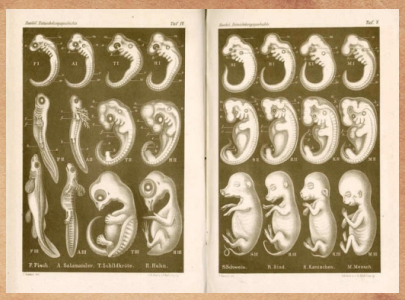
IN TWO VOLUMES.—Vol. I.

WITH ILLUSTRATIONS.

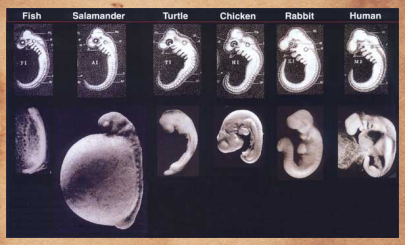
LONDON:
JOHN MURRAY, ALBEMARLE STREET.
1871.

The Aryan race was better and deserved more lebensraum. The surrounding peoples were of lesser quality and could be exterminated without compunction ('extinction', remember? The law of Malthus, see chapter 2). There were special houses where women could be fertilized with good Aryan seed. The Jews, gypsies, mentally handicapped and homosexuals all had to be killed, because that was evolutionary waste, which would only interfere with further development. Few people realize that Hitler's greatest inspiration for the Endlösung came from Darwin! Darwin would not have wanted that himself, but the fact remains that Hitler followed Darwin's principles to their logical conclusion and that poisoned the world of ideas of nearly the entire German people. For clarity's sake, here is a quote from Ernst Haeckel, a contemporary of Darwin, a fanatic advocate of the evolution idea and founder of the evolutionary view of embryology, from his book The History of Creation:

"If one must draw a sharp boundary between them, it has to be drawn between the most highly developed and civilized man on the one hand, and the rudest savages on the other, and the latter have to be classed with the animals.."



"Thus for example, a great English traveler, who lived for a considerable time on the west coast of Africa, says: "I consider the negro to be a lower species of man, and cannot make up my mind to look upon him as 'a man and a brother', for the gorilla would them also have to admitted into the family"

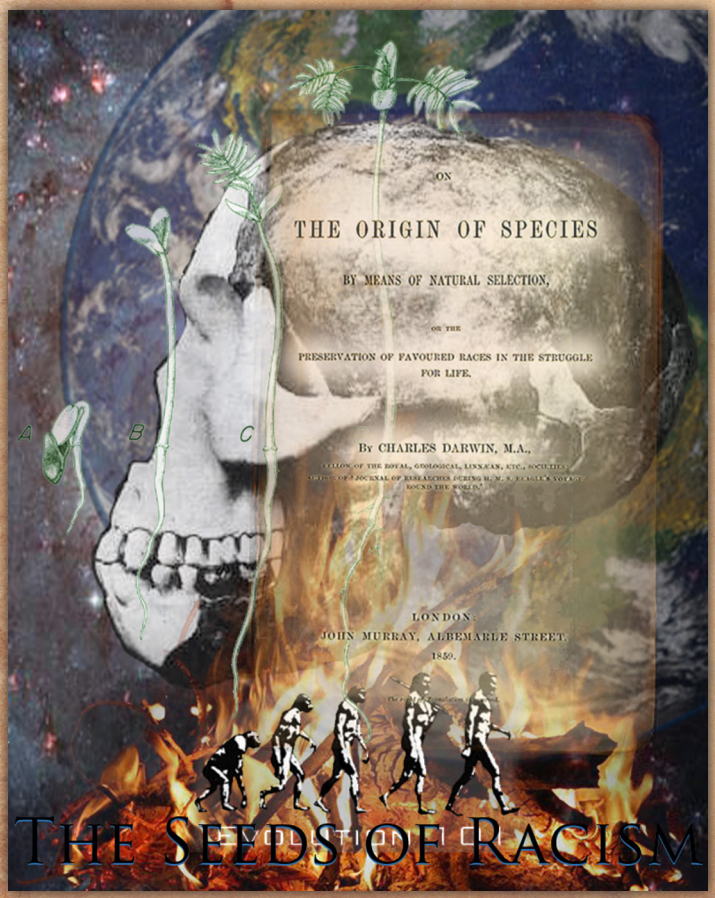


http://evangelicaloutpost.com/archives/2004/02/my-remedial-education-haeckels-embryos.html

It is now apparent that Hitler's intentions had precisely the opposite effect. Jews from all over the world came together in Israel: Ethiopian Jews, Russian Jews, American Jews, etc. Their mixture will result in 'healthier' offspring, with a greatly decreased risk of hereditary diseases, than the separatist offspring of many racist groups!

The Dutch policy of allowing many foreigners to live in our country will therefore, as far as general health is concerned and therefore also the costs of health care, in the long run will only bear positive fruit...

On the other hand, the seeds of racism lie enclosed within the evolution idea.



If it is about the conservation of species of animals that are threatened with extinction, in some (!) cases it would perhaps be good to breed a hybrid from several sub-species, which is therefore once more so rich in genes that it can differentiate again and thus could survive in different environments. This is in direct contrast to keeping the many sub-species separate, or, due to the money and effort involved, only a few of them.

For instance, if Darwin's finches were to be saved from extinction, they could more advantageously be crossed with each other to the type from which all the others also originated, than all be preserved as separate species. From this hybrid- or main-type finch, new variants can then emerge which can deal much better with other living conditions than the sub-species that have already split off and specialised.

TYPDIF FAQ

questions about the concept of typological differentiation

null variants

:Do null variants, sub-species in which all neutral genes are off, exist? If they do, then every sub-species should be able to be brought to that nul-variant, even if it is by another path, by sequential elimination of every neutral gene. Just as cross-breeding with each other produces the main type, so a continually progressing impoverishment should lead to the same 'sub-species'.

:I suspect that there is not one kind of nul variant, although you might expect it.

- In the first place, the diversity is so enormous, even with a few hundred neutral genes, that we will never experience different isolated variants being brought to the same nul variant.
- In the second place, I think that, other than the structural genes, there is also other genetic information which brings about that variation (see chapter 12), in which the story about being 'on' or 'off' will not make much difference.
- Thirdly, degeneration in non-neutral genes makes trouble.
- This means that there will not be any real nul types, but that there could be different end stations. Living fossils may be such end stations, because they have not been able to change at all over a long period of time.

the fossils and the geological column

:The fossils show that evolution happened.

: **The fossils show that variation exists.** The geological column, with the accompanying time scale, is put together along the specifications of the assumed evolutionary development from low to high complexity. Many of the dating methods were then manipulated to fit this column.

These matters go so fat that they really need a separate treatment. There is no (more) room left in the framework of this book. But it is possible that the conclusion of this book – the evolution theory has come to an end – could lead to the reinterpretation of the geological column!

By the way, it is undoubtedly the case that the species found among the fossils are closer to the ur-type than the species we find today.

Much fossilization happened because of catastrophic occurrences with mass extinction. Extinction is a special form of the founder effect and therefore promotes impoverishment and differentiation. It is therefore to be expected that fossilized forms deviate significantly from the present forms.

Typological Differentiation and Punctuated Equilibrium

Q :How are the ideas of typological differentiation and *Punctuated Equilibrium* related?

A

***Punctuated Equilibrium* says that:**

- The present species originated by the splitting off of sub-species from the main population, instead of the main population transforming itself. This results in a multiplication of sub-species;
- The period of transition is short compared with the time span of the entire species; emphasized adaptation leads to quick separation and thus origination of a sub-species;
- Specialization that splits off occurs one or two times during the entire existence of a sub-species;
- In the fossils, we see abrupt transitions, not gradual ones;
- Evolution progresses in short leaps.

In other words: PE and TD look a lot like each other!

That is because PE is mainly based on findings which were observed and not on ideas which were made up. I have tried to do the same with TD. The difference lies in the fact that TD adds to PE by saying that differentiation is simultaneously an impoverishment of genetic material. That is also a statement based on fact; just think of the founder effect.

TD then comes to the conclusion, on that basis, that variation began with and originated from ur-types which cannot be derived from each other, whereas PE (still) says that all species can be traced back to common ancestors.

TD then says that the 'leaps' are caused by genes that are already present (in the type or population) which are on or off.

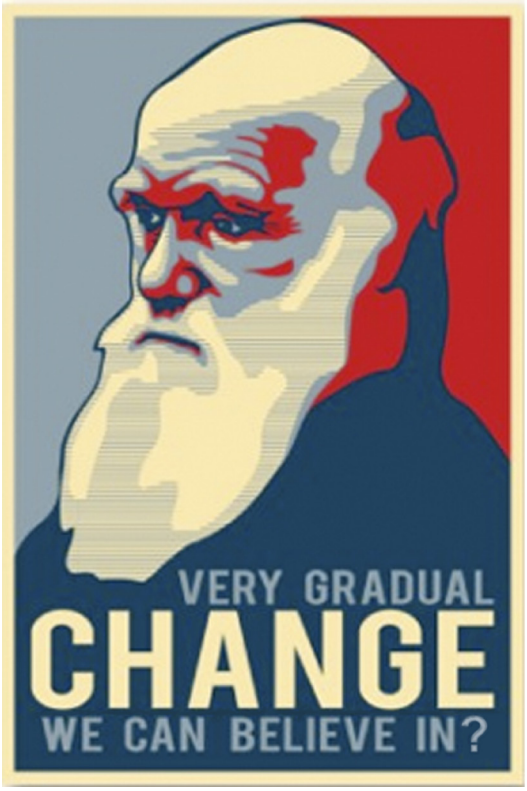
I think that TD is the logical sequel to PE, and that TD encompasses PE without animosity, but that PE will probably have some difficulty with TD.

TD actually explains why PE is observed.

from: http://legacy.belmont.sd62.bc.ca/teacher/geology12/assignmentsT4.htm

Generalists and specialists

:What is the relation of typological differentiation to the discussion about generalists and specialists?



: Generalists are species which, as it were, have 'a bit of everything'. Specialists are species which have specialised (like for example the koala bear or the cheetah) in a certain environment, or in a certain diet. Generalists survive more easily, because they can adapt to altered circumstances more simply. If the environment in which a specialist lives changes, it has a big chance of extinction.

This relates well with the idea of typological differentiation, which actually says that the ur-types had the potential to 'specialize' in several directions. If a generalist sets itself, for whatever reason, to one specific way of survival, the degeneration law (see chapter 11) says that it will in the long run lose those characteristics which it no longer needs. That makes it a specialist. The specialists have been able to set themselves to one specific way of survival, but because of the genetic impoverishment which goes hand-in-hand with specialization, they are no longer as flexible in dealing with new changes. Simply put, you could say: the closer to the ur-type, the more of a generalist it is; the more differentiated, the more a species has become specialist.

The Cheetah Conservation Foundation writes at its Internet site:

Evolution eliminates traits in organisms that are least suited for survival. Some of the decline in the cheetah's genetic diversity is accounted for by its specialization through natural selection. The decrease in genetic diversity resulting from natural selection has benefited the species' survival as it has made the cheetah better adapted to its environment. However, the effects of this occurrence are small when compared to the effects of the inbreeding that occurred 10,000[12] years ago from a population bottleneck.

It can be clear that specialization is not evolution in the sense of macro-evolution, but also involves genetic impoverishment, and that the consequence of inbreeding must actually be called

[1] In practice of course degeneration also occurred.

[2] Although I realize this may be difficult to test. There is little fossil DNA. Is it possible to determine what is a gene and what is not? And it seems very difficult to me to figure out if a fossil gene is 'on' or 'off'. However, who knows what we will yet discover, and who knows what new techniques will make possible? So, for whatever it's worth then...

[3] If Fool Coincidence plays a game, a mutation could perhaps be undone again.

[4] The breeders of that time believed that their special races of pigeons were almost all original species of pigeons which were not descended from the rock pigeon.

[5] At least in one of the two populations, but probably in both, certain genes are on in contrast to genes in the other population which are off. By mutation, those genes can still turn off, which could result in a sort of turnaround effect. However, this can never go so far that high becomes completely low and vice versa. In the most extreme scenario, all genes would be on in one population, and in the other all genes would be off. In that case, the first could be retraced to the second by mutation, but the second could never go back to the first.

[6] Or a completely different genetic mechanism?

[7] It was not clear to me from the description whether cross-breeding just 'did not occur', or was really genetically impossible. However, it is conceivable that there are cases in which it does not 'work' genetically between A and C whereas it does work between A + B and B + C. I will continue on this premise.

[8] The sum of all occurring alleles in a population.

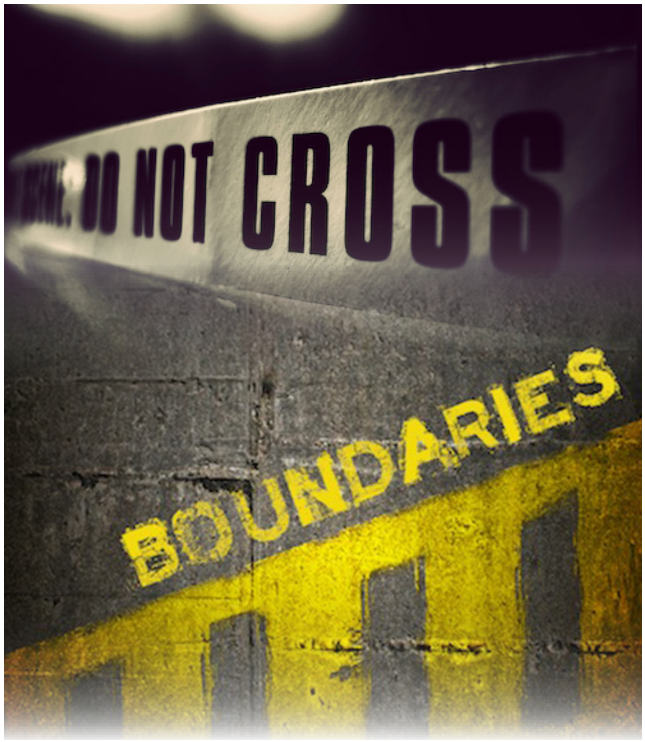
[9] Assuming that gnus are not already an 'end station', and that they are very heterozygotic.

[10] Say AaBBCc… x AABbCC..., or AaBbCc… x AABBCC…, or AaBbCc… x AaBbCc…, or even AaBbCc… A*a*B*b*C*c*… (in which the * represents a non-derivative version of A, B or C, and thus a completely different allele.) This last seems most probable to me, because that will result in the most variation. For the rest of the explanation, I will work with the first situation, in order not to make it too complicated.

[11] It is even possible to breed back to an imaginary point of divergence, because if two sub-species are crossed which have each gone a long way, their crossing will yield a new phenotype which has never been seen before! Suppose ten genes are involved in the divergence of two sub-species. In the original type, they are all on, in one sub-type only 1, 2, and 3 are on, and in the other 8, 9, and 10. The first originated because for example 10 to 4 went off in that order, and in the other 1 to 7 went off in that order. There has therefore never before been a species in which 1, 2, 3, 8, 9, and 10 were on, but by crossing the two sub-species, it comes into existence, and there is then a variant which had never occurred before and is richer than either of the two sub-species.

[12] That ten thousand years seems like it was pulled out of a hat. At that time, cheetahs were still spread across the entire world. Others say that the bottleneck occurred only a few decades ago, due to farmers shooting cheetahs, because they were attacking their livestock.

15. The Boundaries Of Types



What are the similarities and differences between the types and where is the boundary?

15. THE BOUNDARIES OF TYPES

In the previous chapter we examined the concept of typological differentiation, and that naturally raises the question, How do you find out whether two species are the same type? Are all amphibians descended from one primeval frog, and are all mammals descended from one ur-mammal, or is it only the felines which are descended from one ur-cat, or were there two ur-cats, one big version and one little version, or were there more or different primeval felines? How do we determine types? It looks like dogs and cats will end up in different types, but how can you ascertain that the ur-wolf and the ur-cat did not share a common ur-mother as well, which was so rich in genes that not only all wolves and dogs, but also all the felines, are descended from her?

In addition to that, the fact that everything resembles each other so much has always been seen as a powerful argument for a common ancestry.

Because why does all life use exactly the same genetic code?[1] Why are the skeletons of mammals apparently all made of the same components?[2] Why does cytochrome C look so much the same in all living creatures?[3] Why do mitochondria resemble bacteria so much?[4] Why does all life have chromosomes? Why do all animals (with only a few exceptions) reproduce sexually? In short, the basis of life is the same for all life and much of what follows is the same or derived from each other, and therefore originated from each other, many say.

In order to adequately answer the question "How do we differentiate between different types?", something first needs to be said about how genetically different life is. I will then discuss why there are so many similarities. After that, I will make a proposal for how they can be distinguished from each other.

The biochemist and non-creationist Michael J. Behe, in his book Darwin's Black Box, comes to the same conclusion I do: creation happened. However, he suggests that only the first living cell was created, which contained all the genetic information that life afterwards could possibly need. And why not? Then we only have to change the beginning and we can keep the rest of evolution as it is.

I think that this is an indefensible point of view. Genes cannot remain preserved in the genome of the species for 3 or 4 billion years without mutating in the meanwhile. Some genes would not be need until a few billion years had passed, and would therefore be in the chromosomes without selection pressure (!) for all that time. That means, as we have seen at length in the first section of this book, that they can mutate 'freely' and that only results in hopeless junk. Furthermore, the degeneration law also says that these (hidden) characteristics would be lost over time.

And why would a Creator® be unable to make *two* cells, if he can make one? Or why not three? Or why not that entire combination of billions of cells that makes up a plant or animal? He can after all apparently already foresee how all of those cells will work together and program the necessary genes. Can't he then also assemble them immediately, that is, put them together into a working whole?

Prediction: One simple way to certainly and definitively exclude this option of Behe's is to compare the DNA (insofar as that is available) of lower fossilized organisms with the DNA of the higher species which are supposed to have descended from them. The lower organisms should then have genes which are used in the higher organisms. In other words, the genes for lungs and bones must have been present in the jellyfish and other fish. This prediction says that that will not occur.

15.1 There are different genetic systems

Why is the gender of birds and of moths determined in the sex chromosomes precisely opposite to all other organism that reproduce sexually, when birds are supposed to be descended from reptiles (or dinosaurs, as some say) and another method for determining their gender therefore had already been fixed in their genes?

mammals:	XY = male	XX = female
birds:	ZZ = male	WZ = female

In humans, the *sperm cell*, because it contains either an X- or a Y-chromosome, determines whether the offspring will be male or female. In birds, butterflies, and some fish, the *egg cel*l determines the gender because it contains either a Z- or a W-chromosome.

How could this *immense* genetic about-face have taken place? And not once, which is already sufficiently impossible, but several times! Try to create a absolute theoretical model for such a genetic about-face. It just doesn't work.

the same functions are carried out by different genes

We will complicate matters further.

In fruit flies, gender is determined by the number of X-chromosomes. 2X results in a female, 1X in a male. However, the male does need the Y in order to be fertile (Genetic analysis, pp. 69 en 70).

In mammals, it is precisely the presence or absence of the Y-chromosome that determines the gender. This was discovered by observing the gender of individuals with an abnormal number of chromosomes. In fruit flies, XXY results in female external characteristics; in humans XXY results in male external characteristics (see Figure 1). This has nothing to do with something being coincidentally genetically 'switched around'.

Figure 1, gender determination in normal, triple, and single sex chromosomes

Table 3-1 Chromosomal Determination of Sex in *Drosophila* and Humans

	Sex chromosomes			
Species	XX	XY	XXY	XO
Drosophila	♀	♂	♀	♂
Humans	♀	♂	♂	♀

This is because, in fruit flies, the concentration of a protein bHLH determines whether the gender-determining gene Sxl is on or off. An extra X-chromosome, which has the gene for bHLH on it, makes the concentration higher, which causes Sxl to be produced and the larva becomes a female. If the concentration of bHLH is low, no Sxl is produced and the larva becomes a male.

The bHLH protein disappears a certain point in time during the embryonic development. However, once Sxl protein is produced, the protein itself assumes the function of bHLH and ensures that Sxl is always produced. (In electronics, this is called a flip-flop.) This is because Sxl fastens on to the mRNA (the messenger RNA, or 'mold') of the Sxl gene and cuts a piece out. That piece, called an exon, begins with the stop-signal UGA. If this stop-signal remains, the protein is not produced. If it is removed, new Sxl protein is produced, which then also ensures that the right pieces get cut out again!

In addition to the fact that Sxl thus ensures its own future, it also removes those pieces from the copies of the other gender-determining genes which are not necessary for the gender in question. It is known as an *RNA-binding splicing factor*.

In mice and in humans, it has been determined that gender, including all external characteristics which accompany it, is determined by the presence or absence of one gene on the Y-chromosome. This is the gene SRY. If it is present, the individual will be a male, if it is absent, the individual will be a female. If this gene ends up on the X-chromosome by a mistake in recombination, the individual will receive all the male gender characteristics anyway.

SRY is a so-called *transcription factor*. It attaches itself to the DNA and thus determines which sex genes are or are not transcribed (that is, whether a mold of it is allowed to be made).

What is more than apparent from this is that the way in which gender is determined is totally different. In both cases, there is one gene that is the definitive switch. But:

- The way in which it is turned on or off is essentially different.
- The ways in which they then work are also totally different from each other.
- The proteins in question differ structurally.
- All the genes that are then necessary for determining gender therefore also differ from each other in the same way.

Each sex gene in fruit flies, for instance, has to contain the exact code that the Sxl protein can attach itself to, where the Sxl knows what to cut out, and what is more, can do that so that it results in a female sex protein in one case and a male one in another case.

The sex genes in mice and humans, in contrast, have to have the exact code in the DNA to which SRY protein can attach itself. This code has to be before the code of the mold, and does not end up in the mold itself. See Table 1 for a summary and an overview of the differences.

	fruit flies, Sxl gene	**mice and men, SRY**
How is it turned on?	By the concentration of another protein, bHLH.	By its presence.
How does it stay on?	By cutting a piece with a stop-signal out of its own mold (mRNA).	By its presence.
How does it determine gender?	By cutting out the right pieces in the molds (the mRNA) for all sex genes.	By attaching itself to the DNA and thus determining which genes are allowed to be copied.
What consequences does it have for the other sex genes?	Each sex gene has to have the right code in the mold so that Sxl can attach to it and cut pieces out of it.	Each sex gene has to have the right code in the DNA before the code of the mold.
	It is a RNA-binding splicing protein.	It is a DNA-binding transcribing protein.

Table 1,overview of the differences in gender-determining genes in mice and fruit flies

In short, what we have here are two genetic systems that cannot be descended from each other, and cannot be traced back to some predecessor. Neither of these two systems could have been changed into the other by mutations, nor could they have descended from a common ancestor, because the differences are far too structural and far-reaching. It is known that sex reversal

('men' with XY-chromosomes who still have the appearance of the female sex) can, among other things, be caused by point mutations in the SRY gene. Mutations in the Sxl or SRY gene would immediately mean that only infertile males (in fruit flies) or infertile female individuals (in mice and humans) would result. Because they cannot reproduce, their mutations do not spread. The Sxl and SRY genes, and all the other sex genes connected to them, will not permit an origin in which they originate, already mutating, from a common ancestor.

There are even more gender-determining genetic systems

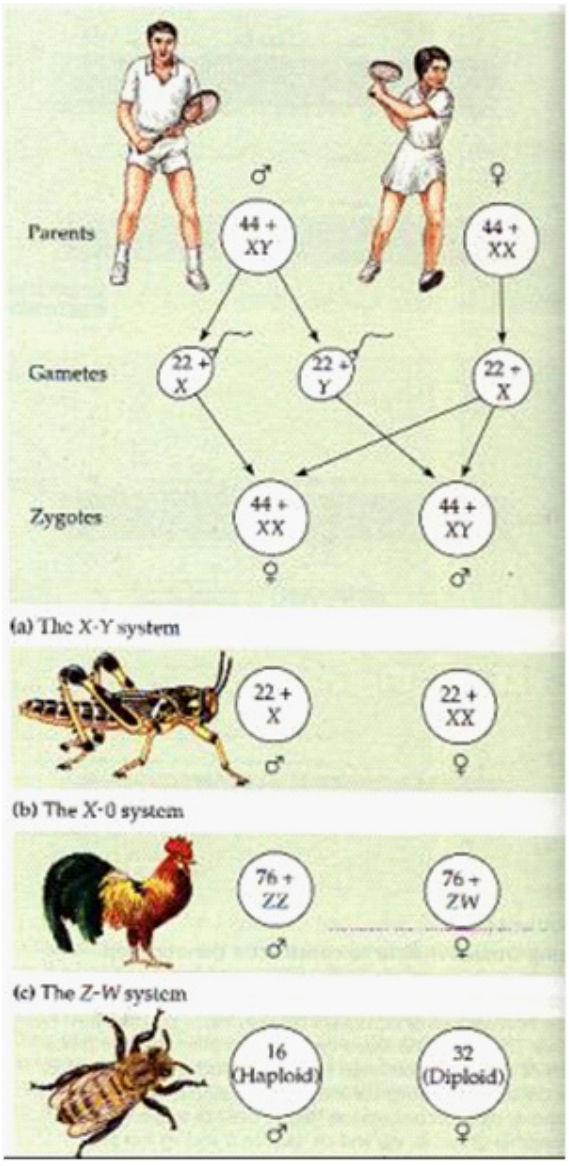
For those not yet convinced:

- In crickets and grasshoppers, only one sex chromosome is present. X results in a male, XX in a female (this is not the same as in fruit flies, since fruit flies absolutely have to have the Y-chromosome to be fertile).
- Bees and ants do not have any sex chromosomes. Males develop from unfertilized eggs and therefore have single or haploid chromosomes, whereas females develop from fertilized eggs with double or diploid chromosomes. The males therefore have no father!
- In crocodiles, the temperature at which the eggs develop determines what the gender will be! At 30° they all become females, at 33° they all become males!
- Earthworms and garden slugs are hermaphrodites. They all have the same set of chromosomes and can all produce both sperm and eggs.

Both in fruit flies and people, gender is determined by the XY system, but we have seen that there are already *insurmountably* great differences there. How much greater will the differences be in the other gender-determining systems?

Figure 2: Different ways of gender definition.

Biology Campbell, pp.270

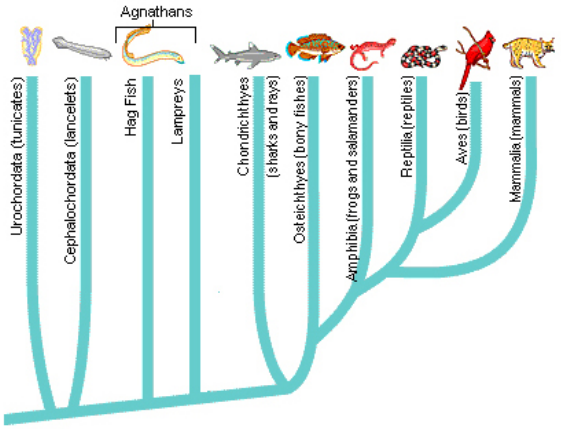


- **In plants, anything can occur. Single sex according to the XY system, but also according to the ZW system; a single, hermaphroditic flower; different flowers which are hermaphroditic; some can fertilize themselves, some cannot, even though they are hermaphroditic.[5] (Genetic analysis, pp. 94 en Biology, concepts and connections, pp. 166)**

Where are the hard-core evolutionists, who continually say that everything is the same, and originated from each other? Why don't you read in their books about the origins of this sort of thing? Because it is still too complicated? Because they will eventually figure out how it works? No, because it is not possible. It doesn't fit. It overthrows their world view, the basis of their belief, the basis of their life. This is about structural, essential, fundamentally different genetic systems that cannot be traced to each other. Even though this concerns something comparable, namely gender determination, they are different genes with the same function. Further on during the development of the sex in the embryo, tens or hundreds of genes are involved. They are different genetic systems. How is natural selection

supposed to do that job? Why would natural selection want to do that job? Once the groundwork is laid for gender determination, why would natural selection want to deviate from that? Why would natural selection want to completely work out the most fundamental basis of reproduction five or six times and then introduce those different possibilities here and there during evolution? If you get it right, why change it, you might say!

The evolution theory has the problem that they have to explain every deviation from the existing pattern! Has to be able to be traced back to a common ancestry. It is fairly simply to make a general sequence: fish, amphibians, reptiles, birds and mammals. That is the picture. If you look at all the correspondences, it even becomes an acceptable picture. If you look at all the differences, it becomes a difficult picture. If you look at all the deviations and exceptions, it becomes an impossible picture! If you look at the genetic basis for the differences, it becomes a ridiculous picture!!!



Bacteria and plant and animal cells have different genetic systems

And what I have done here so far is only one thing, gender determination. But there is much more going on. A few years ago, geneticists came to the somewhat shocking conclusion that the genetic principles that apply to bacteria are not the same as in plant and animal cells (eukaryotes). People discovered, among other things, that the 'molds' that are made from DNA (the RNA) in eukaryotes are made up of parts which were first cut up and then stuck together (such as the sex gene Sxl in fruit flies). So the genes do not code *directly* for proteins, as in bacteria, but are 'spliced'.

> *The discovery of spliced genes (gene splicing) signaled one of the greatest disillusionments of molecular biology.*
>
> Christian de Duve, De levende cel [The Living Cell], pp. 310.

Another point is that bacterial variation originates by transposons, insertions, deletions, separate ring-shaped DNA and the like. In eukaryotes, variation comes about through their double chromosomes and recombination, or rearranging of the double chromosomes. That doesn't alter the possibility of these mechanisms appearing in plants and animals, as we have seen (transposons in corn and fruit flies), because the basis of DNA is, after all, the same. But in bacteria they are involved in bringing about variation and adaptation, whereas in plants and animals, they make a mess. They are *different* genetic systems.

And yet, textbooks talk about this as if it were all the same. It is terribly difficult if not impossible sometimes to figure out in the tomes that cover this material which genetic mechanisms occur in which species. It took me many hours and a whole lot of comparing-with-other-writers to figure things out. In one paragraph, the way something works in a bacteria is discussed, in order to say in the same paragraph that this is a mechanism which could propel evolution (this is usually expressed cautiously). That is why I am promoting this idea to an element of the degeneration theory:

There are genetic systems that differ fundamentally from each other, which are species- or type-specific. The same functions will often be realized by different genetic or biochemical systems, or, to put it more simply, by different genes.

In one type it works one way, in another type it works another way. In one it works, in the other it doesn't. There are also many different genetic systems within one type; the immune system is one example. It is too extensive to be covered here, but for those who know, it will be clear. The way in which genes are treated there is unique. That can never be used without justification to prove something that has nothing to do with it. True, the immune system is not used as an evolutionary principle, because it is clear enough that that has nothing to do with it (since these genetic changes do not end up in the sex cells), but what is important is the idea that the different systems should be distinguished from each other, and that something that works in one system (bacteria) cannot be used irresponsibly as a principle in the other (for example eukaryotes).

Although I realize that many readers will be unable to follow me completely in this, I cannot resist clarifying this with a story, since the confusion on this subject is so great (in the books on it) that I feel it is necessary to write a bit more about it. If the shoe fits, so to speak.

Why the Russian flag was red

Because evolutionists assume that everything has the same origin, they always look for the correspondences. As soon as a correspondence is found, it is used as an argument for identical ancestry. People are not oriented to the differences. People have a tendency to lump everything together. For some reason or another, people do not realize that, just as there is a variety of living creature, there is a variety of genetic systems.

The method of argumentation used, in which things that have little or no connection with each other are nevertheless put together, resembles the following story, which was told when I was young:

Do you know why the Russian flag is red?

Because fire engines are red!

This is probably not immediately understandable, but scientists have researched it and discovered that a fire engine is red, and that the Russian flag is red, which clearly indicates a common connection: they look like each other! Scientists have also discovered that a fire engine extinguishes fires.

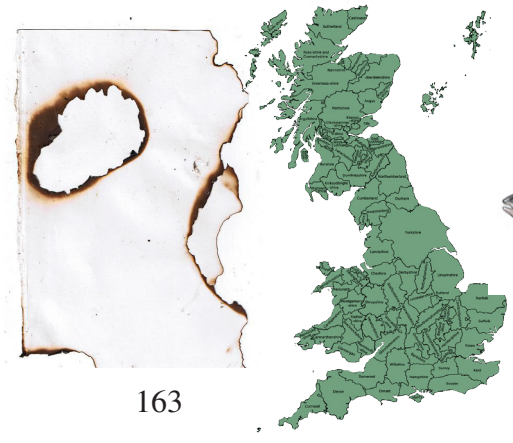
And paper is turned into ash by fire, they discovered.

And ash weighs about a kilogram.

And a kilogram is about two pounds.

And a pound is an English coin.

And England is situated in the sea.



And fish swim in the sea.

And fish have fins.

And the Finns fought against the Russians.

And that's why the Russian flag is red.

No one accepts this line of reasoning if it concerns the redness of the Russian flag, but they do accept it in evolutionist genetics and/or biochemistry. Why? Because that is thousands of times more complex and the transition from one argument to the next cannot be refuted easily, and because, on this issue, people assume that the flag is red, because fire engines are red (in other words: all living things resemble each other, because they have the same common origin). Every explanation that confirms that is accepted, even if it is not logical. If someone seriously tries to refute this kind of reasoning, it could result in the following discussion between, say, **Creation** and **Evolution:**

C: A child can understand that that logic does not work at all.

E: If you give your child a religious upbringing, perhaps, yes.

C: This has nothing to do with a religious upbringing, it is simply sound thinking. Sound thinking says that the fact that the flag is red has nothing to do with the fire engine (say, for instance: that life is too complex to have had the same origin).

E: All right, who is more reliable, the scientists who have investigated it all meticulously, and do see that connection, or naive religious leaders or parents?

C: Okay, okay. Take that ash. It doesn't weigh a kilogram.

E: No, it doesn't. And that right there shows immediately how badly informed you are, because this isn't about ash at all, it's about goulash, which can weigh a kilogram.

C: But then it has nothing to do with ash anymore, does it?

E: Of course it does. They are both cases of ash. One case is just plain ash, the other is goulash.

C: Yes, um. But what about that example of the coin and the sea, what do they have to do with each other?

E: England. England connects the pound (it is 'pound', not 'coin', you see how you unscientific you are) with the sea. Anyone can see that.

C: Yes, but that doesn't have anything to do with the flag being red, does it?

E: Yes it does, like I just told you.

C: Yes, but that doesn't make sense.

E: Then prove that first.

C: Well, you say, "A pound is an English coin." And then you say, "England is situated in the sea." You suddenly take this huge leap.

E: Yes, but those are things that science hasn't completely cleared up yet. That will come later.

C: Yes, but if it really doesn't make any sense at that one point, the whole line of reasoning falls apart

E: No, you have to stick to the general idea and then you will see clearly that it is right. If one little detail isn't right, you shouldn't blow it out of proportion in order to disprove the whole story. You have to see it in proportion.

C: Yes, but the whole story isn't right. It seems good, but it just isn't right.

E: That's what you say, because you read in some book that it was different.

But as it now turns out, there are evolutionist writers who do address the problem of English and England, and people are fortunately making an amazing discovery, which all the newspapers then write about. It was much more complicated that people thought:

A pound is worth five pennies.

And on a penny you can see the queen of England.

And England is situated in the sea.

That just goes to show that intense scientific research will always find a solution. This logic is so watertight, no one could squeeze even a drop of water between these statements!

And yet there are still those scientific writers every now and then (like Denton and Behe) who attempt to put this logic to the test, because they have the uneasy feeling that it isn't quite right after all.

The confusion of chromosome doubling as a mechanism for evolution

I will give one more example of confusion between genetic systems. Doubling of the number of chromosomes can occur in plants. In a certain species of cactus, this leads to huge blossoms, larger than the cactus itself. Plants have relatively simple structures and can apparently survive this kind of messing around with their genetic material, and can even benefit from it. In humans, the doubling of one single chromosome can already lead to big problems, such as Down's syndrome, which results in mental retardation. Doubling the number of chromosomes in one species can therefore never be used as an argument to explain macro-evolution in general.

15.2 Similarity is not proof of a common ancestry

Histons are small spool-proteins that the DNA winds itself around when it is folding itself up into a chromosome. They are, as it were, the bobbins or screws that hold the DNA together. They occur in lengths of more than 100 amino acids.

I quote Prof. Dr. J.D. Fast in Matter and life, page 166:

One item of interest is a thorough research project carried out by Bonner and his colleagues in 1969. They examined a histon from a cow and from a garden pea. However far apart these organisms may be (no one could mistake a cow for a pea), their histons appear to be almost identical, differing by only three links. The cow and the pea apparently have a common ancestor, which lived on Earth before the organisms diversified into animals and plants that followed their own evolutionary paths.

The reasoning goes as follows: the histons of a cow and a pea are very similar, THEREFORE, they had a common ancestor. In A. van den Beukel's book With different eyes, I came across a fantastic reaction to the logic of that kind of reasoning:

We will let Darwin himself speak to give an example and to tell us how he views this:

> *'Wat kan merkwaardiger zijn dan dat de hand van de mens, gevormd om te grijpen, die van een mol om te graven, de poot van een paard, de zwemvoet van een dolfijn en de vleugel van een vleermuis allemaal volgens hetzelfde patroon geconstrueerd zijn? We kunnen dit aanpassing aan het type noemen, zonder daarmee veel dichter bij een verklaring van het verschijnsel te komen, maar suggereert het niet op machtige wijze een werkelijke verwantschap, de erfenis van een gemeenschappelijke voorouder?'*
>
> *I think this is a specimen of very remarkable logic. Compare it with this: what could be more remarkable than the wheel of a pushcart, a bicycle, a train, the landing gear of an plane, and the cogwheels of a watch, which are all constructed along the same basic lines? We can call this an adaptation of the concept 'wheel' to the special needs of the implement, without getting any closer to explaining the phenomenon. But doesn't this suggest very powerfully that pushcart, bicycle, train, plane and watch all had a common ancestor? Honestly speaking, no, not for me, and definitely not powerfully. If all those wheels suggest anything to me, it is that the concept of a wheel has been purposefully applied, by intelligent designers, to the function it needed to serve.*

A. van den Beukel, With Different Eyes, pp. 91

The argument 'they are very similar THEREFORE they had a common ancestor' no longer serves.

An evolutionist walks through Eindhoven and looks at all the buildings of the city. He sees that bricks are used all over the place, for sheds, but also for row houses, country houses, apartment buildings, churches, and libraries, and even for simple walls. And then he sees that all the buildings have central heating and that they are also connecting to the same sewer system. And he establishes that they all have windows made of glass and that there are also doors everywhere. The electricity all comes from the same power plant, and he comes to the simple and convincing conclusion: you see, this is the clearest possible proof for a common ancestry! Analogous to the example that Mr. Van den Beukel gave (I think it is a great example), Fast's quote can be altered as follows:

One item of interest is a thorough research project carried out by E. Volutio Nist and his colleagues in 1997. They examined the screws of a CD player and a cabinet. However far apart these objects may be (no one will ever mistake a CD player for a cabinet), their screws appeared to be identical, differing on only three points. The CD player and the cabinet apparently came from the same common production line, somewhere in a factory, before they diversified into CD players and cabinets which then followed their own process of development.

Of course we are not talking about living creatures that reproduce themselves in the case of CD players and cabinets, but a histon in and of itself is also not alive. Moreover, that detracts nothing from the argument. This is about the reasoning, the logic, the argumentation: the idea that similarity can prove a common origin. That reasoning, they-are-similar-THEREFORE-they-have-a-common-origin, does not stand up, not for living creatures and not for bricks or CD players.

If it were true that similarity indicated a common ancestry, then you could also claim that garden slugs and earthworms originated from a common ancestor and are more closely related that the garden slugs are to other slugs, because their sex-determining genetic systems are the same (or show strong similarities; see above).

Similarity does not indicate corresponding ancestry, but corresponding use! Not common ancestors, just a common basis (namely atoms, etc.). Although the earlier mentioned cytochrome c can differ in up to 50% of the amino acids between non-related species, the basic structures and functional parts are the same for all species. That isn't very surprising, since all these species have to transport electrons. Apparently, electrons can only be picked up by one specific method, whereas the security code that causes Bouncer-protein to allow cytochrome c to pass through the membrane can differ per species (because Bouncer-protein differs just as much). The similarity can thus be simply explained by the fact that the same or a comparable function is filled.

15.3 Why does everything resemble each other?

Now that we have seen (just a little bit!) how different the genetic basis for life forms can be and that similarity does not by definition mean a common ancestry, it is an interesting time to ask ourselves why all those correspondences are there.

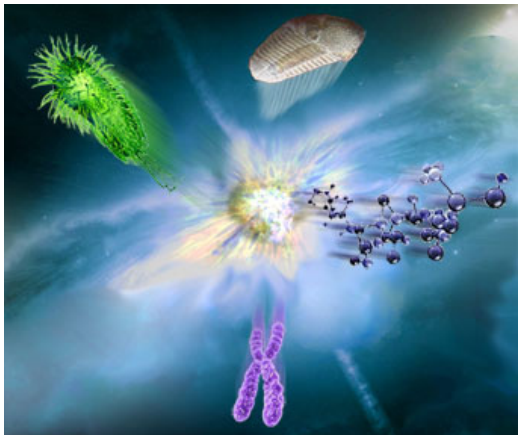
There is no other way

Let me try to see things from the Creator®'s point of view, to take a look at why he allowed everything to look so much like each other (because there are similarities). That is somewhat dangerous, since I of course do not know that, but it is fairly obvious and will show in any case that there actually isn't any other possibility than that everything looks like each other.

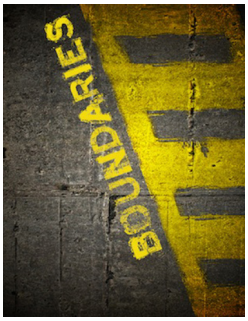
Firstly, all life has to find a niche on the same Earth. The atmosphere is the same for plants, animals and bacteria. Plants absorb carbon dioxide and produce oxygen, and animals absorb oxygen and produce carbon. In this way, plants and animals are dependent on each other and live in the same environment. This one single fact shows that the Creator, having made such a choice, placed incredible limitations on everything he did afterwards. That one choice seals the fate of all plants and animals. Each and every plant must in principle be able to convert carbon dioxide in some way or another. Each and every animal must in principle be able to absorb oxygen. That is why plants got chlorophyll and animals got gills or lungs.

However, a complex system such as a lung has its consequences. Hemoglobin is there, and therefore so are red blood cells, so is blood, so are blood vessels, so a heart is needed to pump, transporting the oxygen throughout the body. If an animal gets big enough, those organs collapse like Jell-O, so support is needed. For fish, a fairly flexible network of thin bones is sufficient; in larger animals a skeleton is needed. If it is good enough for one animal, it is good enough for another. The concept of a skeleton can be applied universally, just like the concept of central heating works in a row house, but also in apartment buildings, schools and offices.

Suppose that, in order to convince the evolutionists, the Creator® had made a completely different creature, one that breathes sulfuric acid and eats nitroglycerine and is made of moving stone. How could that have existed on the same planet? Everything has to look like each other, or not all life on the same earth can have a niche, because everything affects everything else. When I die, my body will decompose with the help of worms, bacteria and molds. When I eat a plant, what use could it be to me if there are nutrients in that plants which my digestive system cannot extract, except that I would not get fat? If the proteins in humans were not made up of amino acids but of something totally different, hydroxide bases for instance (which is a nonsense word), where could we get them from if the other living creatures did not have them? Not by eating them, but what could we eat then?



The design of the cell was universally applicable. The principle of DNA and chromosomes and reproduction was intended, developed, designed to be universally applicable, so that all life would be under the same umbrella. On the one hand, the Creator® limits himself by the choices he makes; on the other hand, those choices do not limit him to such an extent that he can never deviate from them and can sometimes do something completely different. The similarities show the universal use and the universal necessary basis; the difference show the inventiveness and creativity of the Creator®.



15.4 What are the boundaries between the types?

In this chapter, we have seen that the genetic systems which form the basis of the species differ so greatly that it is clear that typological boundaries exist. On the other hand, there are also a great deal of similarities. How can we determine the precise boundary? What I will do is discuss a number of rules with their possibilities and limitations in order to establish the boundaries, and then I will discuss a number of points which may cloud the issue of determining boundaries.

(Some rules consist of two parts, to the extent that that is practical, one to establish whether two species do belong to the same type, and one to establish that they do not belong to the same type.)

1. If fertilization of a egg cell with a sperm cell of another species occurs, then both species belong to the same type, even if it does not result in viable offspring.

99% of the time, this rule can be used to exclude the possibility. For example, it is known that apes and humans cannot fertilize each other. In the Second World War, in the camps, experiments were done to that end. On the other hand, it appears that species which have lived on different continents for a very long time can still have offspring together. In a zoo, also during the Second World War, lions and tigers were put in the same cage. They produced live offspring. Lions and tigers therefore belong to one and the same type![6]

Other examples are:

Horses and donkeys produce offspring. They are called mules, but they are no longer fertile. Horses and donkeys belong to the same type.

Sheep and goats can no longer produce viable offspring, but an embryo does form. Sheep and goats belong to the same type!

The North American sycamore tree and the European sycamore represent large populations that have been allopatric for at least 30 million years, but specimens that are brought together still produce fertile hybrids.

Biology, Campbell, pp. 443

It is not strictly necessary for viable or even fertile offspring to result. Degeneration of the genome can ensure that the embryo no longer develops properly and dies, or that the offspring is infertile. The chromosomes are, as it were, no longer compatible.

If fertilization takes place, that in itself is sufficient evidence that two species belong to the same type, since it is nearly impossible for mutation to change something in the melding of egg cell and sperm cell which make fertilization with the original type no longer possible, while it is possible with a sub-species. Fertilization is an extremely complex occurrence and differs from species to species![7] There are recognition proteins on the surface of the egg cell and the sperm cell, which fit together precisely, so that all the chemical processes that take place during fertilization only get going if the key fits the lock. A mutation could change the key, but to simultaneously change the lock in the partner in precisely the same way, so that they do fit with each other, but not with the previous combination anymore, is nearly impossible. Perhaps a comparable form of degeneration has occurred a few time in the entire history of life. What is really impossible is that, by mutation, the key of one type would suddenly fit the lock of another type.

However, if there turns out to be a genetic mechanism[8] (especially in lower organisms) which means that fertilization between two species of the same type no longer takes place, then of course non-fertilization in those types will of course not give a definitive answer.

Furthermore, it is of course possible that the Creator® created two different types that could still produce offspring. But that seems to me to be fairly difficult to ascertain. Perhaps you could come to that conclusion if cross-breeding did not result in one main type. It seems to me that this would occur only as a major exception.

Experiment

Horses and donkeys belong to the same type, but do not produce fertile offspring. Cross-breeding sub-species is the main remedy for degeneration and therefore also for genomes becoming incompatible so that fertile offspring can no longer be produced. Horses and donkeys could produce fertile offspring if they can be brought back close enough to the original type. That would necessitate the cross-breeding of a considerable number of kinds of horses (just as with Darwin's doves), so that a main-type horse results. The same would have to happen with all sorts of donkey species, which would produce a main-type donkey. At a certain point in time, this main-type horse and main-type donkey could produce fertile offspring.

The same principle can be applied to sheep and goats, with the possible result that viable offspring would be produced.

(The reason I do not call this a prediction is that the possibility is quite real that we can no longer breed back to the divergence point, the point at which horses and donkeys or sheep and goats diversified. This is because degeneration does, after all, exist.)

Due to the above-mentioned reservations about the first rule, it is necessary to add two more rules that can help in determining the boundaries.

2. If a real genealogical tree is known which can be traced back to the same original type, then those species belong to the same type.

If fertilization cannot take place, but a real genealogical tree exists, not a made-up one(!), then two species do of course belong to the same type.

I have searched diligently for concrete examples which could fall under this rule (while absolutely no fertilization can take place), but I have as yet been unable to find them. The problem is that the books do talk about gamete isolation, but do not give any concrete examples of species that definitely descend from each other. This was the most concrete example I could find:

Many aquatic animals release their gametes into the surrounding water, where the eggs are fertilized (external fertilization). Even when two closely related species release their gametes at the same time in the same place, cross-specific fertilization is uncommon. Biology, Campbell, pp. 440

How closely related is 'closely related'? And does 'rare' mean impossible? Or does it mean that it is possible, but does not occur?

Nevertheless, I will assume that gamete isolation does actually occur within some types, and this rule is then important.

3. If a species has one essential gene, that another species does not have, then they definitely belong to different types.

If no fertilization can take place and it is not actually known that two species are descended from each other, then genetic research could provide a definitive answer.

An essential gene is a gene that, when it is turned off, means that the fertilized egg cell cannot develop or that the individual can no longer reproduce. If one species does have this gene and another does not, then it follows fairly unambiguously that they belong to different types.

Because the essential genes determine the essence of a type (whether it is a cat-type or a dog-type and so on), a significant part of those genes will differ between the types.

With this rule, we can therefore establish without a doubt that there are boundaries, at the point where the genetic systems for gender determination differ. If the genes for gender determination are not present, because they have been damaged, the embryo may develop, but only males or only females will result, which is not very conducive to reproduction ...

If two species share all the essential genes (and there are at most a few difference in base pairs per gene), then it seems unlikely that they are still from different types.

15.5 The confusion in determining the boundaries between the types

Now that we have discussed the rules for distinguishing between the types, I need to bring up a few limitations. That is because it has so far turned out that life (on all scientific fronts!) is more complex than the simple rules with which we at first thought to be able to summarize it.

1. We can expect that it will sometimes be impossible to determine a boundary

That has to do with the idea that the Creator® does not have to think as systematically as we would like. He made a wolf with a great deal of variation, but he also made a duck-billed platypus with incredibly little variation. Among the plants, he has almost certainly made types which could also produce offspring with each other (in order to bring about even more variation?)! It is also possible that he made two types which resemble each other, but are still really different types, such as the large pandas and the bears. The small pandas and the large pandas, on the other hand, do look like each other but definitely belong to different types.

What I want to say is that, in some cases, it could be so difficult to determine whether two species belong to the same type or to different type that you can never ascertain completely how things were originally. That is not so much an omission in my theory or in the rules for determining boundaries, but an indication of the complicatedness of living nature, which cannot easily be confined to our limited frame of reference. More so: the more problems there are, the more exceptions there are, and the more complex matter is, the more it all indicates that there was no universal, unequivocal, all-encompassing, single origin of life!

If all life really had originated by this single, simple mechanism called natural selection, not only the formation of the first cell, but also the joining of multiple co-operating cells, and the origins of complete plants and animals, and the development from simple to complex, and even all of macro-evolution and the rest, then one real exception would already be one too many. (And we have already named quite a few of that kind of exceptions.)

The degeneration theory says: because creation happened and a Creator® with a great love of variation was apparently at work, you can expect that you cannot include all cases in rules set up by humans! The Creator® can introduce a certain order (such as amphibians, reptiles, mammals) and then, in direct opposition to that order, make a creature that doesn't fit in 'anywhere' (like the duck-billed platypus, that lays eggs and suckles its young). That is not a problem for the degeneration theory. In the same way, he could have made two original types that could cross-breed completely (which makes it difficult for us to ascertain such a thing). And yet, I think that this kind of exception generally is not predominant, and that the order is greater than the chaos. That means that we, with our limitations, can still set up rules that can be used in practice.

2. It depends on the complexity of the type

There are many different genetic systems. These can differ greatly per type or per species. One of those differences lies in the security of the genome.

In mammals and birds, DNA repair mechanisms (which correct some mutational events) are probably more efficient, and result in fewer changes accumulating in the neutral (nonprotein-coding) portion of DNA.[9]Biology, pp. 1045

We see repeatedly that much more variation is possible in simple organisms than in higher organisms. There are millions of variants of bacteria, hundreds of thousands of variants of insects, and it diminishes accordingly right down to humans.

The question of whether we will be capable of tracing the ur-types, whether we can bring back the main types, or even if we can distinguish between the types at all, therefore depends to a large extent on the complexity of the organism. If it is a question of bacteria, forget it. If we are talking about insects, it will often be impossible. Plants? We often cannot figure it out. Mammals? It must be possible.

3. Degeneration alienates species that are the same type

Degeneration, like mutations, alterations in chromosome structure, additions, doubling and removing pieces of DNA, pollution by transposons and retroviruses, and so on, can contribute to two species of the same type differing so greatly genetically that offspring is no longer produced and, in a few exceptional cases, fertilization can no longer take place.

Degeneration could therefore create boundaries that were not present originally.

Of course, this does not detract from the fact that there are also other forms of reproductive isolation, which can produce offspring (see previous chapter).

4. Perhaps there is a genetic mechanism that manipulates alienation

A genetic mechanism could exist, mostly in less complex organisms and perhaps especially in insects, that manipulates reproductive isolation, perhaps by making it impossible for fertilization to occur between species (even if they should want to).

5. Perhaps there is a form of original variation in essential genes

It is possible that a form of original variation exists in essential genes within the same type. That is to say, there a several alleles of one and the same gene, which are so different that they could not have originated by mutation without having lost their functionality.

If that is discovered, the conclusion cannot be drawn, only based on the fact that they do not allow mutation, that different types are involved. Precisely not if other data indicates that different species from the same type are involved.

15.6 Conclusions/summary

- There are genetic systems that differ fundamentally from each other, which are species- or type-dependent. The same functions will often be realized by different genetic or biochemical systems, or, more simply put, by different genes.
- The mechanisms within or belonging to one system cannot be a model for the evolution of all systems.
- The fact that ‘everything resembles each other’ is not proof of a common ancestry, but of common or even universal use and is a logical result of the fact that all living creatures on the same planet have to live in the same ecosystem.
- The simplest method to find out whether species belong to the same type is to see if fertilization can take place.
- The surest method to find out whether species belong to the same type is to find out whether there are essential genes which one species have and another does not.
- The boundaries of main types are more easily determined if the level of complexity is higher, because variability and deviations (in the genome) block it. In simple organisms and many plants, it may never be possible to ascertain the boundaries.

[1] That is not completely true. Mitochondria have a slightly different genetic code.

[2] That is not completely true. Sloths, for instance, have six to nine vertebrae in their necks instead of the usual seven.

[3] It depends on how you look at it. The differences go all the way up to fifty amino acids, and therefore at least that many base pairs.

[4] There are correspondences.

[5] Plants do not have a sex cell line (or germ line) at all. Mutations in somatic cells (that is, all the 'normal' cells of the body which are not in the sex cell line) can therefore also become hereditary (Biology, pp. 1036). Plants have a totally different genetic system.

[6] This immediately shows clearly that our understanding of 'type' is much more limited than the concept of type I use here. Multiple species can originate from one type.

[7] There are various genetic systems that cannot be derived from each other in any way...

[8] That is a possibility. For example, there are ten keys and ten locks. An egg cell has one of those locks, and only those sperm cells with the right key can fertilize it. The offspring that results (due to the loss or damage of the genes for the other combinations) can no longer make as many keys and locks as their ancestors.

[9] It is interesting that the evolution of higher beings supposedly was many times faster than that of unicellular organisms, whereas a higher level of security in the DNA would mean precisely the opposite: fewer mutation and therefore a slower evolution:

Only 150,000 generations were needed for the development from man-ape to the inventor of differential mathematics; about 300,000 million bacteria generations were probably needed for an amoeba to originate. Christian de Duve, De levende cel [The Living Cell], pp. 357

16. Man Is Spirit

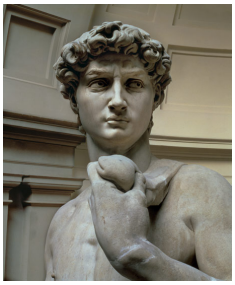
The main difference between chimpanzees and humans

16. MAN IS SPIRIT

Many evolutionists are materialists. That is to say, they believe that life is nothing more than a complex biological reaction, only matter, a coincidental (selected by the miraculous natural selection) but glorious concurrence of molecules. There is nothing magical about life. There is no vital force which keeps it going. There is no God who initiated it or maintains it. It is simply a certain form of matter which obeys the laws of physics.

That materialistic view does not hold water. That can easily be seen from the following discussion a materialist had with Michelangelo about his statue of David immediately after he had finished it. (The statue can be seen in Florence, Italy.)

16.1 Michelangelo and the materialist



Michelangelo What do you think of my statue?

Materialist Yes, very beautiful.

Michelangelo I put everything I had into that.

Materialist Whoa, that's a bit of an exaggeration.

Michelangelo What do you mean?

Materialist Well, there is no real difference between that statue of yours and the pieces you chipped off of it.

Michelangelo What are you saying? You can see at a glance that I invested a lot of time in this statue, can't you?

Materialist Yes, I can, but there is still no real difference between your David and this lump of rock. It is made of the same material.

Michelangelo Yes, of course it is made of the same material. But just look at it. Those shapes, the shine, the proportions. This statue emanates emotion. It is art, it is life, it is beauty, it is… I have no words for it. You can understand that, can't you? This statue is… spirit! My spirit is in this statue. I put it there.

Materialist You are really going too far. Just put that thing under a microscope; you won't see anything, anything at all, of spirit in it. It is pure matter. It happens to have a somewhat different manifestation than the rest of the rocks in here, but...

Michelangelo WHAT! ROCKS? Get out of here, you rascal. Get out of here. I never want to see you here again.

And keep your hands away from my statue.

16.2 Sound samples

Another example shows what is wrong with the materialistic, diminishing view of life.

In Figure 1 you can see the sound waves depicted of the words 'I love you'.

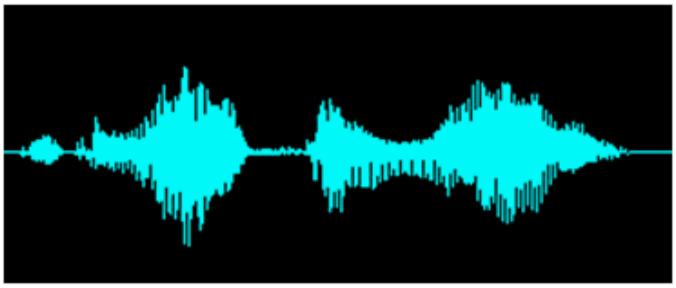


figure 1, 'I love you'

This picture was created by recording those words on the hard disk of a computer and then make them visible in a program for processing sounds. It is called an sound sample. The first small bump is the word 'I'. The second (large) bump is 'love'. It starts small, but gets bigger as you speak the vowel. The third one is 'you'. 'I love you'.

The sound waves in this picture are a bit compressed. If we zoom in on the word 'love', this is what you see:

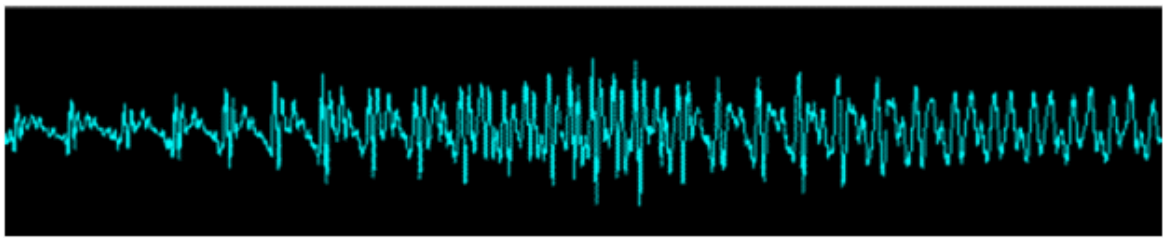


Figure 2, 'love'

The whole phrase 'I love you', which looks fairly simple in Figure 1, is seen to be much more complex when you examine it more closely. You see all sorts of regularly recurring patterns, which slowly change into other patterns. Sound waves, as the voice produces them, consist of an entire combination of frequencies and wavelengths It is possible to subject this sentence, which has now been recorded, to a thorough investigation. You can take the sound waves apart and analyze them, take out all the high tones or all the low ones. You can even play with it and make it into strange noises for a rap CD or something like that.

sound waves are the *carrier* of something greater

What is now important is that the sound waves, which are captured on the hard disk of my PC, are the carrier of something greater. They aren't just any sound waves, like any other, no, together they form words. If you study the frequencies, you will not see the words, just like you won't see David if you just look at the stone. In turn, the words are the carrier of a message, a meaning. And that message is again carrier of the emotion: I love you. You cannot measure that emotion. It is already incredibly difficult for computers to just recognize all the words from the sound waves. You need complicated programs for that, which must first be taught what a voice sounds like, and then still make many mistakes. One level higher, comprehending the meaning of the words, is already beyond the capabilities of a computer.

Materialists are like the computer programs which try to recognize the words: they just cannot grasp the idea that matter is the carrier of something greater.

Just as a sound sample is not the same as speech, DNA is not the same as life. If someone says 'I love you' to you, your reaction is not to say 'those are merely sound waves which are organized in a certain complex way, and which now reach my ear' (with a very few exceptions). The sound waves aren't the words themselves. They are the physical carriers of the words. In the same way, the molecular basis of life is not life itself, but the physical carrier of life. By fixating too much on the sound waves or on the DNA, you lose the true meaning of things. The statement "life is a complex biochemical reaction" is just as absurd as the statement "language is a complex combination of air vibrations". You then reduce it to what can be physically observed, analyzed, measured, experimented with. You no longer see the meaning of it. You no longer see the point of it.

Life is not a complex biochemical reaction. Life rests in a complex biochemical reaction. Life is carried by complex biochemical reactions. Life uses biochemical reactions. Life can even resist or influence biochemical reactions. We all know about the phenomenon of placebos; we also know about the will to live or survive, by which people can get better. The spirit is (sometimes) stronger than the body.

the spirit does not function on the level of DNA

The sound waves form words, and the words reflect a thought. The thought is spirit, not matter, and not biochemical matter either. The thought can be expressed just as well by a different medium than sound. By writing, for instance, like this. However, the problem with spirit is that it cannot express itself without the help of matter. Without matter, the spirit is dead, just as speech is impossible without sound waves. And that has caused some people to think and claim that spirit is no different from matter, or that spirit is in matter, or even that there is no spirit. But all these visions miss the fact that matter, the image, the sound waves, writing, DNA, program code, is merely the lowest level that intelligence, thought, and spirit use to express themselves. Materialism, the denial of the existence of the highest level, the spirit, is a gross form of reductionism, of stripping life down to the lowest level, until you realize that there is nothing left.

My own scientific career was a descent from higher to lower dimension, led by a desire to understand life. I went from animals to cells, from cells to bacteria, from bacteria to molecules, from molecules to electrons. The story had its irony, for molecules and electrons have no life at all. On my way life ran out between my fingers.

Albert Szent Györgi, The Living State, Academic Press, 1972, quoted from Biochemistry.

the difference between apes and humans is not at DNA-level

To say that a human is essentially no different than an amoeba, plant, frog, or ape, is the same as if a materialist were to compare two sound samples, one from a human and one from a parrot, which both say 'I love you'. The materialist will swear that there may be a difference between the two samples, but that it is only a gradual difference. The frequencies differ somewhat, but essentially they are the same. If we try to discuss the difference between 'I love you' from a parrot or from a human at the level of the frequencies, the discussion is by definition already off track! At that level, the difference is indeed only gradual. But no one will deny that the parrot will never say it with the same force or meaning as a human. That is precisely why it is so funny when a parrot 'talks'.

If we try to show the difference between apes and humans at the DNA level, then the discussion has by definition already gone wrong. Then there is indeed only a gradual difference. But that is not because the difference is in fact only gradual. It is because you aren't looking any farther than the end of your nose! It depends on the way you look at things.

A light has just gone on for the attentive reader. He remembers the law of Midas: the incapability of discovering greater things by a reductionist way of looking at things. That applies to the existence of a Creator®. That also applies to seeing, or discovering if you will, that man is spirit. And thus an ape is not.

16.3 Mind and spirit

Humans and animals can learn. We are more than just our DNA. The ability to learn is undoubtedly genetically determined, but what you learn is not. The ability to remember is perhaps also genetically determined, but what you remember is not.

is behavior genetically determined?

The behavior that lions have displayed and continue to display (living in a group) is learned from each other. That is not hereditary. Animals brought up in captivity cannot automatically survive in the wild, because they do not know how to survive. Young apes that are raised by a false mother do not know how to raise young themselves. The knowledge and the skills are lacking.

Wolves hunt in packs and foxes live solitary lives. Still, they belong to the same genetic sort, the same type. The pack-hunting behavior is taught during the life of the (young) wolf. It can be lost within one generation, if the animal does not grow up in the group with that hunting behavior. It is not genetically determined, except that the wolf's body is excellent for that kind of hunting. Wolves that could not participate in the hunt died. The wolves with stronger jaws and faster legs survived. Present-day wolves are therefore equipped for their present hunting behavior. But suppose the wolves ate easily for one whole generation, and stopped when the last wolf that had hunted in packs died. There is a good chance that the pack would not survive. They would have to learn to hunt all over again, or find another way of getting food. Perhaps a few are able to survive, that either display another kind of hunting behavior, or are able to slowly pick up the hunting behavior to which their bodies are still best suited. In that sense, the behavior is 'genetically determined'. But 'predestined' is a better word. The behavior itself is not 'determined', but the physical equipment for that behavior is.

human behavior is determined by the spirit

A human has a body that is equipped for performing a number of very refined acts (like very mobile fingers which can be used separately from each other) and tends therefore to develop his behavior so that he is able to use that possibility (play the piano, or type in text on a word processor, as I am doing now). The behavior is not genetically determined. The possibility of certain kinds of behavior is. The behavior itself is not determined by my genes, but by myself, which is therefore also not genetic. Myself, my spirit, uses my body, but isn't my body. Myself is much more than my DNA. Myself is made up of all I have learned, all my experiences, my behavior and my will. Are those things only biochemical reactions in my body? No, those things aren't biochemical reactions. If that were true, then 'I cannot do

anything about it' if something happens, or if I do something. I do that because that biochemical reaction takes place within me. There is then no longer such a thing as responsibility.

Let that sink in for a minute.

If life is in fact only a complex biochemical reaction, responsibility does not exist.

No, the biochemical reactions take place because I do something, or want something. The biochemical reactions are the carriers of what I want, learn, know, or do, but they are not equal to those things. My spirit receives signals from the body through the brain. My spirit does not understand those signals if they are not passed on through the brain to me.

the spirit programs the brain

Certain parts of my brain are organized in such a way that they take care of a great deal (most) processes automatically without me knowing about it. Other parts of my brain are programmed by my spirit (!) to automatically perform routines, such as driving a car. That is called learning.

Those acquired routines can take place without my spirit constantly needing to intervene and decide what needs to happen. My spirit only watches over the entire process and can concentrate on the main task. For instance, 'braking' and 'shifting gears' happen automatically. I no longer have to think about how I have to brake; that routine is programmed in. I only give them command 'brake' and the rest happens by itself. If braking continues long enough, I automatically hit the clutch. Of course, various signals reach my brain, which indicate that the clutch has been activated (I feel my left foot descend, I hear the sound of the engine change) but my brain does not actually pass those signals on to me. I instructed my brain to interpret those signals as being the message that the-clutch-has-been-activated. I then taught my brain to maintain the message the-clutch-has-been-activated independently. If I have slowed down sufficiently and I decide that it is time to speed up again, then I give the command 'accelerate', and my programmed brain then looks for the right data in order to carry out that routine.

I told my brain that it is allowed to carry out that kind of automatic routines, if the signals that it receives from the body in connection with that routine do not contain anything disturbing. Only if a signal comes from the body that the programmed routine is going too far does the brain alert my spirit, and I need to react in the right way. I could, for instance, receive a warning signal from my brain saying, there is too much noise in the back of the car, I cannot hear the sounds around me well enough anymore and therefore cannot properly assess the signals I am receiving and therefore can no longer act automatically, and I need to do something about it. And then my spirit decides what to do: reprimand the children; ask my wife, sitting next to me, to keep the children quiet; or drive very concentratedly. My spirit then takes over some tasks from my brain, or begins to consciously guide them. In this way, I can, for instance, concentrate on assessing the sounds. In that case, I can no longer talk to my wife, because I am busy. Or I no longer allow the process of passing to happen automatically, but consciously (that is the word we then use) pay attention to it.

If there is nothing in all those signals coming in that I have told my brain is abnormal, or that is completely unknown, then my brain simply continues with the pre-programmed tasks. The only thing I do is give the basic commands: faster, slower, right, left, look in the mirror. But even those commands can be taught to my brain so that they can carry them out automatically. For

example, while passing a car on the highway. That maneuver consists of a combination of the basic commands, which are always the same.

But you can also tell your brain, for instance, that it should not automatically look in the mirror or over your shoulder, because you think that the risks involved are too great. Your brain will then warn you every time it is necessary. And then you concentrate on that. At that moment, you cannot do anything else that has no already been pre-programmed.

If your brain receives signals of a very serious nature, it warns the spirit that there is something wrong, but it also immediately prepares the body for the actions which will subsequently be undertaken by the spirit. If the car in front of you brakes suddenly, you get a fright and receive a jolt of adrenaline in your blood. That causes the pupils to get smaller so you can see better, the blood vessels in your skin narrow and your heart beats faster, so more oxygen can get through to your muscles and your brain. Why? Because it is necessary for your spirit to be able to call upon every function of the body and of your brain – to the extent that they can be directed by the spirit – and cause them to react immediately, if that becomes necessary. All the functions that cannot be directed by the spirit and are therefore momentarily unnecessary are briefly stopped, such as digestion. (Aren't our bodies wonderfully put together!)

the brain is not the spirit

Our brain is a fantastic instrument in our bodies, one we can make use of. Our spirit is in constant communication with our brain. If we have taught our brain to interpret a certain combination of signals in a certain way and to react to that, we can then build on that with other instructions. However, the whole system of interpretations, automatic routines, and reactions, etc., that are built up in our brains, are determined by our spirit! Our spirit tells our brain what to do. Our spirit cannot fall back on a function that has not been introduced to the brain. If the routine bring-up-the-clutch-and-push-down-the-gas-pedal has not been acquired, programmed, then our spirit cannot use that acquired and stored routine in our brain. If there is a disorder in the brain, or in the senses, then the spirit cannot make use of that capacity of the brain either. But the brain is not the same as the spirit. The brain is not the spirit. The brain communicates with the spirit. The brain is the instrument the spirit can use to make the body do what it wants it to do.

biochemical reactions are not the spirit

The spirit can program the brain to automatically carry out routines, but it is itself not physical, bodily, biochemical. While the spirit gives the brain instructions, all sorts of biochemical processes are taking place in the brain. Many biochemical processes also take place during the automatic routines allowed by the spirit. There are also many biochemical processes that take place to perform routines that will never reach the spirit's consciousness. Insulin production in the body is arranged completely outside man's spirit. A signal will never reach the brain saying, hurry, do something, insulin is running low. What could happen is that a signal appears which means: something is wrong. That is called pain. And then we go to the doctor who understands many of the processes in our body and knows how to find out what is wrong and what he needs to do about it. If he explains it to us, then we can begin to interpret certain signals given by our body as: insulin is not being produced. But that part of the brain that maintains insulin levels will never report directly to our spirit what the problem is.

Medicines and drugs can influence processes in our brains. But they are mere surrogates for what you really feel and perceive. Drugs can influence the stimuli that enter the brain through

your senses to such an extent that you start to see 'strange things'. Walls begin to move, colors change and things like that. The normal order of things in your body and your brain are overthrown. But what you perceive is not real. You may feel happy, or good, in some way, but it is not a real feeling.

Of course, your spirit thinks all of that is very unusual, since you normally do not see all of those things. Those chemicals do not directly influence your spirit, but your brain. And your spirit, which 'communicates' with (certain parts of) your brain, flips out when it sees that much disturbance.

What am I getting at with this whole story? It is simple. Man is not just a body. Man is spirit and body. Man is Spirit. The spirit is completely dependent on the body. Without the body, the spirit can do nothing.

a mental handicap is not a handicap of the spirit

When bodily functions are missing or (seriously) damaged, the spirit is limited in how much it can learn or express itself. A person is then physically handicapped. When brain functions are damaged or missing, a person is mentally handicapped. What can a person do when the part of his brain that directs the mouth is damaged? He cannot get control of his mouth and vocal cords, and cannot express himself. And if that part of the brain that directs his arms and legs is also damaged? Then his spirit is incapable of making his body do what he wants it to do. This means that someone could for instance be unable to learn to read and write, and his development will therefore be seriously limited. But his spirit is fundamentally no different from ours! Mentally handicapped people are 100% human! One h u n d r e d percent! Because their Spirit is one h u n d r e d percent human. Man, and that means also a mentally handicapped man, is Spirit. That Spirit is not physical and therefore is not physically or mentally handicapped. The body and the brain are damaged, and that has enormous repercussions in the possibilities such a person has to express themselves and to live. And that affects the spirit, just as someone's spirit and life are affected if he or she is good-looking or ugly, intelligent or dumb, male or female, and therefore also if he or she is handicapped or not. All these people are 100% human and deserve to be respected as such by us.

body without soul is dead

If the body dies, the spirit has lost its shelter. It has lost all its means of expressing itself. But if the spirit leaves the body, the body will die too. It can be kept alive artificially, but it doesn't 'do' anything anymore. What about the story of the woman who had been in a coma for years, and whose brain was discovered to have wasted away? Her body could be kept alive; her brain could not. Her spirit had left the body. Her brain had lost its function. Even though it received blood and oxygen and everything it needed, just like the rest of the body did, it died off, because her spirit was no longer present.

body and spirit are one

Body and spirit are one. They are not one and the same. They form a complete unit. To say that a person is only a body, albeit with an incredible number of complex biochemical reactions but still only body, only matter, only molecules and atoms is a flagrant denial of reality as we experience it.

our experience is that we are spiritual

Everyone experiences that man is more than his body. However, theory says that man is only matter. That comes from the fact that the 'precise' science behind that theory only examines matter, not the spirit. The spirit is recalcitrant and changeable and cannot be contained in formulas obtained by repeatable experiments. That is why it cannot be scientifically examined. Science can examine the body. It can even examine the brain and perhaps also the automated processes which the spirit has taught the brain, and so arrive at a study-of-behavior. But if the

spirit wants to, it turns the behavior upside-down. Studying a behavior almost always can only work if the subject under observation is not aware that he is being studied. If he does know, then the spirits can sabotage it by behaving differently. The spirit does not like to be pinned down. Science cannot study the nature of the spirit, because it is not physical, corporeal, material. The body carries the spirit, but it isn't the spirit.

we have been taught to think materialistically

Science can only research that which is natural. And the spirit of man, that lives in the body and directs that body, causes all sorts of processes in the body that are connected to what the spirit wants and does. That is why science tends to think that the spirit does not exist and that there are only those processes, processes they can observe. The spirit does not allow itself to be measured with instruments. The spirit can only be discovered by the spirit. You feel, know that you are more than a body. We speak of a self, of I want. You think. Your spirit knows that it directs your body. Only, your spirit reads things and sees things on television – things it finds very attractive – and they say that the spirit does not exist. And your spirit has a tendency to believe those things. And to allow its actions to be determine by those things. Because your spirit has been taught to believe only those things which can be proven by experiments. And your spirit has accepted that. And that is why you think that you have no spirit.

16.4 Humans and chimpanzees are genetically 99% identical

This is a very popular and often-heard utterance: we are 99% the same as the apes? What are we supposed to do with that?

This figure was not arrived at on the basis of a comparison of base pairs (the entire human genome has not yet been mapped, let alone that of the chimpanzees). That was estimated on the basis of DNA hybridization. That is to say: by bringing together human and chimpanzee DNA, heating it up, which causes the strands of DNA to unfold or 'denaturalize', and then to let them cool off again, which causes the strands to connect into doubled DNA. At certain temperatures, DNA bonds only at those places where the base sequence corresponds closely. By comparing the lengths of human DNA that do and do not connect with chimp DNA, you can get an idea of the similarity between the two. The interpretation of this data, the degree of base pair-correspondence, is therefore a hit-or-miss method!

The figures given vary somewhat. I was able to find the following numbers:

- 60 million differences in base pairs, that is, 2 % difference (Biology, pp. 1045)
- 1.6% difference (Darwin's Dangerous Idea, pp. 361)
- 96.2% correspondence, Don Batten, Creation ex nihilo 19.1, pp. 21-22

the 'minimal' differences are insurmountable

My reaction:

- Firstly, this is not all that amazing, and secondly, we actually already knew that! It is not amazing that apes and humans live on the same earth, chew comparable plants or eat meat, breath the same air and are decomposed by the same organisms when they die. The anthropoid apes are also the 'highest' animals we know of. As far as organ complexity, cell structures and behavior are concerned, they are just second to humans. It is not so surprising that the genetic basis of all of that also shows strong similarities. In other words: didn't we actually know that already? Or couldn't we have expected it? It isn't really anything new that they are telling us, is it?
- 7 million years (that is how long ago chimps and humans supposedly diverged) at 1 mutation per generation (of say 20 years) in humans, is far too short for 60 million differences!
- Only one essential gene has to exist, without which no viable individuals could be produced, that does not permit fundamental mutations, and that humans have and apes do not or vice versa, and the gap between apes and humans cannot be bridged!!
- Humans have 46 chromosomes and chimpanzees have 48.
- Below you can see a comparison between a few chromosomes from the Human (H, blue), Chimpanzee (C, green), Gibbon (G, purple) and Orangutan (O, red), on the basis of band-patterns of chromosomes (which still says very little about differences in base pairs)

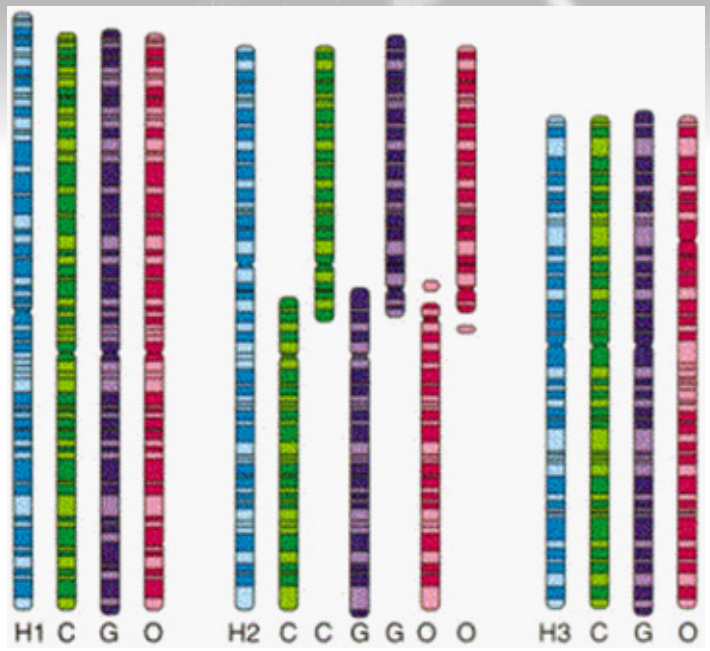


Figure 3

- Chromosome H2 is supposedly a joining of two chromosomes from a chimpanzee. However, in that process approximately 125 chimp genes are lost (100,000 genes / 23 chromosomes x 2mm/60mm) and there is one centromeer (the piece of DNA that the 'arms' of the chromosomes are attached to) too many.[1]
- The few millimeters of difference in H1 also contain an estimated 125 genes. And then there are the differences in bands which haven't been mentioned yet, and the remaining 20 chromosomes. So if there is a difference of, on average, 125 genes per chromosome, then there is a total difference of 2,875 genes!
- On the other hand, between 1.6% and 3.8% difference would mean that there are between 1,280 and 3,040 genes that are different in chimpanzees and in humans!
- In the context of this book, it can be clear that an estimated number of 2,500 genes that are not shared is 'somewhat' problematic for justifying a common ancestry.

the 'minimal' differences are proof that man is Spirit

Besides these things, the large genetic similarity between chimpanzee and human is an incredibly strong argument in support of my thesis that man is Spirit! The greater the similarity the better, even! Spirit cannot be contained in genes. The spirit of man uses the body, it lies, rests within the body, but there is no gene that codes for a protein that is the spirit. The spirit is not of the same order as proteins. The spirit is of a much higher order. The co-operation between the genes and proteins is called metabolism. A metabolism is of a higher order than a gene or protein. Perception, the ability to observe and react to observations, is of a higher order than a metabolism. Emotion is of a higher order than perception. And so it continues. The spirit of man is of the highest order. That spirit will not be found, despite the only slightly differing genes, in chimpanzees and gorillas! The spirit of man can be recognized by the self-consciousness of man, the fact that he can make decisions, consider his actions, make choices, has a will, can make plans, think up ideas, is creative, makes art, has culture, stores knowledge, makes technology, penetrates the molecular elements of his existence, speaks a languages, writes books, sells ideas, and above all loves. And by that I do not mean the (animal) sex given us by Darwin …

The slight, genetic differences between chimpanzees and humans cannot explain this ENORMOUS spiritual barrier. That hemoglobin (which transports oxygen in red blood cells) has a somewhat different structure in chimps does not in any way explain the difference in lifestyles, in our beings, does it?!! That chimps have hair and we do not, and that there are a few genes for that which arrange it, does not explain the huge differences between us, does it? Most of the genetic differences are probably this sort of thing, so if you leave those aside and only look at brain capacity and how many genes are involved in that, how many difference do you get then? Half a percent? One-tenth of a percent? Can that tenth of a percent explain the ENORMOUS spiritual differences? The can be only one correct conclusion: man is Spirit, an ape is not.

16.5 The nature of the spirit

Many people will ask, "Then what is the nature of the spirit of man? And where is the spirit of man located? In the cerebrum, or in the cerebellum?"

I think that that question is wrong. That question is a materialistic question. Where is it then? 'It' is not an it. You could ask the same question of the sound sample. Where is the emotion located then? Indicate it. At which frequency is the message? Show where the idea that you say is behind it starts and where it stops. Those are the wrong questions. Those questions show that the questioner is looking through the wrong glasses, or maybe is even blind. That questioner has been taught to look at the world in a certain reductionistic way, and because his way of reasoning inherently means that you cannot give a meaningful answer, he thinks he is right. Love, spirit cannot be digitalized or put under a microscope. If you ask me to give you an answer to the question of what the nature of spirit is, where it is, then I cannot answer you. The spirit is not located in one central place in your brain, because the spirit is not tangible and therefore takes up no space.

When does the spirit enter the man? During fertilization? When the brain is complete? When the child is born? And what if identical twins are born? Then two spirits have to come from somewhere?

These questions have the same problem as the ones in the previous paragraph. They assume that the spirit has substance, that it comes to live in the body, like a driver stepping into a car. I think that this image is wrong. I do not think that there are spirits that wait until they are allowed to crawl into a body. I do not think that the Creator®

has a supply of spirits stocked up and hands them out to embryos. I also do not think that the Creator® creates a separate spirit for each embryo and adds it to the existing life, because what is then the moment that that happens? It is difficult to speak of this matter (deliberate word choice), because it is not matter, but spirit. Just as proteins are not the spirit, words can only capture, describe, catch the spirit with difficulty, and then the critics do not accept it. The best description I can find to answer the question, which should not be asked, 'when does the spirit enter the man', is: the spirit grows in the man. In the fertilized egg cell, everything is already contained that makes that person a human, and yet it is only one cell. Does it already contain spirit? Yes, absolutely. It is already contained in it, but it cannot as yet be expressed in any way. And yet that body is also contained in that one cell, and it is also certain that it will be a human body. Is there one spirit in a baby? Yes, just as a baby also has one body.

Does this spirit arise from nothing, or is that spirit made by the Creator® after all? My answer would be: as the body is also made by the Creator® - apart from the question of whether he only set life in motion once and never looked at it again, or is still actively involved with his creation – in that way, the spirit is also made by him.

And what happens to the spirit when the body dies, is the spirit then also dead? No answer to that question can be given. At least not here. Science ceases to exist with death. Perhaps there are other ways of finding out.

16.6 Animals have a spirit too?

Animals can learn, remember and make decisions. They also have a distinct character. So animals have a spirit too. That spirit is not as well developed as the spirit of a human, in the same way that the body of a human is capable of more refined actions that an animal's body. Therefore, the difference between the spirit of a human and of an animal is a matter of degree.

Perhaps I should introduce the word spiritual. Man is spiritual and an animal is not. Man searches for the meaning of his existence and wants to give his life substance; animals merely exist. The schematic below could be helpful in understanding the distinction:

There are four 'levels of existence' to be distinguished. Objects, plants, animals and humans all 'exist', but they are still fundamentally different from each other.

- Objects are not alive and therefore exist only on an inorganic, physical level.
- Plants also exist on a physical level, but in addition are alive, and therefore also exist on a biological level.
- Animals, like plants, exist on a physical and biological level, but have brains, senses, and the ability to observe, remember and learn and display 'behavior'; in short, they have a psyche and therefore also exist on a 'psychological level'.

- Humans have a psyche, just like animals, and are alive, like plants and animals, and are made up of molecules, like objects, but beyond all of that, they are also spiritual.

If you look at the psychological aspect, then you could indeed say that humans and animals differ in degree. The psyche of a man is higher or more complex than that of animas. But that is not the distinction between humans and animals. Man is different because of the spiritual aspect.

For clarity's sake, I will give a number of examples, of which this spirit of man consists, found in humans and not in animals: Humans can think, keep track of their actions, consider, choose consciously, do not have to live by their whims or instincts, are self-aware, have culture, record history, make art, music, speak, write, laugh, decorate themselves, dress themselves, marry in the town square, in City Hall, or in the church, set up associations, meeting places, clubs, assign value to things, make appointments, produce, do business, have money, accumulate possessions, run a company, go on vacation, have a feel for beauty, form, speak truth, have prisons, have the knowledge of good and evil, are moral, love one another, do good, are religious, believe.

Only by twisting things, if you really want to, can you project such things onto animal behavior, so that you can say, "In a primitive way, these things are already present in animals; it is just further developed in humans."

Which words can be found to correctly show the distinction? Man is spirit and animals have spirit? Or man has a spirit and animals have a psyche? Or even: animals have a spirit and humans have a soul? I am not really satisfied with any of these alternative. The words that can be used, are used in so many ways and have so many connotations that I have to fall back on clichés like there-are-no-words and our-language-is-too-limited. However, a word to the wise is enough, and perhaps I have been able to get the idea or the concept across…

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[1]

Out of one million fertilizations in humans, 80.165 (=8%) have chromosome-deviations, of which 75.000 are miscarriages. The 5.615 surviving children (=0.62%) all have deviations, of which the best-known is Down's syndrome. (Source: Genetic analysis pp. 263.) Chromosome deviations occur so often (8%) that the sort of change necessary to explain the differences between chimpanzee and human chromosomes should be widespread among humans today, if it resulted in something useful. The fact that that is apparently not the case shows that it is a form of degeneration of the DNA!

17. Conclusion

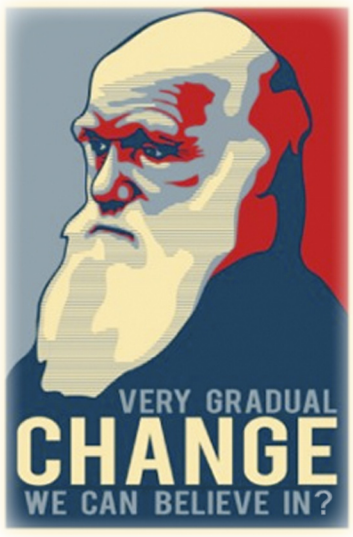
The end of the book about the end of the evolution theory

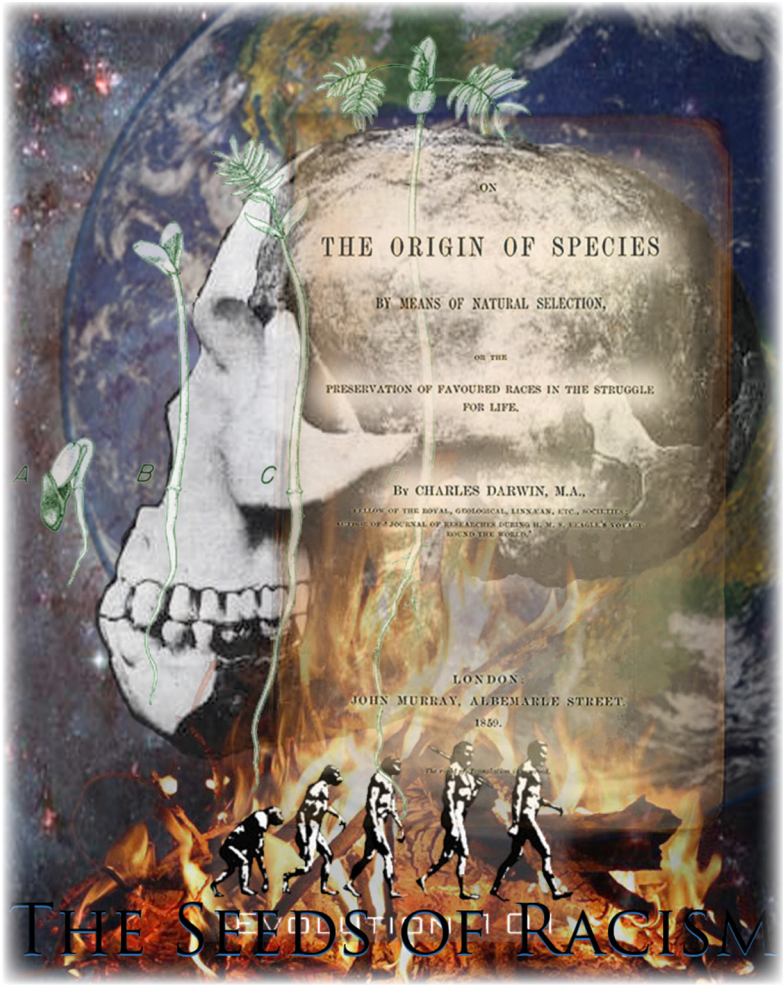
I have said my say. (Macro-)Evolution has turned out to be a genetic impossibility. But there is an alternative: the degeneration theory.

It was a very fascinating project for me. It was a pleasure to pry into the thick biology books and read about what we as humanity have discovered about life. I hope that the reader has at least found it worthwhile to read some of my discoveries. I am certainly convinced that life will continue to surprise us, as new discoveries are made. Then we will have to readjust the ideas we had about it. Darwin definitely discovered something and was able to put it into words: natural selection on the level of the origins of new variation. Except Darwin went too far. He had to be pulled back now that we have learned more about DNA, genes and heredity. I think that I too have discovered something and been able to put it into words: degeneration exists. But I am undoubtedly wrong on some parts. However, I am open to correction. He who wishes to improve on my theory can pull me back.

I hope that two things about my writings stay with the reader. In the first place, that the evolution theory is not all that scientific (any more). By definition, it cannot even be proven. Structural biological change only appears over periods of at least ten thousand to a million years, which absolutely cannot be tested by experimentation. In fact, it is more likely that evolution is the philosophy of life held by many scientists, which you get for free with their science.

In the second place, I hope to have shown that a reasonable, scientific, supported alternative is possible, which in many respects does reality more justice than the philosophic idea of the common, single origin of all life.





We are not alone

One important conclusion that is connected to the degeneration theory is this: we are not alone. There is 'life' beyond life on Earth, although it is not organic life. That 'life' made our life, programmed our DNA. It is an intriguing thought. We are wanted. We are intended. Someone put us here. Why? It is an exciting thought. Why? What is behind it? When you look up at the starry sky at night, you could call out, "Hey, hello. Why?" Someone is 'there'. Does he see us? Does he know what is going on? Is he still involved in it? Can we find out?

It gives a totally different perspective on the world!

Maybe it is also a scary thought for some people. If someone put us here with a purpose, if someone is 'watching' what we do, are we doing it well? Are we doing the right things? Do we dare accept that responsibility? Don't we just end up with some religious system? An unscientific system? Isn't it better to hang on to what we have, because everyone is? Do we want this? Do we want to be a 'creation'? Don't we lose our freedom?

In other words, the idea that someone, a CreatorÒ, created life, can be both a hopeful, freeing thought as a frightening, oppressing one. Yet I am convinced, for other reasons than the ones discussed in this book, that fear of the Creator® is only necessary for someone with a guilty conscience, and that it is then even better to change your life or the way you think, than to stubbornly continue towards a dead end.

And this issue, the existence of a Creator®, will turn out to be the biggest obstacle to my theory!

I have tried as clearly as possible to show the impossibility of the origin of new (groups of co-operating) genes, and thus the impossibility of a single spontaneous origin of life.

I have tried to remove the argument 'There is no reasonable scientific alternative' by introducing the degeneration theory and the concept of typological differentiation.

I have, to the best of my abilities, tried to make predictions (some of which improbable) to test my theory, and so give a scientific model.

But my last prediction is this:

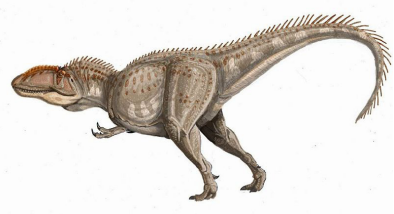
The biggest objections to the ideas of this book will not be of a scientific nature, but of a (hidden) religious nature, because people will be tripped up by the concept of the existence of a Creator®. And ridicule will be the most important argument for those who have no good (scientific) arguments.

FAQ

What is degeneration?

Why is there degeneration?

Does all life on earth degenerate?



Why is degeneration not a part of the evolution theory?

How did life begin en what is the cause of the abundance of species?

Does all variety proceed from degeneration?

According to the degeneration-theory: is there something like natural selection?

Are there 'favorable' mutations?

Why are species so enormous adapted to their environment?

Did the Creator actually created degenerating creatures?

Whatever made you write this book?

How do you have knowledge of this business?

What is wrong about the evolution theory?

The evolution theory is not saying at all (any more) that there is a development from low to high.

Why do so many people believe in the evolution theory?

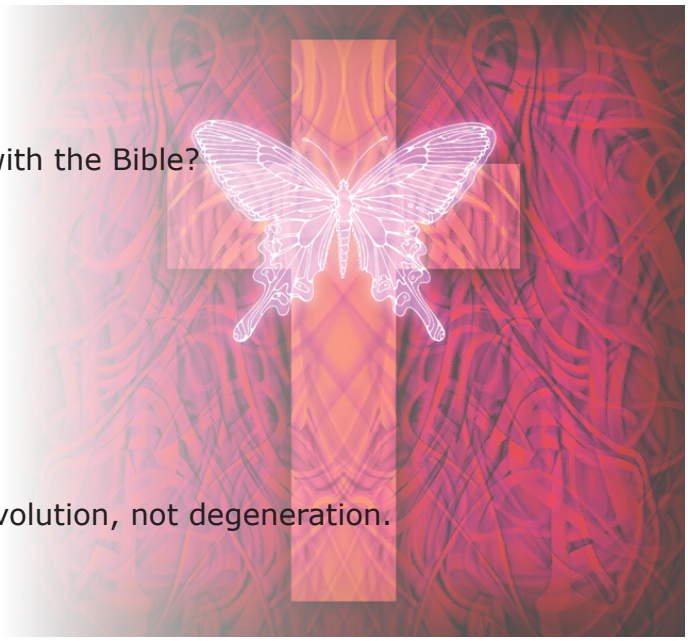
What do you think about creationism?

How does the degeneration theory go with the Bible?

How did the first human races arise?

What does humanities future look like?

The fossils prove that there has been evolution, not degeneration.



What is degeneration?

Degeneration is when genes, which are important for the organism, become damaged or even get terminated. This 'damage' infers the loss of the right information in the DNA or the loss of production of proteins that the gene codes for. It is not damage to the DNA itself or to the gene, but to the information that is in it. This is the result of copy-mistakes that are not corrected at the time of cell multiplying, also called mutations.

De degeneration-theory acknowledges neutral, tolerant and essential genes.

- Essential genes are genes that are so essential for producing life and reproduction that they can never be deactivated within an organism. An example of this is hemoglobin, which is responsible for transporting oxygen in the blood. Without it, there is no life (for mammals).
- Tolerant genes are genes that can be definitely (read homogeneous) deactivated, but they give the organism a (serious) disadvantage or handicap. Many hereditary diseases are examples of that kind of genes.
- At last there are neutral genes, which actually have no consequences for the viability or the propagation of a individual whether they are present, or not. In humans for instance this is the case with the eye color-genes, curly hair, nose shape, etc.

Degeneration therefore means the damage of essential genes and/or the damage or deactivation of tolerant genes.

When neutral genes are being lost within a species or population, it cannot be called degeneration, because it concerns genes that are meant to cause variety. Their presence or loss does not influence the viability, or not noticeable. Such kind of loss does though leads to less 'potency' for new variety.

Why is there degeneration?

Degeneration is being caused by mutations. Mutations are copy-mistakes within the DNA. The DNA contains hereditary information of organisms. In the DNA there is, among others, the encoding for the production of proteins. Proteins are three dimensional biochemical robots with a specific function (for example the transport

of oxygen in the blood as with hemoglobin). By radiation (radioactive or ultraviolet radiation for instance) or by so-called mutageneous substances, mistakes can occur when the DNA is copied. Therefore the code of a protein can change and so the protein itself can change. Mostly changes within a protein will lead to damage of its function or even complete deactivation of it. Therefore the function of that protein will only be partly fulfilled or even be completely lost. When it concerns life-essential or tolerant genes, we can call that degeneration.

Does all life on earth degenerate?

Yes, plants, animals and humans not excepted. Degeneration goes faster in little isolated populations than in big ones. That is because within small populations a high level of inbreeding appears, which increases the risk of outbreak of hidden deviation. In bigger non-isolated populations it takes much longer before good functional genes will be completely lost within the total population. Besides that, there is natural selection, which keeps a population healthy and decreases the chance of the deviation passing on its wrong genes.

Every species degenerates, because every gene of a species is in risk of being terminated by mutations. In fact that means that only those genes that are essential to survive in a specific environment will hold out within a population. (That is something different than being essential for viability!).

Why is degeneration not just a part of the evolution theory?

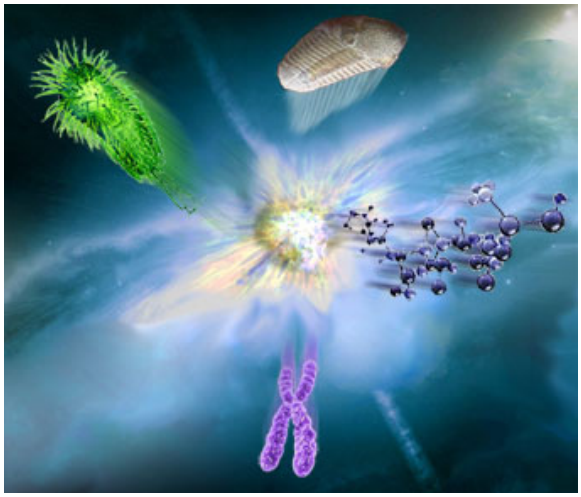
It is an absolute condition for structural (or macro-) evolution to happen, that the number of significant genes increase within species over the long supposed time. Since bacteria have about 6.000 and humans have about 30.000 genes. Degeneration is the loss of functional genes and therefore the exact opposite of macroevolution. When species degenerate, e.g. loose genes, they cannot evolve, e.g. gain even more genes at the same time. Evolution in that way is like 'rowing upstream' but effectively going down.

Besides that, within the evolution theory often examples of degeneration are being used to show that there is evolution! Some of these examples are the non-flying cormorant (it has lost the possibility to fly), parthogenetic lizards (non-sexual reproducing female lizards), the blind water-scorpion (it has lost the ability for sight) and sickle-cell anaemia (a deadly blood-disease that protects hetero-zygotes for malaria). With that, rudimentary organs, always used as 'strong' evidence for evolution, are in fact examples of degeneration and not at all of evolution.

Mostly that what is called 'evolution', is nothing more than just the arising of new variation by the mechanism of natural variety (that is the sexual reproduction with recombination as its most important part). For everything else evolution is in fact degeneration!

There are several other reasons why macroevolution or structural evolution is a genetic impossibility, but they are too complicated to put in a short summary here. Read the book!

How did life begin and what is the cause of the abundance of species?

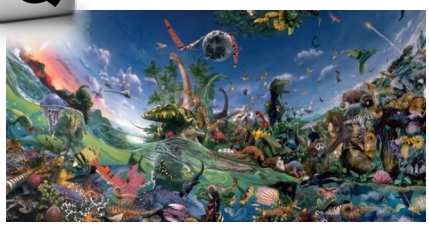


If there is degeneration, the opposite of a development from unicellular organisms into mammals and man, than life must have begun with the creation of (among other things) a complexity of different 'original types'. These original types mainly have to be looked for on family-level of the current species. That means, for example, a original wolf, from which foxes, coyotes, jackals and dogs have arisen. Like that there could have been a original cat, original cow, original man etcetera.

All living creatures have an inbuilt genetic mechanism that 'automatically' produces a new combination of existing genetic material at the time of reproduction: recombination (that is the exchange of pieces between similar or diploid chromosomes). Because of this recombination new variety arises. When the original species would have been heterogeneous for their neutral genes (that means that there were differences between the genes of the male and the female and/or between their own diploid chromosomes) than their direct offspring would have shown an enormous variety-explosion. On small scale we can still see a similar effect by crossing two pure inbreeding lines (what will cause heterogeneous genetic information, but a similar phenotypic look) and to cross the offspring with itself (what will make all kinds of new variety visible because of all the new combinations of genes).

Due to the original heterogeneous genes together with the effect of recombination, from those original 'mother'-species an huge blow out of species has proceeded where some subspecies better survived in a one environment and others in another. This differentiation results in one subspecies remaining with this combination of genes and another subspecies remaining with another. Every subspecies has lost certain genetic information in the process compared to the original species. This combination of (for the viability neutral!) genes that is the most profitable to survive within that specific environment is being selected.

Does all variety proceed from degeneration?



Absolutely not. Most variation proceeds out of recombination, a new combination of existing genes. Only when mutations are the cause of termination or damaging of genes that are involved in the integrity of the individual (the so called essential and tolerant genes), then we talk about degeneration.

(Also check the answer of the question above here and of the first question.)

According to the degeneration-theory: is there something like natural selection?

Oh, yes. But selection, whether by human or natural selection, means that certain genes are chosen above others(!), or that a certain combination of genes is chosen above another one. When a certain combination is optimal for a certain environment, that automatically means that the genes that do not belong to that favorable combination, get selected away and eventually disappear. Selection automatically means loss of genes. Selection is always 'downhill evolution' or genetic impoverishment. By selection the most favorable combinations of genes can survive, but by selection no new genes arise.

Besides that, natural selection protects against serious forms of degeneration and in that way keeps a species 'healthy'.

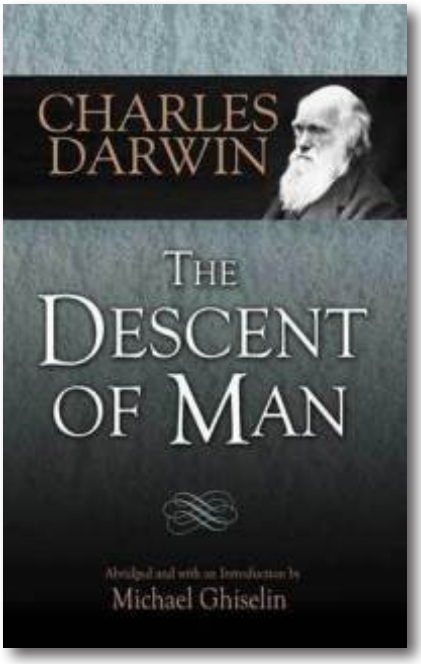
Are there 'favorable' mutations?

It is possible. Within neutral genes there can (in a manner of speaking) be mutated to one's heart's desire, because these genes are not important for the viability of an individual. They often do appoint the characteristics of the external form of appearance (the phenotype) and therefore cause many varieties. But in most cases even when it concerns neutral genes, mutations just damage or completely terminate the gene or protein. Nevertheless, even the termination of a gene can produce a surviving advantage, as is the case with the polar fox, polar bear or the snow goat that all have lost some genes that produce pigment in the fur.

Among essential genes no useful mutations occur. A change of function of the gene or protein will lead to a form of degeneration, because it also influences the viability. In essence, that is within the essential genes, a species always stays the same!

Mutations are being grossly over-appreciated by evolutionists.

- Most of the biological changes proceed from recombination and not at all by mutation.
- Vital-essential genes can never mutate usefully.
- In at least two-third of the genes of every species there isn't even variation.
- 99% of all mutations is damaging for the organism.
- 99% of the non-damaging mutations (for the organism) that cause any difference still mean a damaging or termination of genes. That is for (the viability and fertility) neutral genes.
- As far as mutations are not damaging for the organism and neither mean a termination of neutral genes, they are in strongly limited measure capable of changing something within the existing protein. Mutations for example cannot decently create a longer protein, because they cannot add amino acids (where proteins are made off) between for example two functional parts in a protein. (Through a mutation a base pair can be added, but not likely three at a time, which is necessary to add a amino acid; three base pairs encode for one amino acid).



- An accumulation of mutations will eventually lead to a complete loss of function because of the specialistic character of proteins. New or other functionality is 'so many mutations away', that in the process of accumulating mutations always useful functionality will get lost. When a gene losses its function there is no longer any selection possible and the probability laws say that there will never come anything significant out of it anymore.

Mutations sometimes produce diverted genes that still have some functionality. But when we look at the huge limitations of these kind of exceptions (often under artificial, human-created conditions) it can no longer serve as a Major Mechanism for Macroevolution.

Taken together: in the most positive way of looking 'favorable mutations' can be considered as a limited form of horizontal micro-evolution, however not as a driving force of macro-evolution.

Mutations actually draw out of the source of variety: the always-present genome of a species. Mutations themselves are not a source of variety, but a bucket.

In natural life mutations cause those genes to stay that are vital to survive.

Why are species so very adapted to their environment?

The loss of non-vital genes means that a species gets dependent of the environment in which it lives or of the surviving-strategy it uses. It actually has become a specialist. The cheetah is such a specialist. In a comparable way it is proceeded from the original cat as the greyhound proceeded from the wolf.

The cheetah actually is threatened by extinction because of genetic impoverishment and degeneration. Because of its specialition it is no longer capable to adapt itself to new changes. Selection is only possible when there is variety. Variety comes forth out of recombination. After a process of selection, less variety remains and specialization has occurred. This is a form of 'adaptation'. This kind of adaptation can only be 'meant' by the Creator, because all living creatures are fit out with the mechanism of recombination, which has the purpose to produce (new) variety.

Did the Creator actually created degenerating creatures?

Not necessarily. The entire structure of the DNA (including all kinds of matching, fixing and correcting mechanisms) is anti-mutation oriented. Everything is focused on preventing mutations. The fact that mutations still happen comes forth out of mutagenetic substances and/or by radioactive radiation, but not by genetic mechanisms that cause mutations on purpose. On the contrary, there are many genetic mechanisms that prevent and even fix mutations. When the circumstances of life on earth would have been like this that radiation and all did not exist, then there would never have been degeneration. The frequency of mutations does not have to have been the same as it is today. There could have been times when it was much more, or just much less.

Whatever made you write this book?

The evolution theory is the basis of atheistic thinking in the Western world. Since Charles Darwin people who do not want to believe in a Creator-God have a logical argument to think so. Within the evolution theory science is being abused to promote the personal religion of most of the scientists. Many speakers of the evolution theory (like Dawkins and the Dutch Midas Dekkers) use science to destroy the believe in a God or Creator. The macro-evolutionary thought in fact is not science, but a philosophic, atheistic way of thinking for biological subjects that is presumed, but by definition is no biological truth. One is allowed to have all sorts of critics on all kind of subjects, but when one dares to doubt The Big Story, one becomes an outcast and can no longer (scientifically) be taken seriously.

An important complaint by evolutionists against creationists is that they don't come up with a falsifiable alternative. Within the degeneration theory there really is a definite alternative with more sense of reality than the progress-religion based on the 19th century evolutionary-idea.

How do you have knowledge of this business?

All my life I've been interested in this subject. When I was twelve years old, I already had conversations with my grandfather about this. When I was fifteen/sixteen I – for as far as possible – researched the matter. I was a member of 'Kijk', a Dutch magazine that regularly published about evolution and I watched TV-programs and publications of Prof. Wilder Smith, dr. Ouweneel. On response to the in opinion completely incorrect recession of Karl Koppenschaar in Kijk about the book Het ontstaan van de wereld (the origin of the world) by the EO, I wrote a letter of six or seven pages to the editor. Karl Koppenschaars unfair reaction at that time has helped me to show that 'science' by definition is not equal to 'objective truth'.

I've done VWO B, had an A minus for biology and really thought about studying biology, but it in the end it became electro-technical engineering. I've studied that for two years, after which I attended the International Bible School in Heverlee, Belgium. The subject evolution has never let me go. In the TV-programs for the National EO (Evangelical Broadcasting Company) I often dealt with the matter.

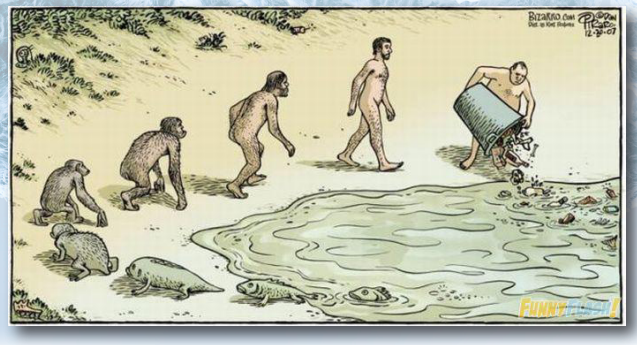
To write this book I've done a pretty intensive self-study. First by studying the books that are being used on universities, but also other important publications and books about it. And second by searching through the entire internet, to get an idea of what the discussion is about today. Besides that it was important (and still is) to talk about it with as many people as possible, to get an impression of what is living among people, get an idea of people's vision about it and to get to know how to tell complicated subjects as simple as possible.

There were also a few people who gave me intensive feedback. Drs. F. de Jong, chemist, is the most important one. I actually talked about all subjects with him, he corrected several versions of the manuscript and assisted me in making the concepts. H. Bogaers, sociologist, has especially been by my side when it came to a making scientific model.

After the arising of the first versions, I've presented it to several others, among them was biologist C. Geerse. Their comment has been worked up and in the end went to geneticist dr. ir. C. J. Bos, who presented me with firm critical commentary, of which most has been worked up. There also has been a forum in may 1997, where dr. H. Roskam was my evolutionary 'opponent', and where I first made my story public. This leaded to another follow up evening where the subject was discussed between advocates and opponents. The text has also been on the internet for months to get as much reactions as possible. Because of all the discussions, reactions and comments the text has been changed radically several times.

The first printed publication of the book in fact was the fifth or sixth version of the text. There will definitely still be subjects that need improvement, but the essence of the story now stands.

Because I don't have titles or other sorts of 'authority' on this area, you must purely take me for my arguments, not on my personality.



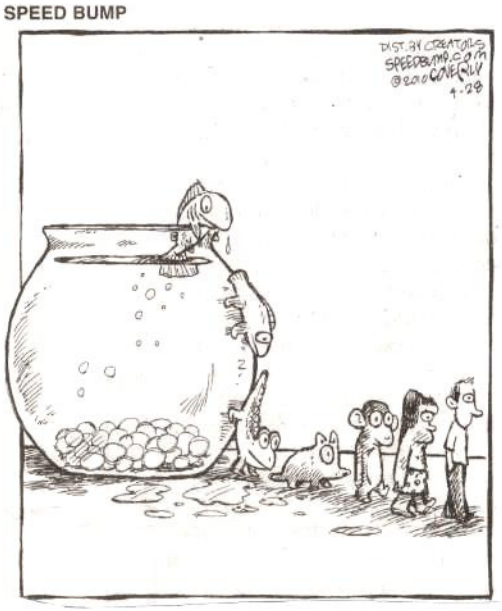
Q What is wrong about the evolution theory?

A

- A grossly over-appreciation of the possibilities of mutations.
- The idea that arbitrary mutations combined with natural selection can create new specialized (groups of cooperating) genes and can create intelligent solutions for biochemical problems.
- The idea that life has proceeded out of a primitive soup by 'self organization' to unicellular organisms, developing into the diversity that is around us today, among which there are mammals and intelligent man. Such development implies an increase of the number of genes. But biological variation in fact originates from a loss of genetic information.

What is right about the evolution theory is that there is a differentiation from a certain type and that species and environment are not constant, but are liable to variation.

Q The evolution theory is not saying at all (any more) that there is a development from low to high.

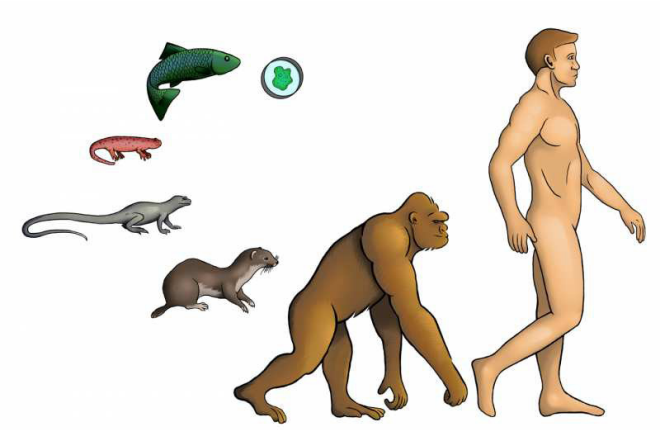


A

"Evolution has no direction", is being said and "evolution is directed every way. In a manner of speaking there could have arisen an intelligent dinosaur instead of a man". Exactly! And that is why this whole idea of unicellular organisms developing into mammals and man has landed on a declivity.

Because this is playing hide and seek. The point is that when it comes to the unicellular organism, a lot of genetic information (or a lot of genes) must have arisen to start encoding for organs and functions that were first not there, like the eye, intestines, vocal chords and brain. There should have been in the supposed 5 millions of years a development of life and a continuous and lasting increase of genetic information, or an increase of genes, or a development from 'low to high', or whatever you want to name it.

When evolutionists now say that there was no development from low to high, because "every species is modern and complex in its own way", than there are two possibilities:



1. That development has indeed never taken place!
2. That development was yet (theoretically) there, but we just don't call it that way, because otherwise we get in trouble (with all other sorts of laws of nature and so).

Q Why do so many people believe in the evolution theory?

A It has become the dominating theory during the last 150 years. We are being educated with it and grow up with it. The evolution theory claims to have a monopolistic position on biological data and the two are so mixed up with each other that for most people it is very hard to separate atheistic philosophy and pure scientific facts.

The evolution theory is also a mental justification for many people to not have to believe in a Creator-God. The evolution theory actually brings some sort of moral freedom: we don't need to be responsible to anybody else. Nobody from a higher level is bothering us about how we should live. We ourselves decide about what is good or bad. Although many evolutionists will proclaim that the evolution theory doesn't say anything about these subjects, it is in fact a logical consequence from it.

Q What do you think about creationism?

A **Creationism is like 50% bible and 50% science. Evolutionism is 50% atheistic philosophy and 50% science,** although they claim to be 100% science. The degeneration-theory actually shows why evolutionism is not 100% science. The degeneration-theory according to the upper description is not creationism. Because there is 0% Bible in it and only scientific arguments are used. And there is a scientific fundament of theoretical models.

Science means working according to certain principals. Science is not free of values. Science in itself can be bad. Just think about the 'scientific' experiments that were practiced during World War 2. Evolutionary science claims to be pure objective and free of values, but it surely isn't, because it has gone across the borders of empirical science by hanging all of her discoveries on a philosophical metaphysical hat-rack.

On the contrary of evolutionism, creationism from the beginning on claims to perpetrate no objective science, but still uses the bible as starting-point for perpetrating science from that on. That is at least fair! Evolutionists claim objectivity where in the end the Big Whole is build on all sorts of philosophical assumed ideas.

True objectivity for evolutionists means that they at least have to make allowance for the possibility that there might (have) be(en) a creating power. On the bases of scientific (or maybe complete other) arguments you can choose for one or the other. This sort of discussions, which are free of values, is hardly possible. Objective science should maybe be agnostic by definition, because in fact it only investigates present day phenomenon. By definition it is not possible to conclude how reality has arisen, by studying the way reality functions in the present.

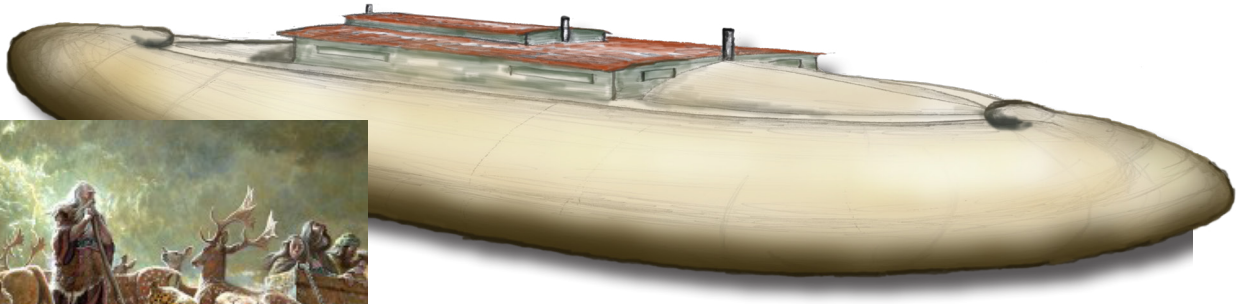
How does the degeneration theory go with the Bible?

The degeneration theory is not specifically 'Christian'. It concludes there must have been some kind of creation-event and with that a Creator must exist. One might be able to conclude some things about the nature of such a Creator. But with that goes on or for some people across the boundaries of what is scientifically acceptable. It doesn't say anything about who that Creator is and in no way it leads to the person of Jesus Christ or likewise.

A Muslim, Jewish, Hindu or other religious (or even non-religious?) scientist could work with the degeneration model. The choice between one or the other cannot be based on empirical scientific basis. Science does have limitations. For example it cannot define love and put it into an experiment. Most people will NOT choose their partner on an empirical scientific basis (but you'll never know…). There are several better reasons upon which to make a choice like that.

Nevertheless the degeneration theory has a lot in common with the bible. Because of the degeneration theory, a lot of biblical subjects are easier to understand. For example,

- It was no problem for Cain (or his other brothers) to have progeny with his sister, because these 'primitive humans' had no sorts of hereditary diseases underneath their skin.
- For the same reason it is understandable that the members of the human race that lived between Adam and Noah could have reached ages of hundreds of years.
- One can see now that all the animals on the ark of Noah were 'founders' and went through a genetic bottleneck. Because of this inbreeding much degeneration must have come out and the ages of humans and animals went down gradually.



- According to the model of typological differentiation it becomes clear that it was 'not busy' on Noah's ark.
- Etcetera.

What I do up here is hanging scientific discoveries on a biblical hat-rack. Normally these kinds of discoveries are being hanged on an evolutionary hat-rack. The book Degeneration is in fact free of these things. It is a scientific approach to the problem of the arising of life and species. A complete other approach of the same problem is reading the bible on it. Personally I am convinced that these two are complementary approaches to the same problem. They combine seamless like two tunnels that are being made from two opposite entries of a mountain and that reach each other exactly in the centre of the mountain. The bible than tell things that can never be tested scientifically and science tells us facts that cannot be found in the bible. For as far as

those two (seem to) bite each other, there is something wrong with the conclusions of scientific discoveries OR with the way the bible is being understood. But again, that is my personal conviction.

How did the first human races arise?

By isolation and inbreeding and some selection. A small group of people leaves the original population or is driven away. The original wealth of genes that is present within the parent population is no longer present within that small group. When for example there are no genes in the founders that take care of curly hair, or brown eyes, than the progeny will never get it either. The progeny will globally only have those characteristics that the founders carried along them. When the primitive men Adam and Eve were maximally heterogeneous (read: different) for their neutral genes, than within their progeny the original heterogeneousity will decrease more and more by isolation, inbreeding and selection, because more genes will become homogeneous (read: the same). Mutations then can terminate genes that are still 'on', or in a less way can cause 'diverse' variants (like blood types for example) especially among the neutral genes.

There will hardly have been selection at the time of the arising of human races, because man is a super-generalist. That means that especially man is capable to live among all sorts of environments and circumstances or even change the circumstances to its hand, instead of being dependent of it. And it is the circumstances, the environment where a species lives, that normally is responsible for the selection pressure. Besides that man is normally spoken no pray for wild animals, which in nature are responsible for the pressure of selection. Selection at the level of man will especially take place or has taken place within surviving different sorts of diseases and less in surviving a specific sort of environment. The differences between the races therefore will have especially arisen from small groups of founders from which complete tribes and later nations originated, who all have the same characteristics as their founders.

What does humanities future look like?

Human population is very large. The boundaries now fade away. More mixes of races arise. Those are useful conditions to keep a population genetically 'healthy'. That's why degeneration won't increase very fast. We will get more and more hereditary diseases in specific groups of people. Medical science will have full hands dealing with it. Real doom thinking occurs when you realize that because of medical science humans with hereditary diseases can pass their damaged genes on to their offspring and with that, medical science contributes to the degeneration of our progeny. A logical development therefore will be that medical science will more and more decide which hereditary deviations have the 'right' to get 'born' and which don't. The call for genetic manipulation among people will increase. And on the contrary to that, more voices will arise to let 'nature go her own way'. Personally I don't know yet what to think, but I do have the following thoughts about it:

1. The value of a man is not dependent whether he or she is genetic perfect.
2. When man wants to take care of these kinds of things, he will become responsible for it. With that he becomes responsible for life and death. Man (the doctor?) decides who may live and who must die. A serious case!

The fossils prove that there has been evolution, not degeneration.

The degeneration theory doesn't say a lot about fossils. When macroevolution is a genetic impossibility, like the degeneration theory says, than it might be that the geological column, which is being put together on the basis of the evolutionary idea of development, needs a reinterpretation.

As the book Degeneration as well as this site has (too) less information according the fossils, here is a link to a page on the server of the Californian university, with a collection of quotations – according the discontinuity in the geological column – of well-known authorities on this area.

Natural discontinuities and the fossil record

http://www.rae.org/pdf/FAQ01.pdf

at end of book

Credits

The following people contributed to this English version of “Degeneration - the end of evolutionary theory”:

Peter Scheele - Author of the book

You can find his own website (in Dutch) at www.peter-insite.nl

Joy Maul - Initial translation of the book

Maarten van Gestel - Translation corrections

Arne Hulstein - Translation several website pages

Benno de Hertog - Word to HTML conversion and website

Mathijs Schaap - Webmaster

Stefan Kraan - Translation of the Summary

Ian Scheele - transferring website to new CMS

You can find the Dutch website at www.degeneratie.nl

http://www.evolution-is-degeneration.com/index.asp?PaginaID=2577

http://www.peterscheele.org/index.asp?PaginaID=2797

Degeneration re-edited and designed by David H. 7-2012 USA

Permission from Author pending...

contact for questins: sparklightplanet@gmail.com

An intersting site with some similar conclusions. not related to the above book

The Degeneration of Man

http://www.onelife.com/evolve/degen.html

Natural discontinuities and the fossil record

http://www.rae.org/pdf/FAQ01.pdf

TRANSITION FOSSILS?

> *The number of intermediate varieties, which have formerly existed on the earth, (must) be truly enormous. Why then is not every geological formation and every stratum full of such intermediate links? Geology assuredly does not reveal any such finely graduated organic chain; and this, perhaps, is the most obvious and gravest objection which can be urged against my theory.*
>
> Charles Darwin, The Origin of Species

Introduction

Does the fossil record show an evolutionary record of transition from one kind of life to another? What about claimed transition forms? Are creationists quoting out of context when we cite evolutionists admitting an absence of transition forms?

The problem is worse than Darwin thought:

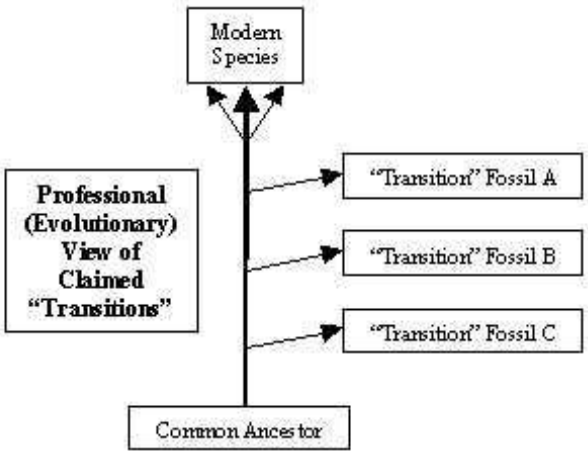
The record of evolution is still surprisingly jerky and, ironically, we have even fewer examples of evolutionary transition than we had in Darwin's time. By this I mean that the classic cases of darwinian change in the fossil record, such as the evolution of the horse in North America, have had to be modified or discarded as a result of more detailed information. What appeared to be a nice simple progression when relatively few data were available now appears to be much more complex and less gradualistic. (Raup)

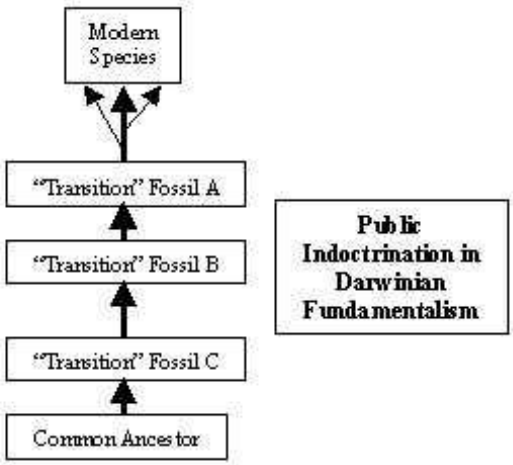
Contrary to the impression given by evolutionary books and magazines, evidence of transition is rare and limited to variation within kinds. Sensationalistic claims of 'evolutionary ancestors' make it into the newspapers; retractions and more sober evaluations of new fossils do not. As Dr. Colin Patterson, a senior paleontologist at the British Museum of Natural History, put it:

I fully agree with your comments on the lack of direct illustration of evolutionary transitions in my book. If I knew of any, fossil or living, I would certainly have included them. You suggest that an artist should be used to visualise such transformations, but where would he get the information from? I could not, honestly, provide it… Gradualism is a concept I believe in, not just because of Darwin's authority, but because my understanding of genetics seems to demand it. Yet Gould and the American Museum people are hard to contradict when they say there are

no transitional fossils… It is easy enough to make up stories of how one form gave rise to another, and to find reasons why the stages should be favoured by natural selection. But such stories are not part of science, for there is no way of putting them to the test. (correspondence w. Sunderland)

The following graphic helps explain why scientists say the number of transition forms ranges from few to none, yet Darwinists claim to have many transition forms. In evolutionary theory an ancestral species may give rise to numerous living species (different branches of the evolutionary true) as well as numerous species that have since gone extinct. A true transition form would be on the central branch of this evolutionary lineage, between the presumed ancestral species and modern life. If extinct life is highly specialized and distinct experts believe the fossils in question are a side branch and not the transitions they are seeking. This is particularly true when it has different features from those shared by all purported descendants of the proposed ancestor. It is dishonest to "fudge" these purported side branches and present them to the public as if they were true transition forms when the experts believe otherwise. From a creationary perspective such distinct extinct life forms were unique, unrelated creatures.



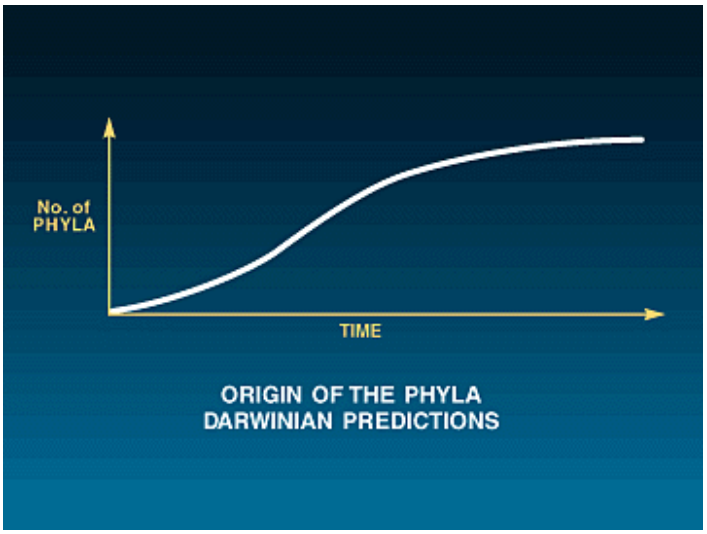


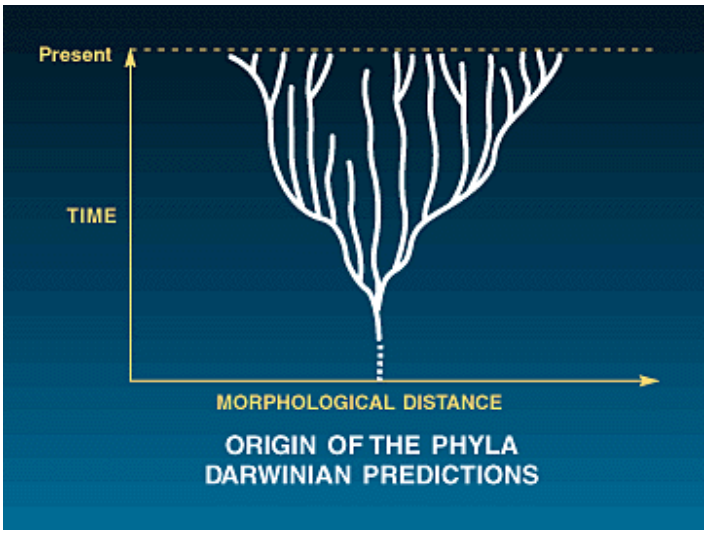
For example, Harvard professor Stephen J. Gould is famous for declaring that transition fossils are lacking, so evolution must have occurred in rapid spurts (by mysterious genetic mechanisms) separated by long periods of stasis. He called this concept "punctuated equilibrium." This was his attempt to cope with the absence of transitions above the level of created kinds:

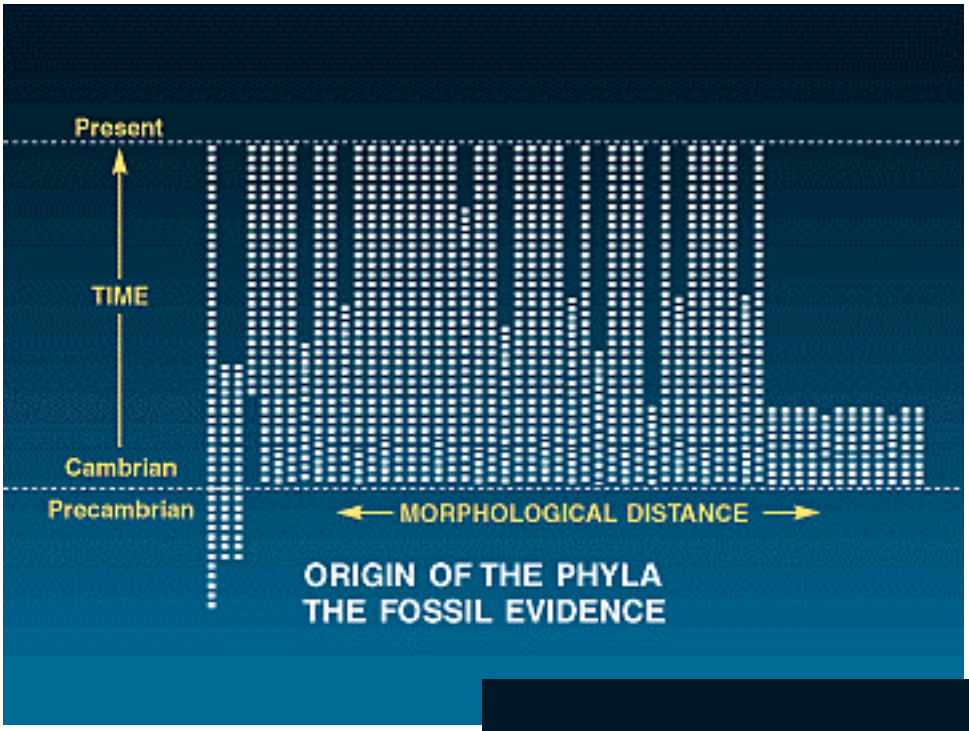
> *The extreme rarity of transitional forms in the fossil record persists as the trade secret of paleontology. The evolutionary trees that adorn our textbooks have data only at the tips and nodes of their branches; the rest is inference, however reasonable, not the evidence of fossils.* (Gould)

Within scientific circles Gould drove home the point that transition fossils are lacking (as demonstrated in the Patterson quote above). Yet in speeches to the public in the last few years he has directly contradicted himself, boldly claiming that transition fossils are one of the three best arguments for evolution! (Blievernicht) His prize example? Whale evolution. Yet scholars such

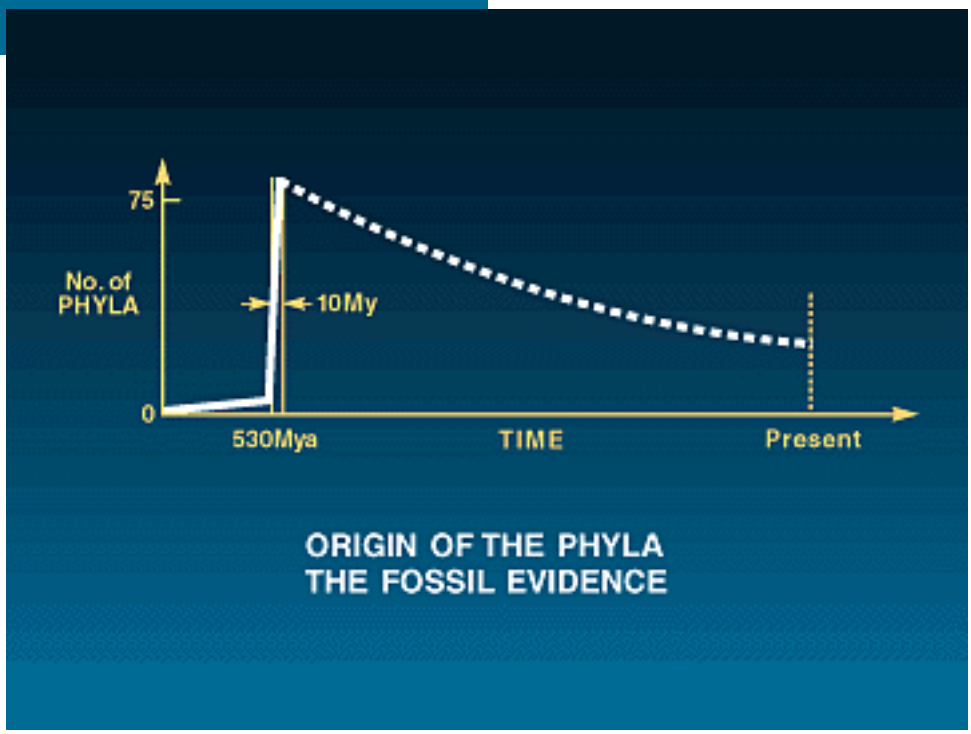
as Ashby Camp and Dr. Duane Gish have documented that the "transition fossils" Gould mentions in his whale evolution model are recognized to be specialized side branches, unique creatures distinct from whales and one another. (Gish, Camp) Nor do they appear in the proper order in the geologic strata. Evolutionary lineages do not flow from the fossil evidence, rather Darwinian beliefs must be imposed on (selectively cited) fossil evidence, with many assumptions, to "see" a Darwinian transformation. Gould's prize example involved fudging to create "transition forms," which begs the question – **why are the trunk and main branches of the evolutionary tree perpetually missing from the fossil record?** The best answer is that they never existed.







Evolutionism teaches the appearance of life from non-life, followed by patterns of innovation and diversification from a single-celled ancestor to the great diversity of life we see around us today. Evolutionary predictions are shown in the top two graphics. The actual physical evidence of the fossil record is shown in the bottom two. The prediction is falsified, even when interpreted according to uniformitarian (old earth) belief.



Described recently as "the most important evolutionary event during the entire history of the Metazoa," the Cambrian explosion established virtually all the major animal body forms -- Bauplane or phyla -- that would exist thereafter, including many that were 'weeded out' and became extinct. Compared with the 30 or so extant phyla, some people estimate that the Cambrian explosion may have generated as many as 100. The evolutionary innovation of the Precambrian/Cambrian boundary had clearly been extremely broad: "unprecedented and unsurpassed," as James Valentine of the University of California, Santa Barbara, recently put it. (Lewin)

> *The gaps in the fossil record are real, however. The absence of a record of any important branching is quite phenomenal. Species are usually static, or nearly so, for long periods, species seldom and genera never show evolution into new species or genera but replacement of one by another, and change is more or less abrupt.* (Wesson)

In summary, the fossil record contradicts Darwinism and supports the biblical teaching that God created all life in their distinct kinds, even when the fossil record is interpreted improperly from a uniformitarian perspective.

Sources & Further Study

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