

TROM

the evolution of purpose and
the purpose of evolution



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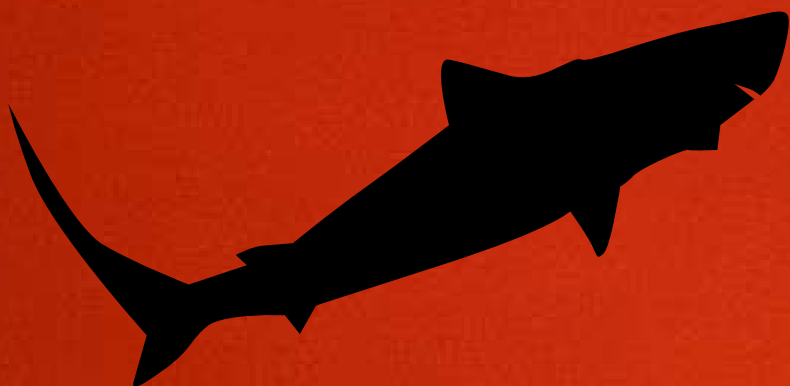
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Summary:

If there is one scientific theory that has been completely misunderstood by the general public, or at least severely twisted when explained by many, it would be the process of transmutation (what many call 'evolution'), and this process has been romanticized and mysticized so much that it may qualify as the most 'purpose'-infected scientific theory of all time.





Did you know that baby koalas eat their mother's 'poop' to improve their gut bacteria so that, when they grow up, they will be able to digest food, while mother cats eat their kitten's poop to protect them from attracting predators? There are a wide variety of other creatures that eat their poop or other creatures' poop to improve their digestion, absorb vitamins, and so on. That's extraordinary! Until you realize that if people are found eating 'poop', and some do, they are deemed to be 'mentally ill'. That's what Wikipedia and many other sources project when it comes to 'purpose' and, especially, 'evolution'.

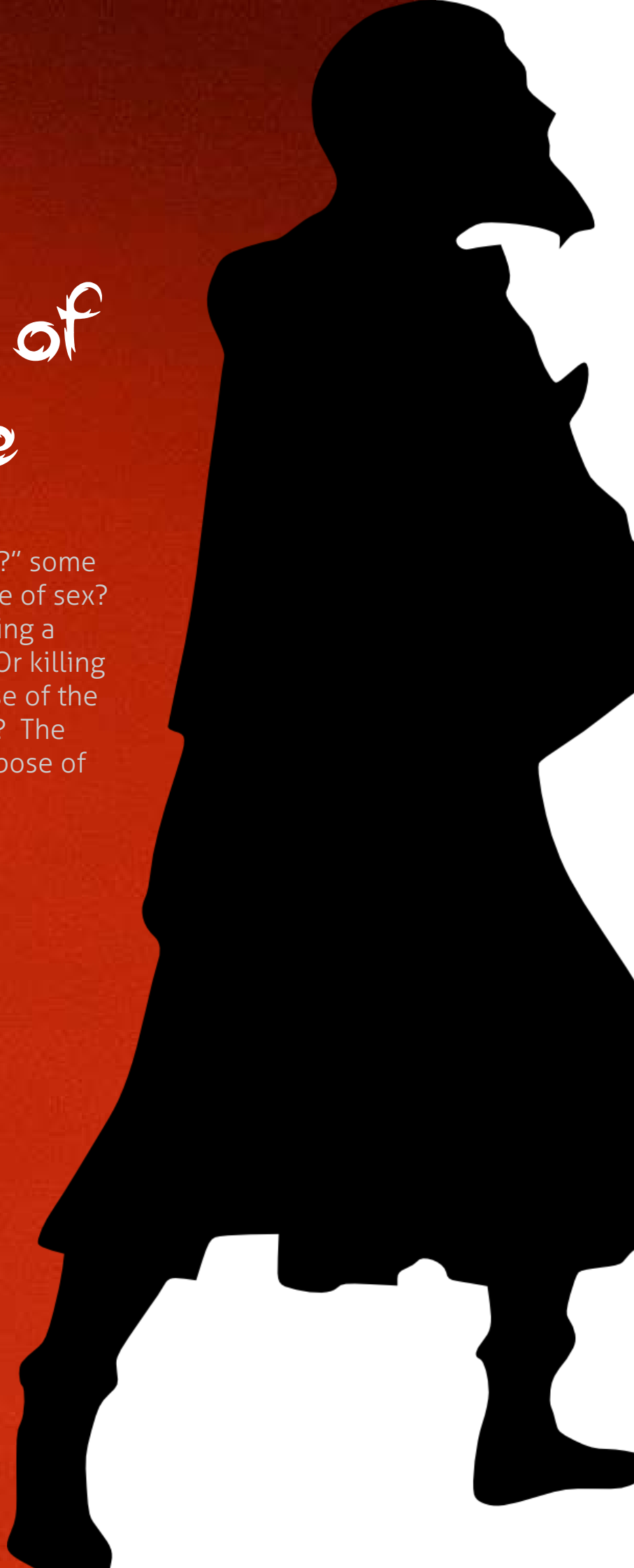
If there is one scientific theory that has been completely misunderstood by the general public, or at least severely twisted when explained by many, it would be the process of transmutation (what many call 'evolution'), and this process has been romanticized and mysticized so much that it may qualify as the most 'purpose'-infected scientific theory of all time.


So, throughout this big article, we'll try to 'shed some light' on the science behind evolution, and cut through much of the BS (Bad Science) that is often projected on top of this very important scientific discovery. We'll provide you with many examples and analogies to make it easier for everyone to understand this process, and will then connect it with the idea of 'purpose' to see if it makes any sense at all.



The Evolution of Purpose

"What is the purpose of life?" some may ask. What is the purpose of sex? Of having children? Taking a shower? Killing someone? Or killing no one? What is the purpose of the heart? Fingernails? Hair? The Universe? What is the purpose of these questions?





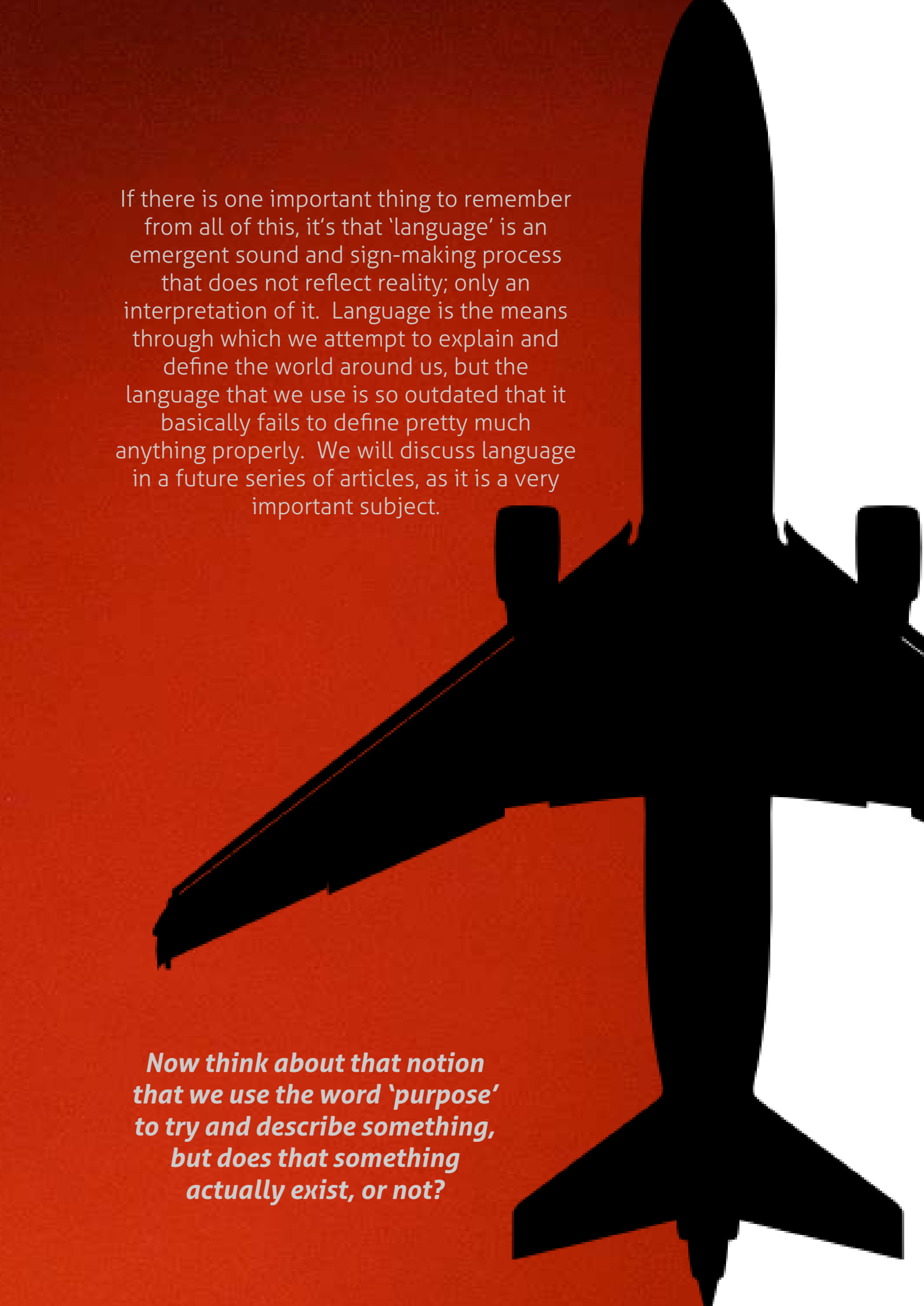
People have asked these kinds of questions for many thousands of years, but they may have missed something important: they are the ones creating the questions, so the questions might be completely meaningless. Can we ask: "What is everywhere? What is the purpose of purpose? Why why?" We can play with words a lot, but they may not make sense at all if we have no physical reference to work with.

This kind of language use allows people to 'wonder' about the world, and to categorize and make connections between objects, events, feelings. If we try to imagine when people were using language 10 thousand years ago to understand natural phenomenon like lightning or snow, then we can see how they might have asked meaningless questions (from a scientific perspective) and sought for meaningless answers. "Why is it raining?" makes no sense at all today, as we now ask "How does it rain?". Imagine how weird it would be if we were still asking "Who is creating the rain?", but people thousands of years ago, having very little 'scientific' understanding about the world around them, looked at these as very valid questions.

Couple this with the fact that people back then were living very tough lives (they had to hunt for food, they were easily crippled by diseases, injuries, famine, and so on), so much so that many may have found the idea that they had a higher purpose in life as a pleasant thought, so it's little wonder how the idea of 'purpose' became so 'viral' (alongside similar notions).

So 'viral' had these kinds of notions become, that the careful study of celestial bodies 25,000 years ago (to track seasonal changes) eventually became subject to this kind of thinking, evolving over the years into something that we call 'astrology' today. People projected that the stars have influences on their lives. They used complex mathematical formulas to calculate the faith of individuals or entire regimes (kings and politics). If you start with a preconceived and unscientific notion, you can end up using science (like mathematics) to look for and justify your own meanings, arriving at conclusions you can interpret in any way you want to.

Religions are another example of how the notion of 'meaning' (purpose) was being promoted and empowered. Both astrology and religion have remained with us to this day. If you wonder why, then you should read our article on Reason



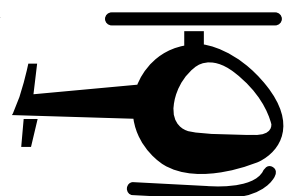
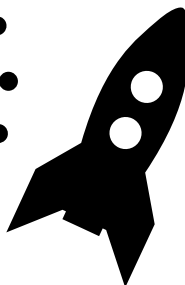
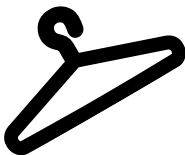
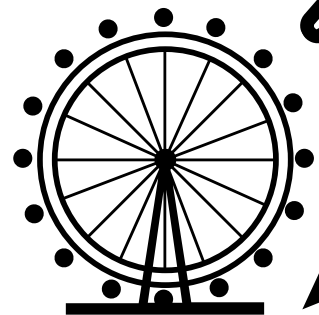
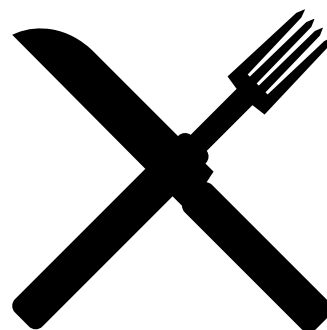
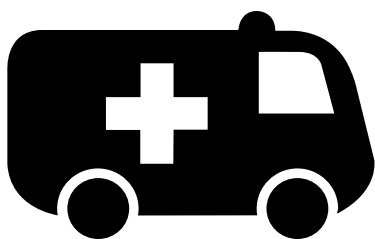
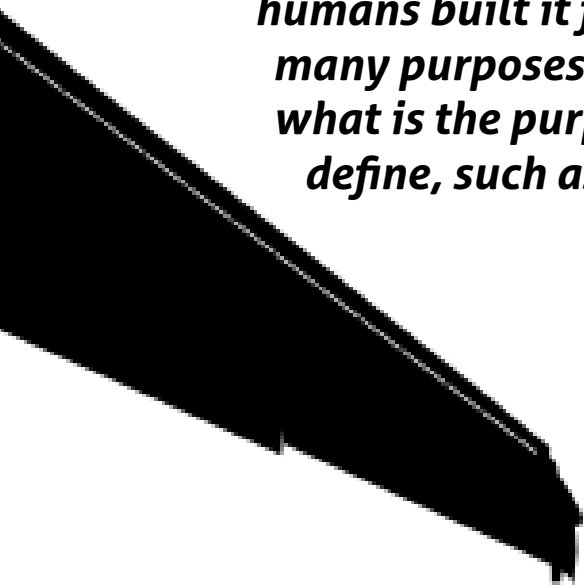
If there is one important thing to remember from all of this, it's that 'language' is an emergent sound and sign-making process that does not reflect reality; only an interpretation of it. Language is the means through which we attempt to explain and define the world around us, but the language that we use is so outdated that it basically fails to define pretty much anything properly. We will discuss language in a future series of articles, as it is a very important subject.

Now think about that notion that we use the word 'purpose' to try and describe something, but does that something actually exist, or not?

We say that the purpose of airplanes is to transport us by air, the purpose of a knife is to cut bread or other foods, and the purpose of a hospital is to provide medical care for sick people. But those are objects and we might recognize what we mean by 'their purpose' mainly because we tend to agree that humans built those objects for a specific use.

I am sure that we can also agree that, even if many people project the same use, or 'purpose', for those objects, there are many who will not. An airplane can be seen as a weapon (missile), a knife's purpose might be to use it for a circus play, and a hospital can be seen as a place to make money from. Whatever you might project, might as well be accepted as correct, since we project these concepts of use and meaning into perhaps everything.

But if a plane can be seen by some as a means of transportation and by others as a weapon, and we are talking about an object that we can all see and we humans built it for a specific use, then if it can take on many purposes, how can we then expect that asking what is the purpose of something that we can't even define, such as life, is going to lead us anywhere?



***What is the Qi of
the Universe?***



To put it in perspective, Qi is a word that means... well, it is very hard to explain what it means because it means whatever people want it to mean, but it was a very important notion for people thousands of years ago, as it still is for some today. It tries to describe one's 'natural energy'. But what does this mean?

The concept is thousands of years older than the discovery of the scientific (real) understanding of energy, so the word 'energy' is of a different use for them compared to our use of the word today. Many thought of it as 'something' like a 'force' that makes you, you, which can be controlled with willpower and can sometimes be extended through the universe. They thought that this Qi exists not only in humans, but also within animals, wind, and other events.

To quote some people who lived more than 2,000 years ago, "Human beings are born [because of] the accumulation of Qi. When it accumulates, there is life. When it dissipates, there is death... There is one Qi that connects and pervades everything in the world." "Fire and water have Qi, but do not have Life. Grasses and trees have Life but do not have Perceptivity. Fowl and beasts have Perceptivity but do not have Yi (sense of right and wrong, duty, justice). Men have Qi, Life, Perceptivity, and Yi."

They even thought that this Qi flows through your body and when it's disrupted, it creates diseases. Some are still practicing this kind of pseudo-medicine today and if you want to know why, I recommend again that you read our article on Reason and Logic.

The idea is interesting and resonates with what we know today about 'energy', as in that sense we are all a flow of energy. But today, we don't ask "What is your Qi?" Or try to calculate the Qi significance of the Universe, because we now know what 'energy' means from a scientific perspective and it's not about any 'willpower' to increase or decrease it, nor does it have any 'real' meaning. Qi is not something we can measure and make sense of, so I think it's pointless to ask any questions about it.

In this sense, take the two questions and see if they make sense now:

***What is the Qi of the Universe?
What is the purpose of the Universe?***

*The projection of purpose
in events and emotions
has lead to a complete
confusion, as it does not
adresses anything 'real'.*

*We should not be fooled
into thinking that words
describe the world, as the
reality is quite different:
we use words to try to
describe our unique
experience of what we
observe. It's never reality -
only a rought
interpretation of it*





Humans are used to doing things with a 'reason' in mind. They go inside because it is cold outside. They eat because they are hungry. They have a child because, influenced by culture, they 'want' to have one. They buy stuff with a 'reason': to show off 'success' with it, for their perceived needs, or whatever else.

So, this notion of 'purpose' migrated to all kinds of behaviors and events where, perhaps, there is no 'purpose' to inject that notion, as it makes no sense at all.

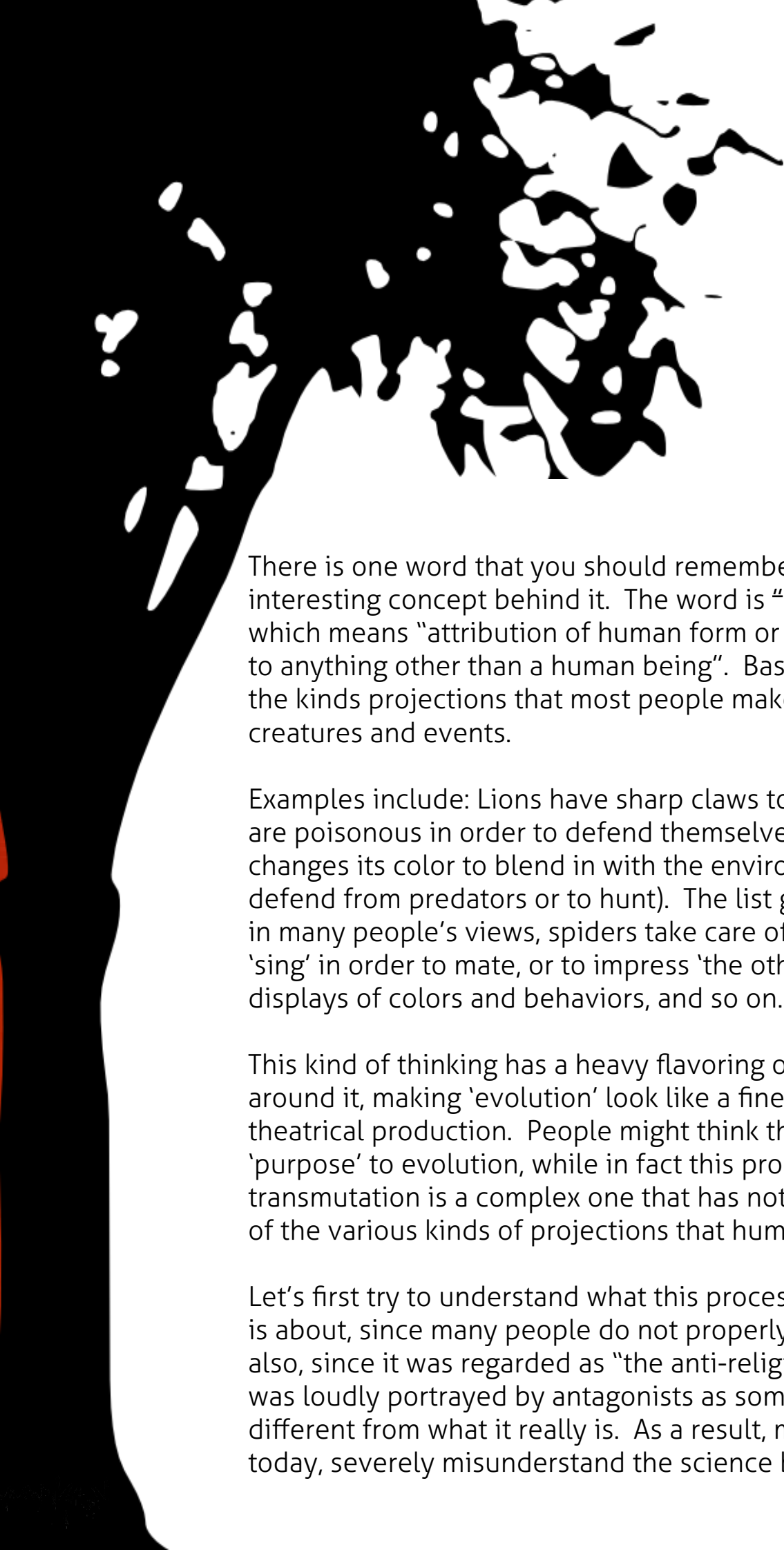
But let's see how projections create confusion around 'evolution'.



The Purpose of Evolution

I have seen a great number of documentaries about 'nature', and in many of them, you can witness how humans often project their own values into animal behavior, creating a very misleading view of the world.





There is one word that you should remember, as there is a very interesting concept behind it. The word is “anthropomorphism”, which means “attribution of human form or other characteristics to anything other than a human being”. Basically, it describes the kinds projections that most people make for, in our case, creatures and events.

Examples include: Lions have sharp claws to hunt, some frogs are poisonous in order to defend themselves, and a cuttlefish changes its color to blend in with the environment (either to defend from predators or to hunt). The list goes on and on as, in many people’s views, spiders take care of their young, birds ‘sing’ in order to mate, or to impress ‘the other half’ by their displays of colors and behaviors, and so on.

This kind of thinking has a heavy flavoring of ‘purpose’ all around it, making ‘evolution’ look like a finely choreographed theatrical production. People might think that there is a ‘purpose’ to evolution, while in fact this process of transmutation is a complex one that has nothing to do with any of the various kinds of projections that humans impart into it.

Let’s first try to understand what this process of transmutation is about, since many people do not properly understand it, and also, since it was regarded as “the anti-religion argument”, it was loudly portrayed by antagonists as something very different from what it really is. As a result, many people, even today, severely misunderstand the science behind it.



Hystory

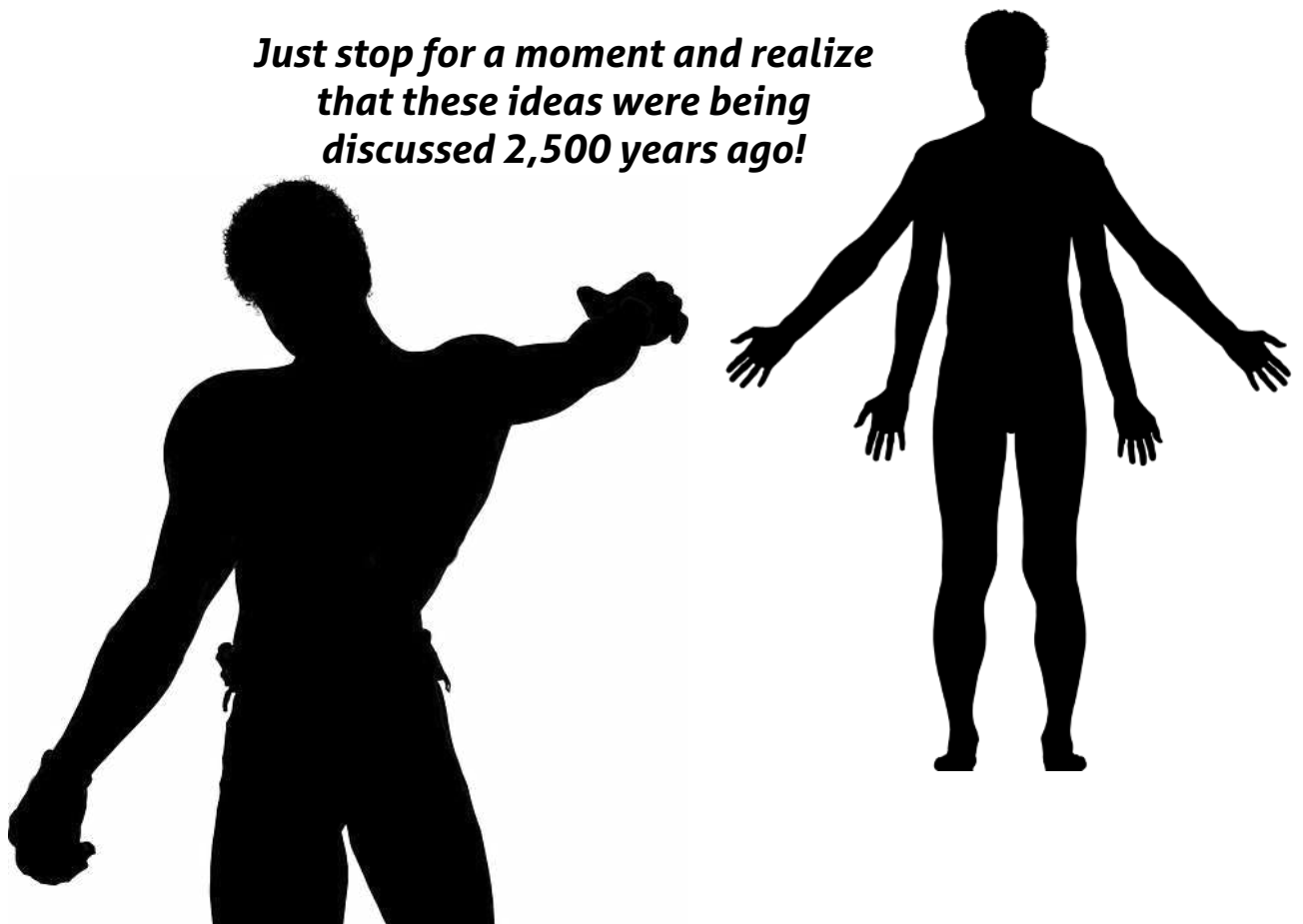
Let's see how the idea of
'evolution' started:

The evolution of species, or transmutation, did not start or end with Darwin, as many before him had noticed subtle changes in geology that they projected, over time, could lead to a different kind of environment. What once may have been a hill may, millions of years later, become a mountain.

2,500 years ago, some people proposed that one type of organism can 'descend' from another, and they 'deduced' that because of fossils they had uncovered at that time, the animals they knew about, and inspiration from other similar ideas.

They went even further by observing that some people are born with two heads, four arms, or any of many other 'defects', and realized that only those who were 'compatible' with 'normal' humans can make these 'forms' last. That 'inheritance' idea is an old one, as humans realized long, long ago that children resemble their mother and father's characteristics. In other words, if the mother had blue eyes and the father brown, then the child will either have brown or blue eyes, but not green.

***Just stop for a moment and realize
that these ideas were being
discussed 2,500 years ago!***



Much later (1,000 years ago), after many more ideas had been brought to light by different people, geology had become the main area where more and more scientists observed how small events in the Earth's geology appeared to have caused significant changes over time. Sedimentary uplift, soil erosion, deposition of silt, and marine fossils were a significant part of this growing hypothesis.

Let's think about this in simple terms: If you do a good survey of the earth's rock types and you understand that some types of rock can only form underwater, but you find these types of rocks at high points on mountains, then you may conclude that they formed beneath the water and that either they somehow moved there due to some unknown forces, or that at one point there was water so high that the mountains were covered by it for a long period of time, allowing these types of rocks to form there. But since you only find a layer of such types of rocks on a mountain, then you may deduce that it's not possible for the entire mountain to have been under water at some point as only one of its layers features that type of water-formed rock.([source](#))

Couple that with the discovery that mountains 'grow' and get taller (an observable fact) and we may understand (and even calculate) how and over what amount of time that layer of rocks ended up so high in that mountain. Fossils of various creatures were found inside these layers and, if you can calculate the age of the rocks, then you can discover the age of the fossils that you find inside that layer.

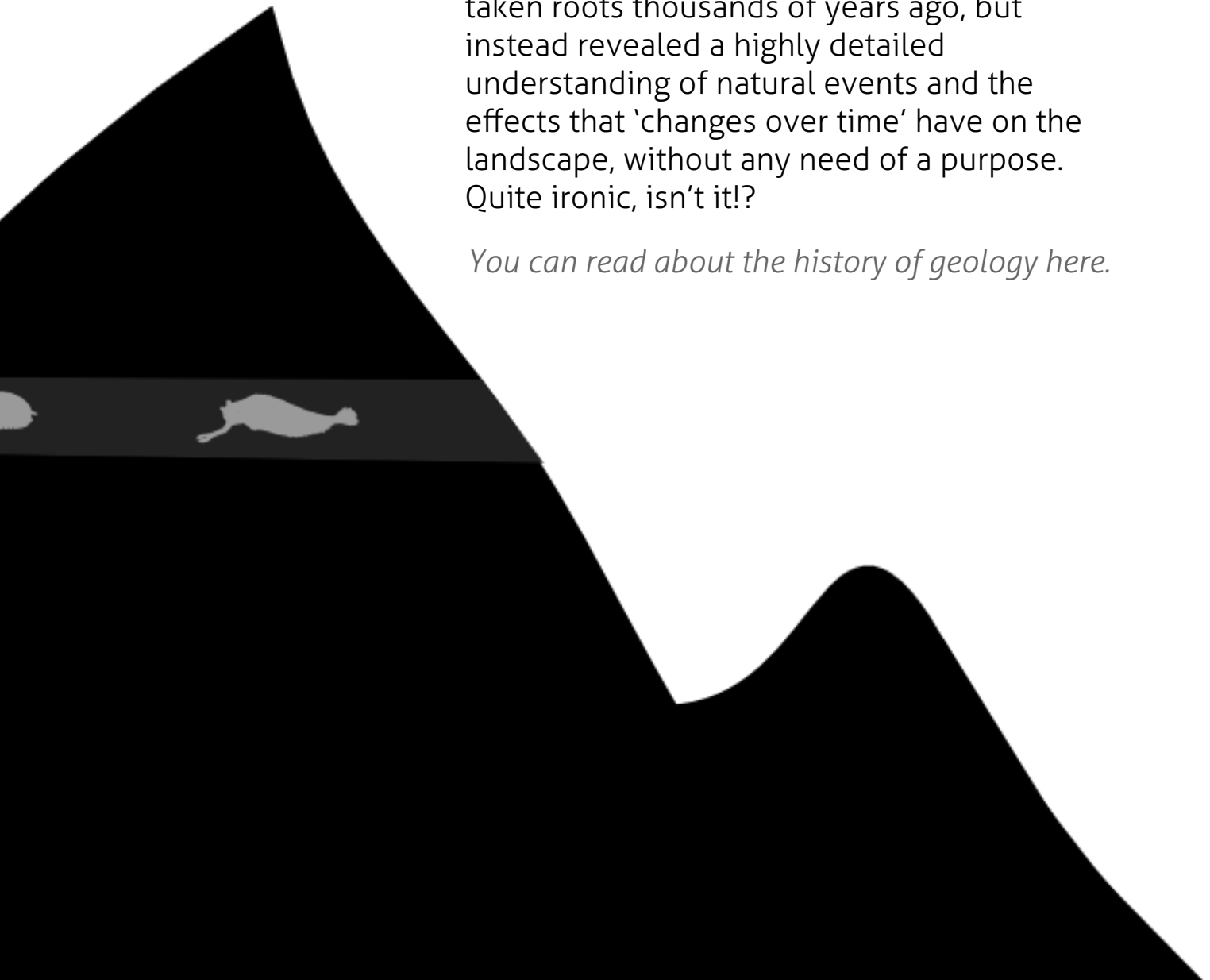




400 or so years ago, people started to understand how to properly calculate the age layers of rocks in order to form a more accurate timeline of the Earth's geology. Check out this video to see how a method called the "Law of Superposition" was used back then, and even today, to understand how Earth's crust formed.

As a side note: around the time of these scientific discoveries, many religious leaders (carrying out their 'purpose') interpreted such discoveries as evidence of water beds on top of mountains; proof that a big flood described by their old religious texts had occurred and, ironically, they pushed the incentive for more discoveries in geology. The result, of course, was not reinforcement of a 'purpose' that had taken roots thousands of years ago, but instead revealed a highly detailed understanding of natural events and the effects that 'changes over time' have on the landscape, without any need of a purpose. Quite ironic, isn't it!?

You can read about the history of geology [here](#).



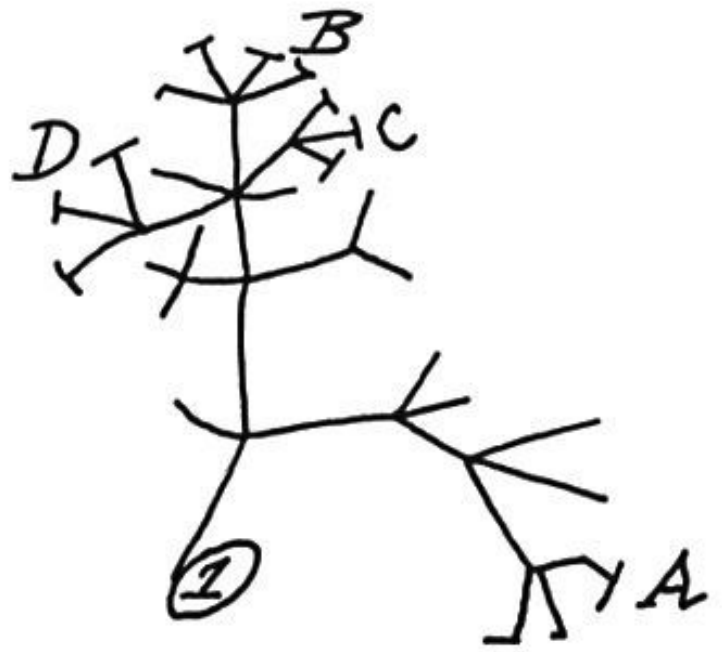
The ability to date fossils and the idea of an Earth that was very old (millions, or maybe billions of years, as they estimated), combined with ancient ideas of organisms deriving from other organisms, provided the basis of what was about to become the 'evolution of species'.

But before Darwin, there were other scientists that had worked on this theory, including his grandfather, and all proposed that new species emerge from combinations of existing organisms.

Characteristics that change over time can bring about new species when the characteristics are different enough.

Others recognized how some characteristics that are 'used' are passed to the new generation, while those that are not 'used' gradually disappear. While it's not this simplistic or true, as I will show you, the idea of 'what is better adapted to a particular environment has more chances to pass its characteristics on' was discussed before Darwin published his book.





*Darwin's notebooks around July 1837
showing his first sketch of an
evolutionary tree.*

What Charles Darwin did was to better portray all of this knowledge and come up with better examples and 'proofs' of how organisms develop into new ones.

The core idea that he presented was 'natural selection'. He realized how, in any given species' population, some individuals survive and some do not, due to lack of resources or other factors. On this basis, those who survive have a chance to pass on their traits.

He demystified the 'use' or not 'use' of an organism's characteristics to pass on their genes and said, basically, that it's all due to environmental pressures and how organisms or a population of organisms can cope with those pressures, survive and reproduce.

The following idea had been proposed before Darwin's clarification:

if a giraffe struggles to reach taller branches in order to eat, this will force her neck to stretch and its offspring will be born with longer necks. Using the same example, Darwin showed that giraffes that are born with longer necks have more opportunities to eat from taller trees while those born with shorter necks have lesser opportunities to eat and are more prone to die earlier. Thus, giraffes born with longer necks survive due to environmental 'chance' and so experience greater opportunity to pass that characteristic to the next generation.

While writing his book "On the Origin of Species by Means of Natural Selection", he received a letter from another scientist who was studying many different animals and had observed the same thing Darwin observed: how characteristics are indeed passed down from generation to generation. As I mentioned earlier, this had been discussed over two thousand years earlier, but these newer discussions had now become scientific studies - not mere discussions, but serious work covering many species of animals, years long observations and careful descriptions.



A black and white silhouette illustration of a savanna scene. In the foreground, a giraffe stands facing left, its long neck curved downwards. Behind it, a large tree with a thick trunk and a dense, leafy canopy stands on the right side. The background is a plain white space, suggesting a bright, open landscape.

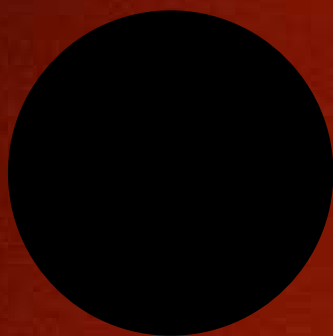
Darwin's book turned out to be a very powerful force for bringing the idea of how species form to the main stage of science.

Did you notice how the book that Darwin published on "Evolution" did not contain the word 'evolution' in the title? This was because what Darwin wrote, inspired by others, was intended as a scientific model of the origins of species, not suggesting any purpose as the word 'evolution' might have implied.

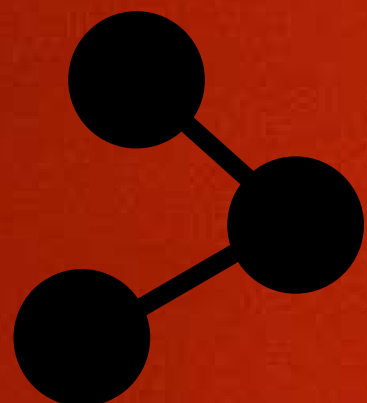
HOW IT WORKS

Building blocks of life:

cell



atom



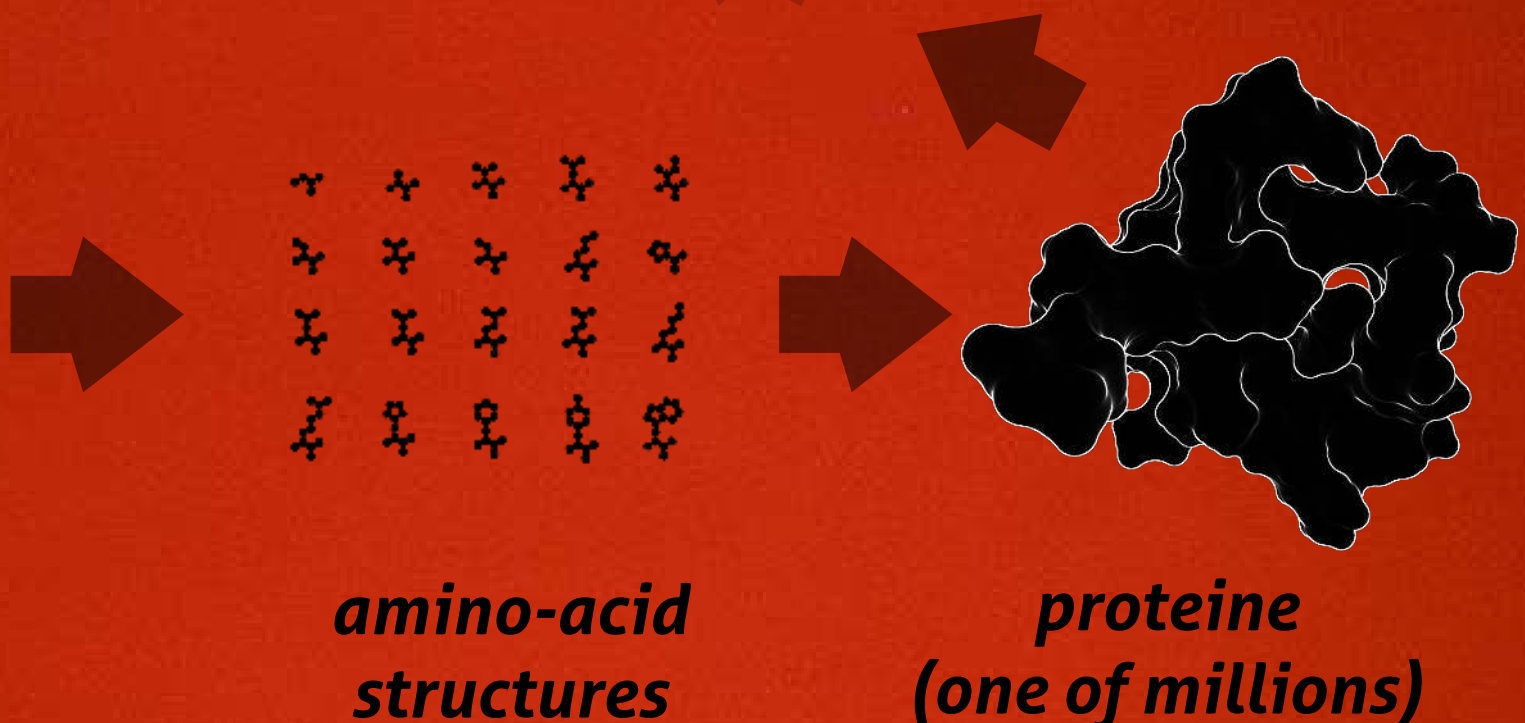
*simple
molecule*

All of the creatures that we may call life, from plants, insects, humans, bacteria, etc., consist of one or more cells. But what makes these cells? Let's see:

In the Earth special edition, we highlighted a very important aspect of everything within the world we live in: its shape. We recommend that you read the entire edition, as you may be surprised by the 'amazingness' and complexity of the world we live in. You'll also learn why the shape of things is very important.

Atoms are one of the smallest building blocks of the world, and when atoms combine, they create molecules. A molecule is basically an organized bunch of atoms that has a particular shape. Twenty or so specific molecules, each with a different shape, make up the building blocks of life. We call them proteinogenic AMINO-ACIDS. Due to their unique shapes, these 20 lego-like pieces are able to combine together in many ways to form larger unique shapes that we call PROTEINS. In this way, these amino acids create proteins.

Through the many combinations of these 20 or so different amino acid shapes, proteins take on millions of unique shapes, and again, their resulting shape is what is most important about them. Beyond that initial combining, proteins combine with other chemicals to form cells. Cells combine to form tissue. Tissues combine into organs. Organs combine to form creatures.



So how do amino acids combine to form proteins, and then proteins to make up cells, cells to form tissue, and tissue to form organs?

The process is quite complex, and I will do my best to explain it in a future article, but what you should keep in mind is that DNA, which is also a molecule - a huge one, is responsible for transforming the amino acids found in cells (where the DNA also resides) into proteins, and these proteins to form new cells that make up everything our body is composed of (guts, fingernails, brains, etc.) .

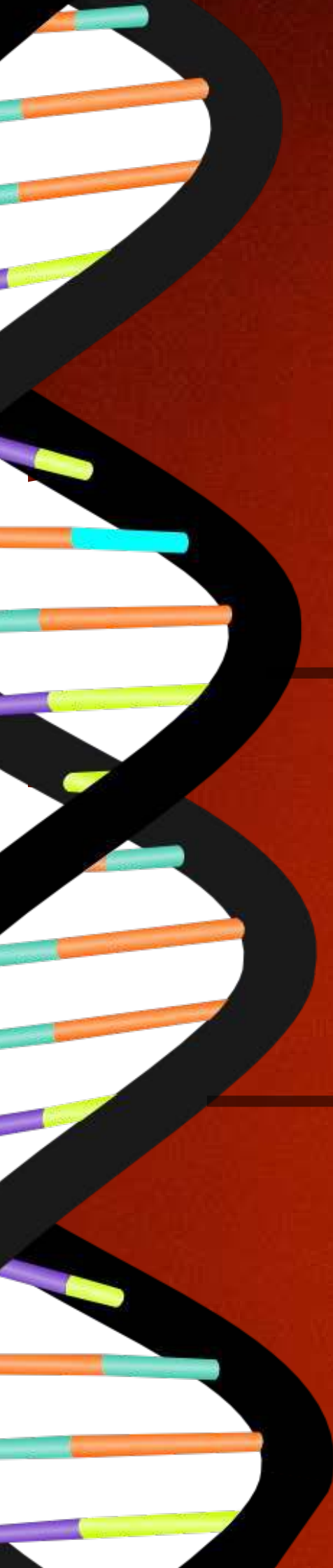
DNA is like a code, a blueprint that, once 'followed', can result in the creation of all of the cells that makes up a human. Therefore, DNA instructs how amino-acids are combined and which proteins are to be created from them. What is passed down from generation to generation is basically this 'genetic' information.

Imagine DNA as a written guide (textbook) on how to build an airplane. This information will change with every generation that reads and edits the textbook. Over time the text will change even more. It does not pass the physical materials down to the next generation to build an airplane; only the guide as to how it should be built. The same goes for DNA.

You pass on only the information as to how a human can be built, for example, rather than the building blocks themselves (the amino acids).

Watch this video to better understand how the DNA works



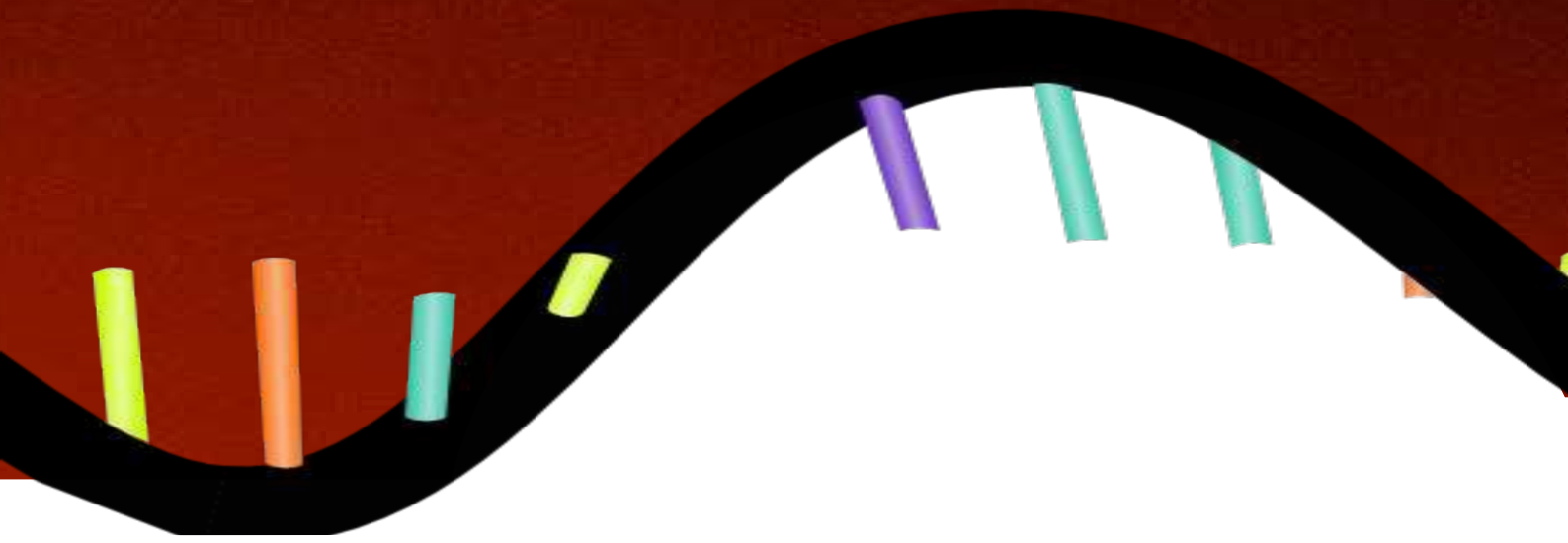


the DNA is only
made up of
FOUR
main molecules

GENE

Genes are parts of DNA that may be recognized as coding for a specific part of the body, like the color of the eyes, the shape of a limb, etc. So a gene is a chunk of a DNA molecule that is responsible for coding a certain part of an organism.

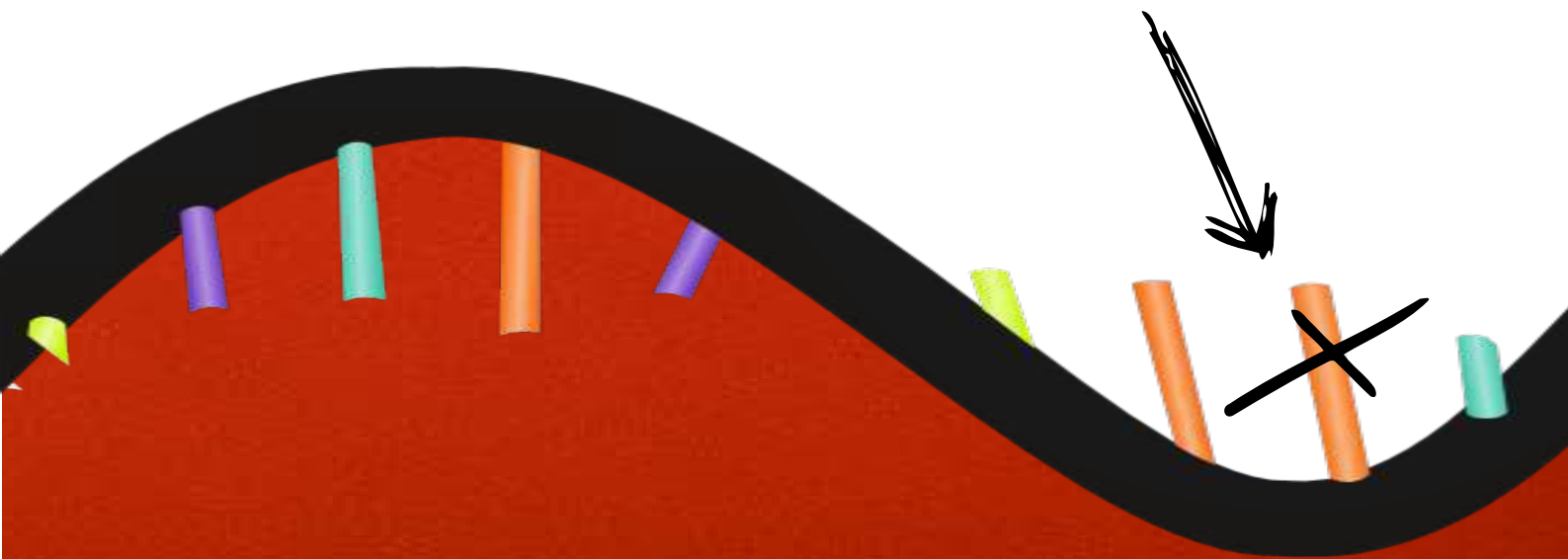
Although DNA was isolated (confirmed to exist) 10 years after Darwin published his book, Darwin had no clue about these details. Once his book came out, it still took another 50 years before it was proposed that DNA may encode for hereditary traits, and then another 20 years to confirm it.

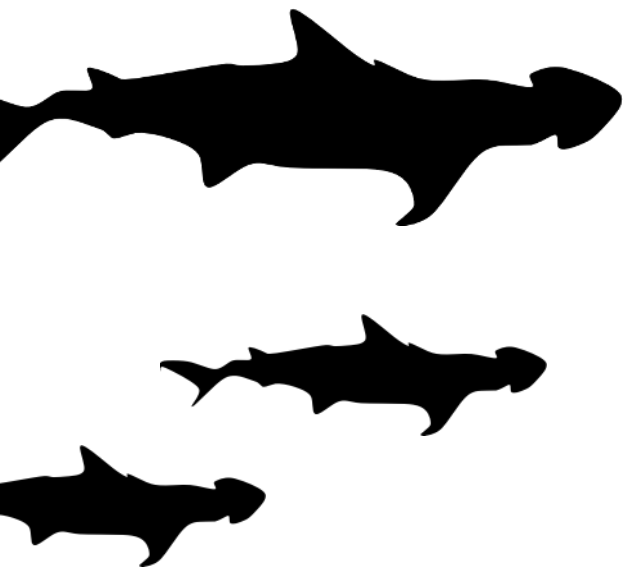


CREATING UNIQUE CREATURES:

When creatures engage in reproductive sex (or their reproductive cells combine), the resulting combination of their unique DNA (half from each 'parent') creates a new unique DNA - the blueprint for a new unique individual. This is why each new creature is unique. Then imagine this unique creature later combining its DNA with another unique creature, and we end up with a third unique creature. These combinations, over time, can create huge diversity. Let's call that process **COMBINATION**.

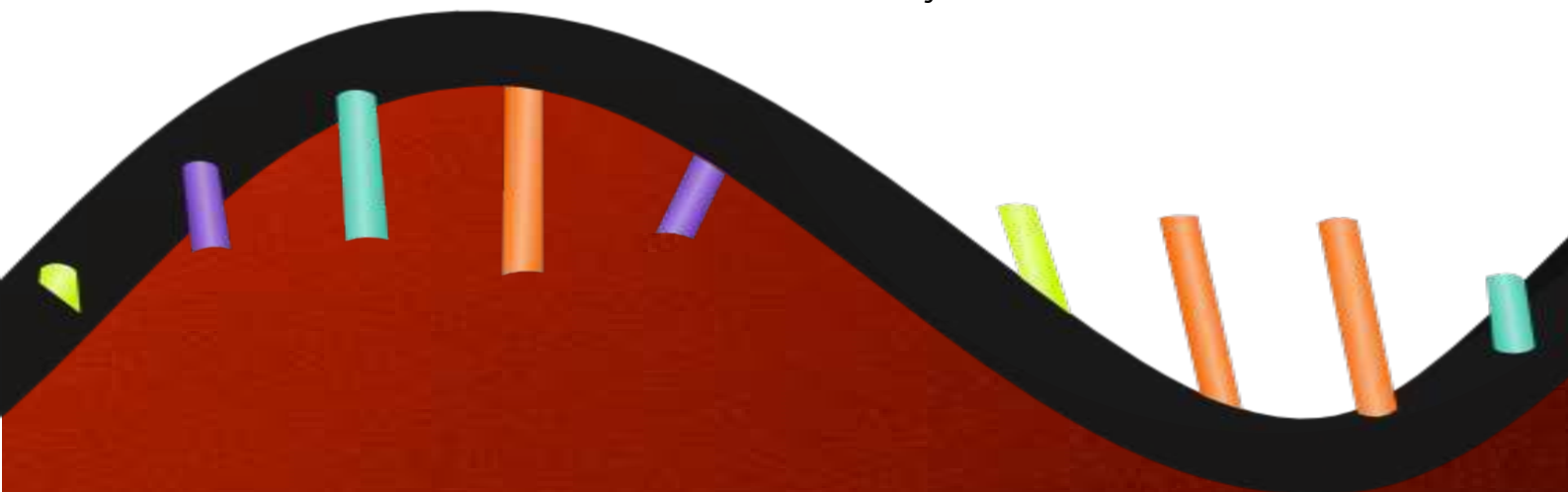
But errors in the DNA code (missing one or more of the 4 main molecules from the DNA) can happen during combination and this results in different outcomes than what's expected with merely combining 2 DNA sets. When DNA combines from 2 parents, and an error is introduced during the process, then that error becomes part of the offspring. Now, the unique creature is more than just the combination of its parents' DNA. It also carries something 'new', called a **MUTATION**, that can also be transmitted further on through COMBINATION to the next generation born from this creature.





Keep in mind that there are also creatures that 'self replicate'. They do not need a partner to combine their DNAs with in order to create a new individual. They more simply produce identical copies of themselves. Bonnethead sharks are one example of such creatures that can give birth to young without the need of a partner. Therefore, for instance, if mutations occur in these types of creatures, then they also create unique individuals.

So, creatures become unique and change over time through DNA recombination and mutations. Both work hand-in-hand and both happen. This is basically 'evolution'. So let's look at some real-life examples of how these combinations and errors give birth, literally, to new creatures.



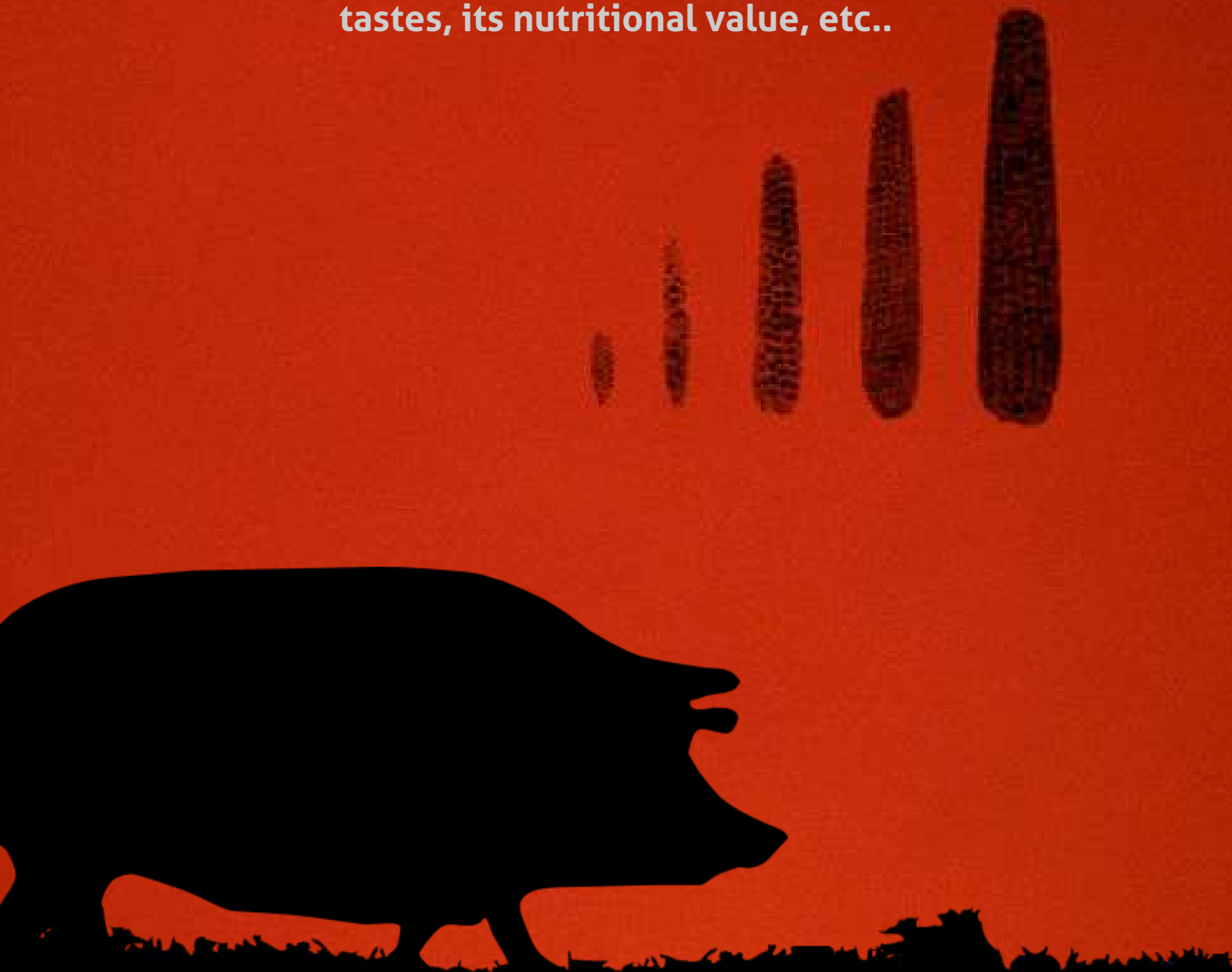
Domestication is something humans have experimented with for thousands of years. What this means is that they took certain creatures and raised them alongside human cultures for food, clothing or protection. One example is the 'modern' pig, which looked something like the wild boar before being raised and 'shaped' by humans over thousands of years. By 'shaped', I mean that people were selecting different traits from a population for breeding.

If they saw, for instance, some pigs that grew larger, then they selected those to breed with other big ones, so their offspring would produce more food. Because smaller pigs were not selected, that genetic trait did not get to reproduce and gradually disappeared from the pig's DNA. Over time, this changed the pig's appearance ('shape').

Wheat is a more documented example: Wild wheat falls to the ground to reseed itself when ripe, but domesticated (modern) wheat stays on the stem, allowing easier harvesting. There is evidence that this change was possible because of a random mutation that happened in the wild populations that existed at the beginning of wheat's cultivation. Wheat with this mutation was harvested more frequently and became the seed for the next crop. So, without realizing it, early farmers were selecting for this mutation, which may otherwise have died out.

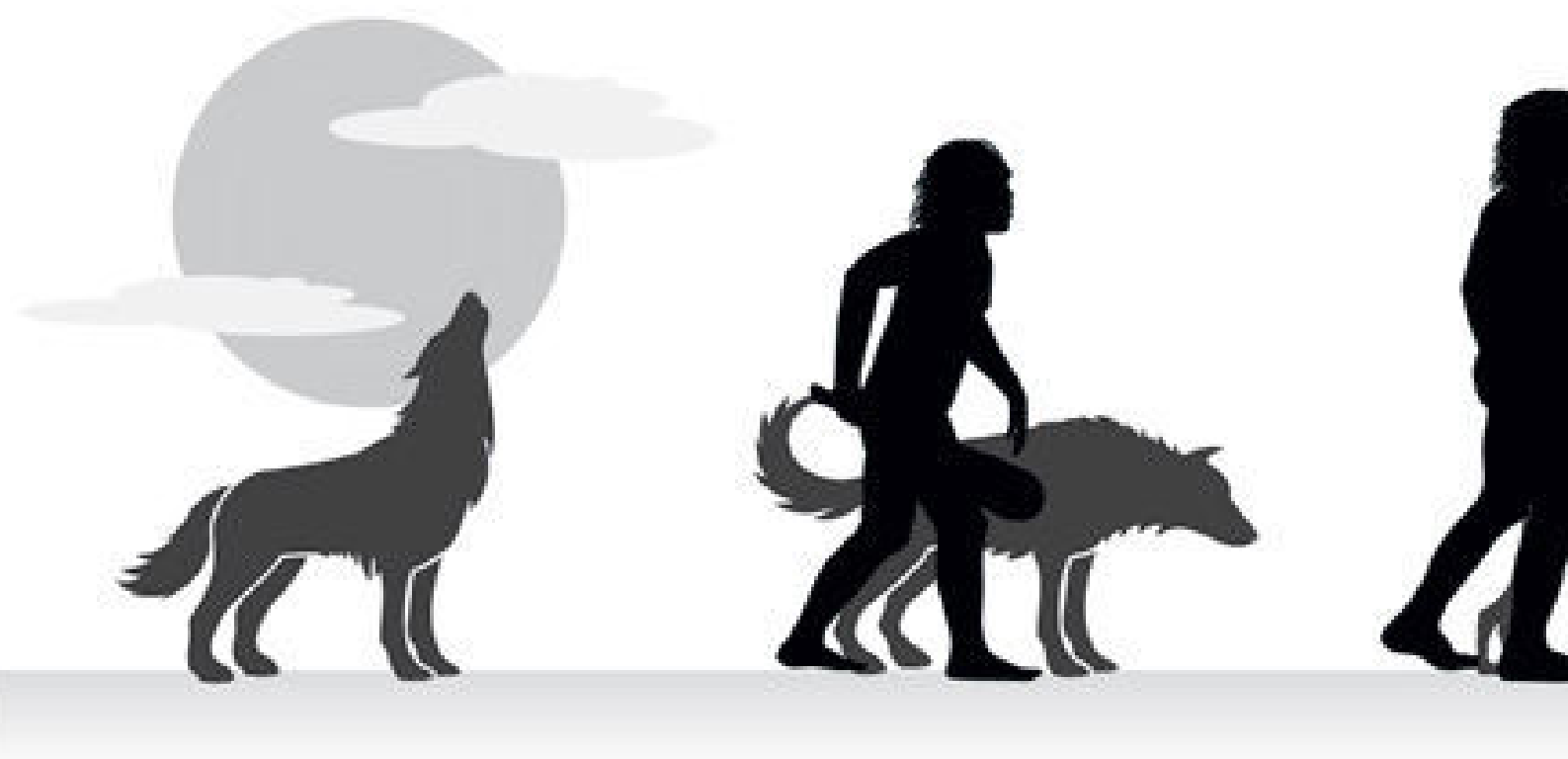


They did the same for corn, which looked nothing like the corn we are familiar with. They selected seeds over thousands of years to bring it to the way it appears today. Not only does it look different, but it's also different in how it reacts to certain chemicals, how it tastes, its nutritional value, etc..



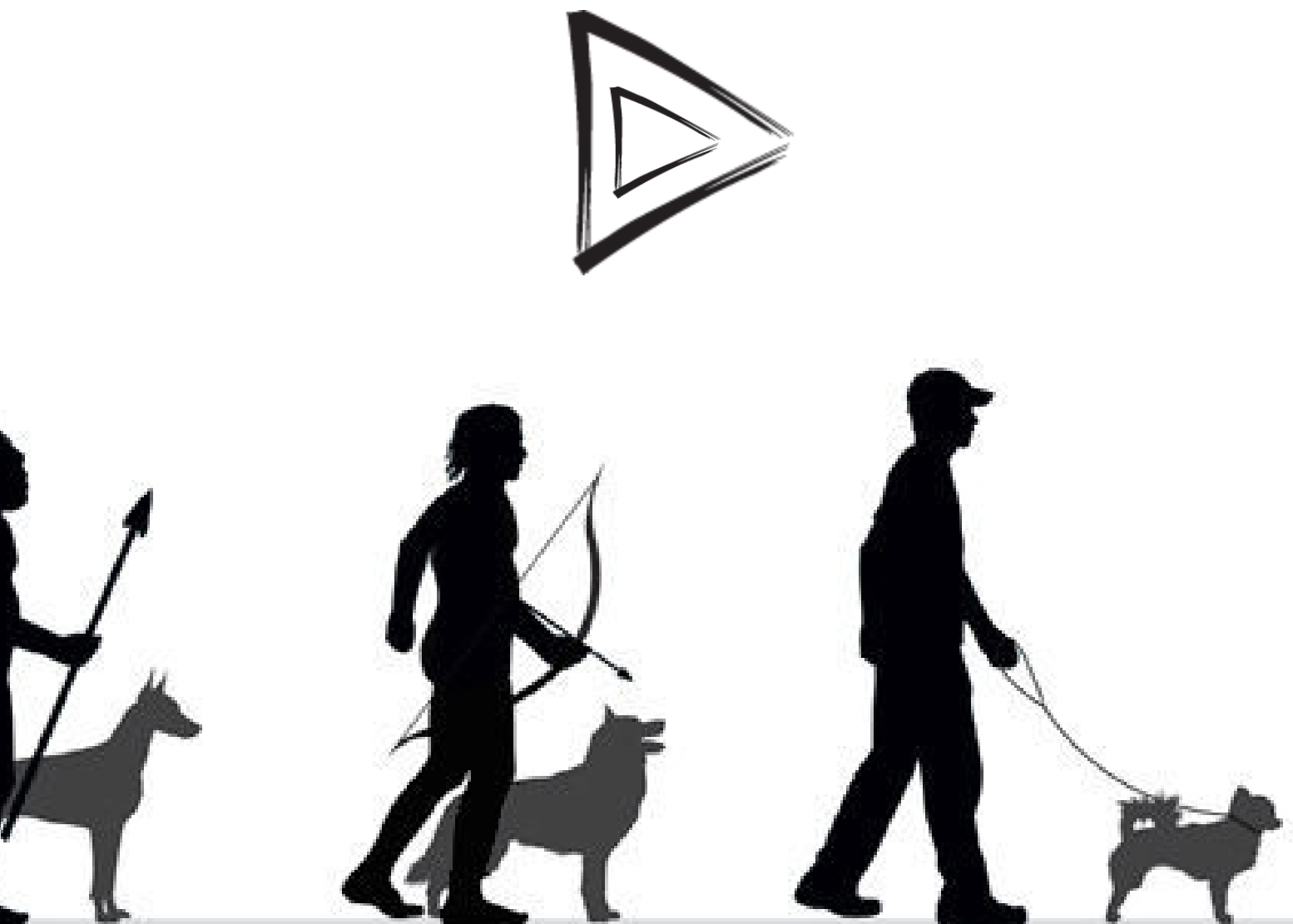
Dogs are another example of 'evolution caused by humans'.

Beginning as wolves, these creatures gradually became chihuahuas and many other types of dogs, all through the process of selective breeding.



Many modern viruses are also man-made, in a way. As humans invent cures for viruses, they kill off viruses that conform to the specific structure (functionality) that they targeted. If the treated culture happened to include any mutant viruses that, as a result of their mutations, were resistant to that 'cure' treatment, they remain alive within the host and have more chances to survive and replicate than the ones that were killed off. In this way, humans are indeed 'creating' new types of viruses.

In the documentary "Defeating the Superbugs", an experiment was performed with a type of bacteria where, in a matter of 2 weeks, they could see how billions of bacteria 'evolved' (mutated and developed antibiotic resistance). I highly recommend that you watch the video here:



There are many examples that you can read about [here](#), but man-made 'selective transmutation' has grown far more complex than this. Today, humans can directly modify the DNA of a creature to make it in a particular way for a specific purpose.

The first such human-designed 'mutant' was created in 1972, when they managed to create a bacteria that was resistant to a particular antibiotic by copying bits of a foreign DNA into its own bacterial DNA. In 1973, they did the same thing to a mouse by inserting bits from a virus DNA into a single cell of a mouse embryo and saw how the mouse survived and developed with the virus' genes among its own genes.



Today, there are a huge variety of organisms that have been genetically modified by humans by directly altering their DNA. Humans have mixed DNA from animals with DNA from plants, or bacteria, or viruses, and these methods use genes (parts of DNA that code for a specific part of an organism) to successfully transmit traits from one organism to another very different one. There are now cats and pigs that glow in the dark, plants that can absorb water pollutants through their roots, cabbages that can produce scorpion venom to kill harmful insects (they made it by adding DNA from scorpions, but removed key 'parts' of it so it would not be harmful to humans), and there is even a goat that produces a key protein for silk production, as its DNA was combined with one from a spider. As they say, the list goes on.

Sure, no one has been able to take half of the DNA from a rose and half from a human and turn it into a Human-Rose, but perhaps this way of thinking is completely unscientific and invalid. Dealing with human DNA is even more complicated because human DNA itself is very complex. But even so, 'gene therapy' refers to a process where the DNA of a human is 'edited' to correct genetic mutations, and the method works. In other words, human DNA has foreign DNA added to it. There are even scientists who are looking at 'editing' the DNA of a human embryo to, for instance, correct for mutations that would otherwise lead to diseases, thereby creating a human being that is more healthier.(source) We will talk more about this in a future article about the mechanics of the human body.

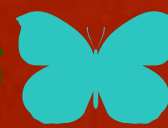
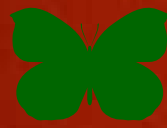
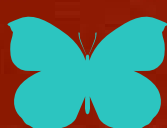
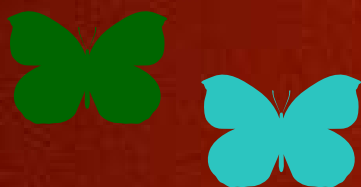
You may not see anything 'mutant', in the sense of it becoming extremely different from the 'original' organism, but these changes are quite significant, considering humans are only at the beginning of understanding how DNA works and how to manipulate it. Remember, 40 or so years ago, it wasn't even confirmed that DNA has the role that we are aware of today. So, over thousands of years, humans have created many new kinds of organisms that are resistant to certain chemicals, contain different nutritional values, developed different shapes and sizes, and so on. But humans have managed this for only a very brief period of time compared with the time many of those organisms came into existence.

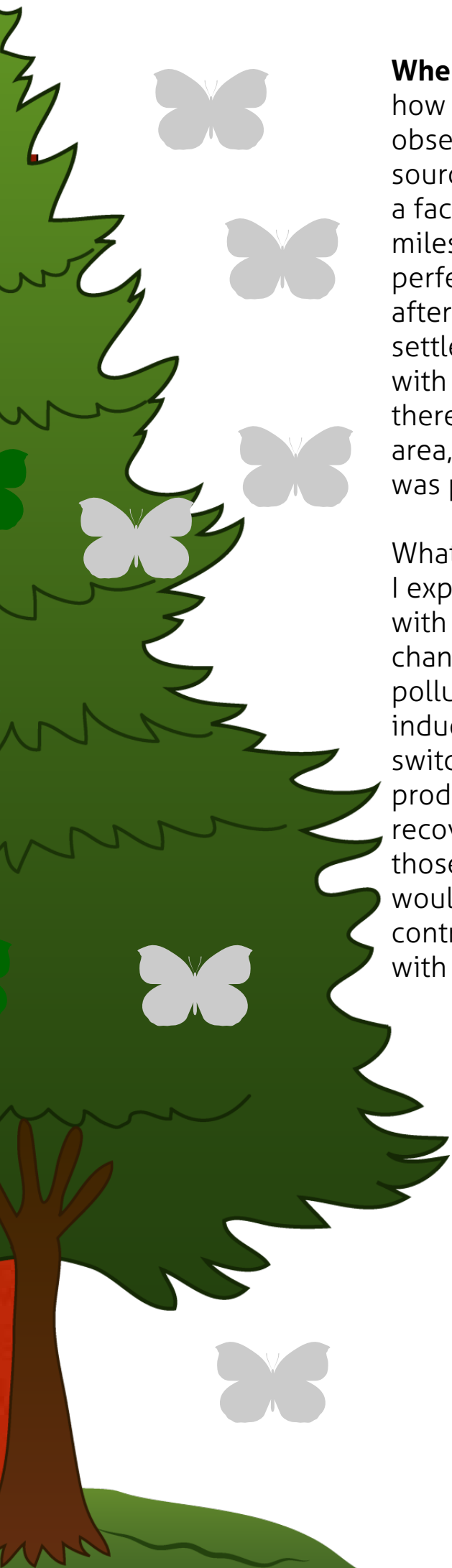
This is how 'nature' does it: Imagine a population of butterflies. They appear mostly blue, with an occasional green highlights tendency. But as they mate and have lots of baby butterflies, due to genetic mutations (the same effect that might cause a rare human to be born with 2 heads, or whatever else), one is born more green than blue. He then mates with other butterflies and, since babies inherit their parents' characteristics, a percentage of their babies (not all - keep that in mind), are also born more green than blue. They happen to live in a forest where the scenery is mostly green and brown. As a result, the green butterflies are harder to spot for some of their 'predators' and, over time, more blue butterflies are eaten while more green ones survive. Because the green ones end up with more opportunities to mate, this population of butterflies gradually 'evolves' to become more greenish than blueish.

It is as simple as that. But hold on, as there's one more key thing to consider: when autumn comes around and the forest loses its dominant green color, the green butterflies become more easily recognized by their 'predators' and get eaten just as easily as the blue ones. Also, if their 'predators' can see colors in ways that are different from how we imagine, or if they use other senses (like sensing heat) to 'hunt', then the green color of the butterflies may equate to nothing and the green butterflies will have gained no real advantage over the blue ones.

No butterfly could want to become green or, even understand what in the world it means to be green. It's just a multitude of event processes that may or may not prove to be advantageous for an organism, and any advantages gained may only be advantageous for a limited period of time.

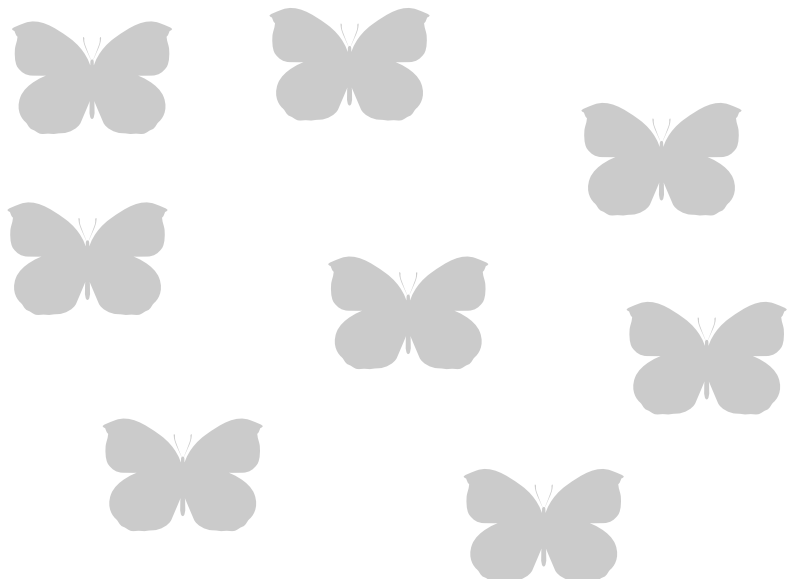
Another thing to keep in mind: If that first green butterfly that was born out of a genetic mutation didn't mate with any other butterflies, then that characteristic would have 'died' with that butterfly.





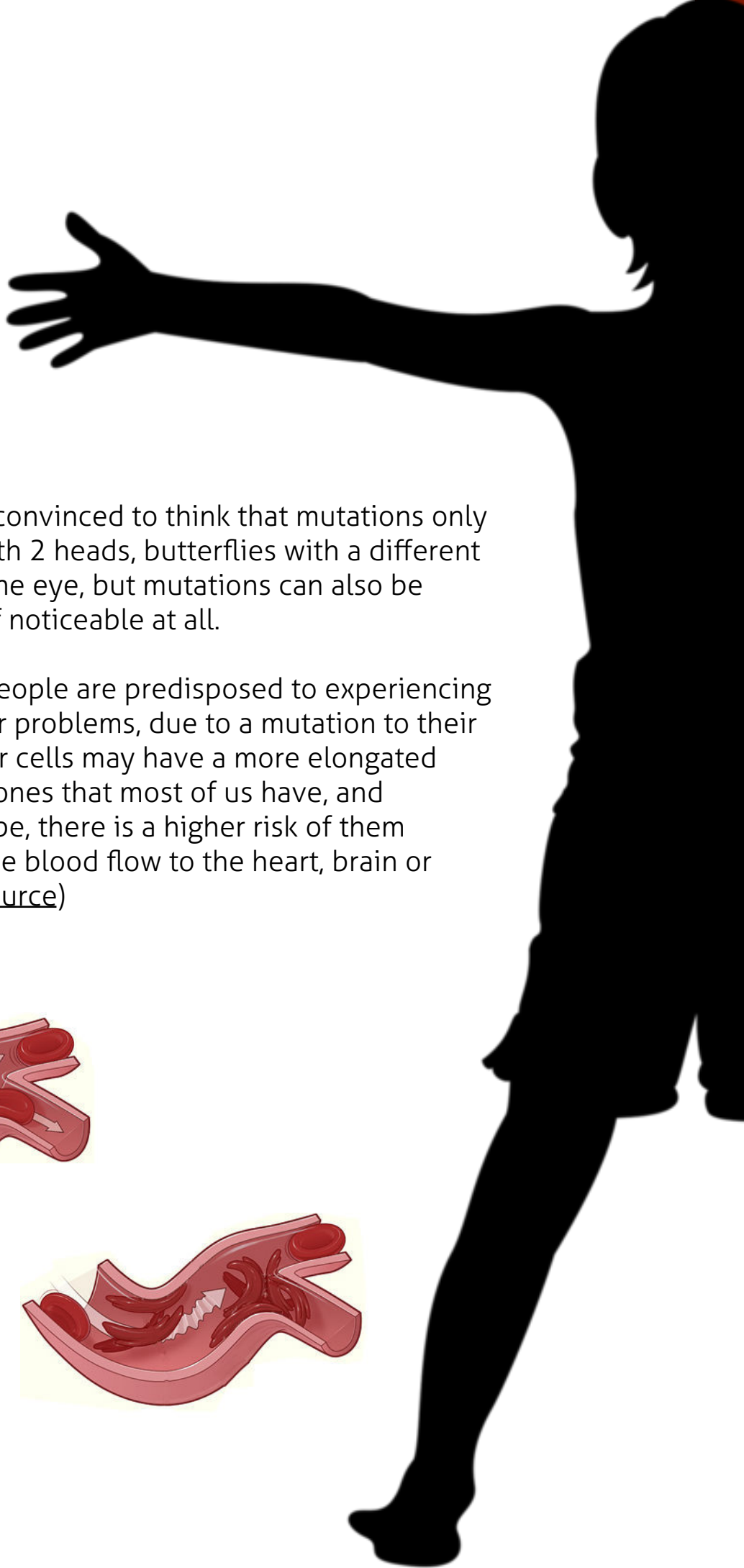
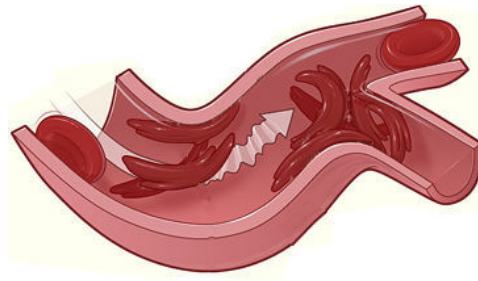
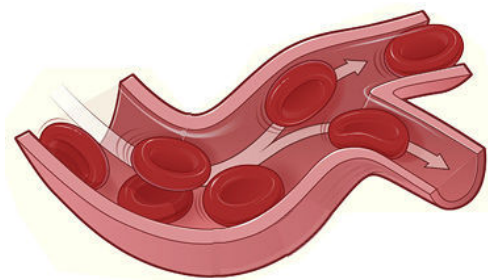
When butterflies became grey is a story that shows how this happened in real life, and was directly observed by humans. Unfortunately I cannot find a source to link you to it, but here's the story: Close to a factory where its production spread a grey dust for miles around it, there was a forest. The forest was perfectly 'fine' until the factory was put in use, but after a few months in production, the grey dust settled on the forest, covering most of its green color with a grey hue. After many years, some noticed that there appeared to be a lot of grey butterflies in that area, but they were not observed before the forest was partially covered in the grey dust.

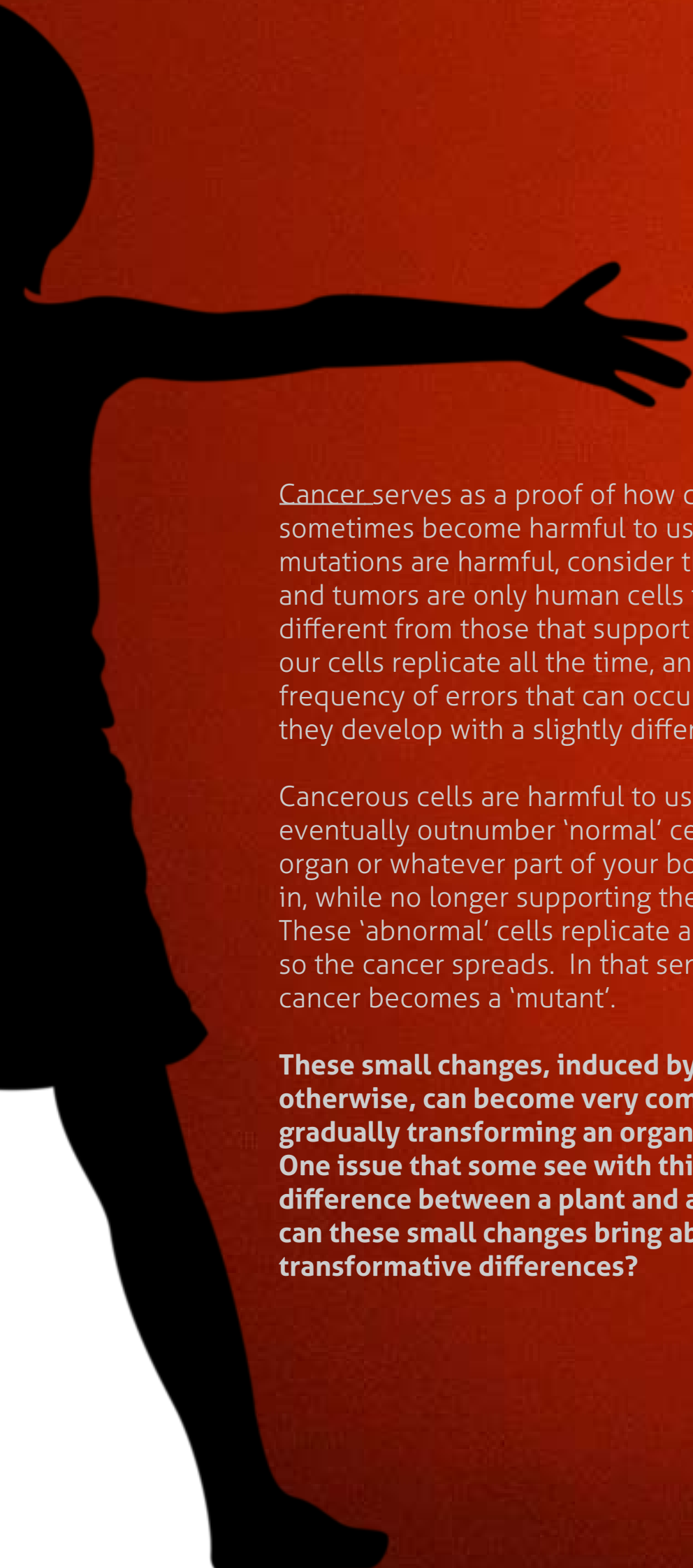
What happened, they deduced, is the exact thing that I explained earlier: some butterflies had been born with a 'mutant' grey pattern, and those had more chances to survive as they blended in with the polluted forest. This was, in a way, indirect human-induced 'evolution'. If that factory were to close or switch to a different production that no longer produces the grey dust, the forest would quickly recover back to its 'natural' state. And if most of those butterflies are grey now, then a green forest would, perhaps, become something of a death contract to them, as they could no longer blend in with the background of their environment.



You may have been convinced to think that mutations only results in humans with 2 heads, butterflies with a different color, or dogs with one eye, but mutations can also be much less obvious, if noticeable at all.

For instance, some people are predisposed to experiencing heart attacks or other problems, due to a mutation to their red blood cells. Their cells may have a more elongated shape than the oval ones that most of us have, and because of their shape, there is a higher risk of them clotting - stopping the blood flow to the heart, brain or other vital organs.[\(source\)](#)





Cancer serves as a proof of how cells mutate and sometimes become harmful to us. While not all mutations are harmful, consider the fact that cancers and tumors are only human cells that have become different from those that support your body. Because our cells replicate all the time, and due to the frequency of errors that can occur during replication, they develop with a slightly different 'mutated' DNA.

Cancerous cells are harmful to us because they can eventually outnumber 'normal' cells, dominating the organ or whatever part of your body's function they are in, while no longer supporting their 'normal' function. These 'abnormal' cells replicate as your normal ones do, so the cancer spreads. In that sense, a person with cancer becomes a 'mutant'.

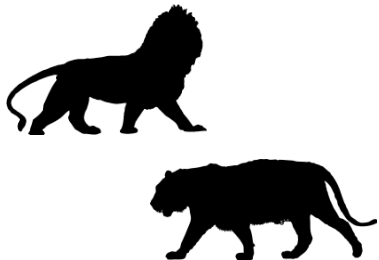
These small changes, induced by humans or otherwise, can become very complex over time, gradually transforming an organism into a new one. One issue that some see with this is the huge difference between a plant and a human being. How can these small changes bring about such a huge transformative differences?

CREATING NEW SPECIES:

There is scientific certainty that organisms change as we have exemplified here, but let's see if these changes are enough to create new species.

First of all, as we discussed in previous articles, a 'species' is not a properly defined entity. The term emerged as part of the notion of categorizing, at first flowers by how they appear, and was applied a bit later to animals. You might consider lions and tigers to be two different species, but they look similar and can even mate to have offspring.

THIS IS A REAL **LIGER**, A
LION-TIGER 'CREATURE'
THAT IS FULLY CAPABLE
OF REPRODUCING



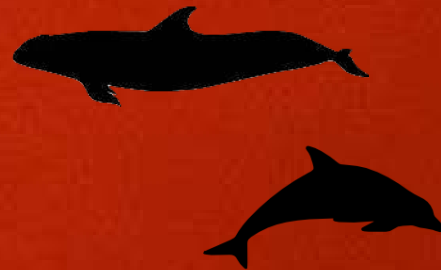
A **ZEBROID** IS HALF
ZEBRA-HALF DONKEY



KILLER BEES ARE A
RESULT OF TWO
DIFFERENT SPECIES OF
BEES THAT SPRUNG INTO
EXISTENCE IN 1957 DUE
TO A 'HUMAN MISTAKE'



A **WHOLPHIN** IS HALF
DOLPHIN-HALF FALSE
KILLER WHALE



A **SAVANNAH CAT** IS A
COMBINATION OF A
DOMESTIC CAT AND A
WILD CAT (SERVAL)





GRIZZLY-POLAR BEARS
ALSO EXIST



A **BEEFALO** IS A
COMBINATION OF
AMERICAN BISON AND
DOMESTIC CATTLE



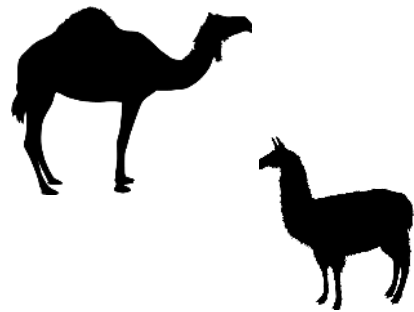
SHEEP-GOAT
SHOULD BE OBVIOUS



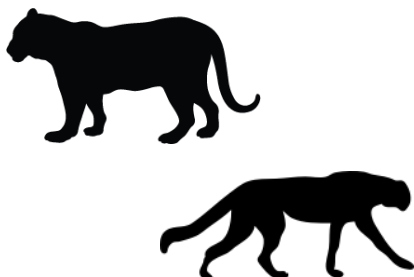
BLOOD PARROT CICHLID
IS A HYBRID OF TWO
SPECIES OF FISH



CAMA - A DROMEDARY
CAMEL AND A LAMA



A **LEOPON** IS THE CROSS
BETWEEN A LION AND
LEOPARD



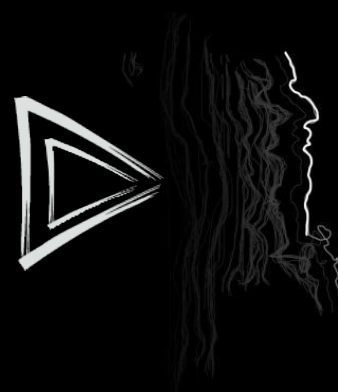


There are many other cross-breeding species of plants and other organisms which you can read more about on [Wikipedia](#).

If we do not know exactly what a species is, then we should ask what is the criteria for defining these mutations and combinations of DNAs as different enough to be considered as 'something new'. Isn't a bacteria that mutates to become resistant to an antibiotic, a new kind of bacteria? Isn't a chihuahua a different organism from a wolf? Aren't all of the 'hybrid' species we've shown 'new kinds' of organisms? Or how about the millions of new organisms genetically created by humans?

These examples are a proof of how organisms change over thousands of years. But what about millions or billions of years? Imagine that!

Or let me help you put it in perspective: Let's play the "Tracing Game". The first human draws a vertical line. A second person tries to trace over that line. A third then tries to trace over the second line, and so on. After 50 such attempts, the 50th line looks nothing like the first one. This is how small changes drive huge changes. Watch this video to see how this was experimented.





Another thing to consider though: The differences in appearance and functionality in the many organisms that we find on Earth is huge -- but who is to say that? If there is no proper way to define a species, then why do we see so much difference between a chimpanzee and a human? Maybe since we are the observers, we think that such differences are enormous, when in fact they may not be.

Consider the difference between a plant and a human. We may see it as a big difference, but relative to what? Who knows what 'creatures' or 'intelligent things' that we cannot imagine exist within this humongous universe, rendering the differences that we see between Earth organisms almost irrelevant!?




So, this is how 'evolution' works: DNA codes for organisms and this DNA changes over time by combining with other DNA and creating slightly unique ones. This, plus occasional mutations that occur within this code, all give rise to different creatures that, over billions of years, result in tremendous complexity.

To observe this complex transmutation in creating such widely different organisms is like watching a galaxy form. You can only see snapshots of how various younger galaxies look, along with some of the common processes that you theorise are essential for their formation. But you can never actually witness a galaxy forming, as it's something that occurs over billions of years. However if you can cross-check enough data from many scientific domains (chemistry, biology, astronomy, etc.), then you can create a good hypothesis that holds true until something new is discovered. To this end, there is no way we can find out anything about the world around us other than through science.

The same types of snapshots and the same kinds of investigations take place for transmutation, as fossils, rock types, DNA decryption, experiments, and more are creating the most educated guess of an event that can never be fully observed, only understood.

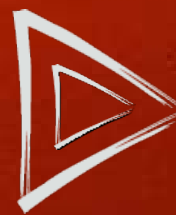
This video explains extremely well how the investigation of millions or billions of years of transmutation is understood through science:





As you can see, the idea of change over time resulting in tremendous complexity and variety dates thousands of years into the past, and over the last 100 years or so, many people have studied many different scientific fields, all of which powerfully point in the same direction toward what we understand as 'evolution'. You may not have been there to witness a crime being committed, but analyzing the scenery and adding up the evidence discovered through careful scientific investigation, you arrive at the best tools for providing an explanation for what happened. The transmutation process over billions of years results in the same kind of scenery, which can only be analyzed through what it has left behind.

And just in case you're wondering how all of these organisms started, as the evidence shows that they all have a single ancestor (bacteria, horses, roses, humans, polar bears, whales -- all have one ancestor), then the answer is: no one knows! Of course, that makes life even more interesting for us humans, since it offers us fantastic opportunities for new discoveries. Still, it's not like there isn't any research done toward learning how these organisms started. There are plenty, with some of them highlighted very well in this video:



An experiment performed by NASA and published in March 2015 was described by one of the researchers: "Our experiments suggest that once the Earth formed, many of the building blocks of life were likely present from the beginning. Since we are simulating universal astrophysical conditions, the same is likely wherever planets are formed." ([source](#))

As an extraordinary example of how life can be made, resulting in new species, researchers can now decrypt DNA structures to better understand how they work. Knowing that, combined with the fact that DNA is basically a structure composed of only 4 key molecules, they can take these key molecules from nature, and assemble them into a new kind of DNA.

You see, even though DNA is only made up of 4 main distinct molecules (unique shapes), it contains millions or billions of such pairs, and the way these pairs are aligned can be read like a code. Once the code is understood, it can then be modified to have pairings of these 4 key molecules assemble in any way we can imagine, thus forming (perhaps) any kind of creature out of them, if we have the proper technology and means to do that.

Whether we're talking about a flower, a bee, a bear, or a human DNA, all of them are made up of pairings of only 4 main molecules. The only difference is in the way they are assembled and in what order.

Understanding how to code DNA has led to the first synthetic DNA (other examples soon followed). A few years ago, the first synthetic cell was made by extracting the DNA from a bacterium and inserting a new DNA into it, made entirely from scratch from those 4 molecules that all DNA is made of. We will look more into this in a future article, as it is such an important subject that it needs to be addressed in more detail than we can manage in this article, but you can read more about it [here](#).

So, it seems that 'life' (DNA based organisms) is not that hard to decrypt and understand how they function and relate to one another, how they have 'evolved' into such a variety, and how we can even make new ones.





Let's see what we have found so far when it comes to 'evolution':

1. The idea of complexity emerging from change is quite old, and can be found in both geology and biology, for both landscapes and organisms
2. Change in organisms is confirmed and properly understood (we are all here because we are each a unique combination of tiny DNA changes), even to the point of manipulations (synthetic DNA, genetically modified organisms).
3. Again, it's all about shapes: as atoms form molecules, molecules form DNA, DNA helps form amino-acids, amino-acids then form proteins, which form into cells, cells cluster into organs, and organs into creatures.
4. Change over the longer periods of time that have given rise to the complexity we see today seem to have happened solely due to DNA recombinations and mutations, and a massive number of studies across multiple scientific fields all confirm this.
5. Just as humans drive the 'evolution' of dogs and other 'domesticated' organisms, nature (the environment) continuously drives the 'evolution' of all creatures, as a process of chances, random mutations, varied events and huge periods of time.

Are you ready now to connect 'evolution' with 'purpose'?

Transmutation is something that happens all the time, and over the course of billions of years, extraordinary changes can indeed happen. Now let's look at what 'purpose' does to this extraordinary process that is amazing in its mechanics.

Take bees for example. When a bee stings someone, many people project an intention of the bee to hurt that someone. They even see the bees equipped with a defensive weapon, a barbed needle and a sack of venom to fight off invaders. This is a video of a bee stinger detached from a bee.



As you can see, the bee stinger works without the bee. It contracts and 'pumps' the venom, even though there is no more bee to 'direct' this activity. As you can see, it is not attacking a 'predator'. It just lays there, contracting its tiny muscles; reacting without a 'purpose'.

When a bee stings, the stinger, because of its shape, remains attached to whatever it stings. It also ruptures from the bee's body, leaving the body without most of its digestive system and nerves, and the bee will quickly die from the loss of these vital components. Does it make sense to think that the bee is on a 'kamikaze' mission and thinks like us, giving her life for....well, whatever reason?

If the bee knew that it would die from stinging someone, maybe it would not sting anymore :).





When one approaches a honeybee nest, you might be tempted to think that the honeybees will sting him to defend their beehive. But your conclusion would only be based on a projection. If you were born in another culture, you may conclude that the bees come to salute the guy and they sting him as their greeting.

There are many insects that, because they happen to release certain chemicals, can go into the nests of other insects without those insects detecting their presence, and the 'impostor' insect lays its eggs inside the nest. No other insect looks at it and says "Gosh, this one is not one of ours. Let's kill it!" because insects react to various stimuli (chemicals) and if there is no such chemical detected, those insects won't react.

For instance you can use smoke to calm bees down and the way this is understood to work showcases the 'purposeless' of bees to 'defend' their beehive. If you hurt some bees, they release a certain chemical, not as 'alarming' the other ones, but that's just how their bodies work. This chemical has an impact on the other bees, making them change their 'mood' and become more 'active', or 'aggressive'.

They have a reaction to that certain chemical, rather than to the intruder. Interestingly, smoke masks this chemical, and also causes the bees to eat more honey. When they do that, they become more physically unable to make the necessary flexes to sting. This illustrates a bunch of reactions based on how chemicals and other stimuli change the functional behavior of an organism.

I once saw in a documentary that when they added certain ant pheromones to a small photo of the Queen of England, the ants began carrying food to the picture. They said that the ants thought it was their queen. Of course, the correct response would have said: this is how ants react to this kind of pheromone influence.

Ants don't really have queens and workers, soldiers and whatever. They just react to various chemicals and some ants react in different ways than others, and we observe that in their behavior. If you see ants carrying food to their nest, you might say that they do that to feed their young, but when you see them going into an electricity unit and dying by the hundreds, you don't call them depressive or suicidal, right? Instead, you do some science and realize that ants are very active in all directions.


If some of them get too close to an electric unit and get electrocuted, their bodies release certain chemicals that cause other ants go to the same place and they get electrocuted too, releasing even more of that chemical and attracting even more ants to their 'death'.(source)

Why not apply the same investigative approach to learn and understand what makes ants carry food from one place to another? Or for any kind of behavior that they or other creature exhibit?

PROJECTING HUMAN VALUES:

To show you how unrealistic it is to project such human values into other creatures, imagine that you are a wasp and you want to lay your eggs somewhere 'safe'. Where would you lay them? Think... ..





Ok... Did you think of laying them inside other creatures, and also adding a bit of 'venom' to make the host not reject them? It's logical, right? After all, inside those hosts, your eggs can feed on and grow within the hosts' own body. Quite brilliant, right? I bet that no human would have thought up such a plan for them. Now, do you think a wasp could have come up with such a plan? Of course not, but there are wasps that do just that and, unfortunately, many humans describe their behavior with 'logical' human values injected into it.

Speaking of venom. Do you know what the difference is between venom and poison? Humans! Humans invented those notions and categorized them as such. Venom and poison are substances that are harmful for humans. They call it 'venom' when the host (the animal or insect) 'delivers' it (stings or bites you), and 'poison' when you see something (poisonous frog, for example) that can't deliver the venom to you, and you decide to lick or eat it, and then die because that substance got inside you :) I once saw a funny video where someone talking about poisonous frogs was saying that some of them have enough poison to kill 1,000 people if they lick it, and another guy asked him "Why would you lick it?". I think that's very relevant here, as that frog's poison had no purpose. It just so happens that the frog produces a chemical inside its body that just so happens to be harmful to some creatures, including humans.

HIV is a structure that we call a 'virus', and it can 'stick' to different molecules within the body, making your body less and less able to cope with infections. Millions of people have died because of this virus. If a guy has it and he rapes someone, we can call him venomous, as he will infect his 'victim'. If you lick the guy's wounds (where there is blood present), then we can call him poisonous. That illustrates the value of 'poison' and 'venom': any substance that is harmful mainly to us humans. And the term 'substance' is not a proper definition of anything in this case, as it is all, again, about structures/shapes. As a virus is harmful because of its complex structure, snake 'venom', for example, is also harmful because of its structures getting into your blood.

To put the projection of human values vs what really happens into better perspective, let's look at a specific situation: A venomous snake feels threatened and attacks a man, biting him on the leg. The man struggles to breathe while his muscles are contracting, and he dies after a half hour of suffering.

What happened?

The man was walking in the woods and, without noticing, he got too close to a snake that reacted by biting the man. To more deeply understand why the snake may have reacted this way, read our article on "[What is behavior?](#)". Basically, a snake (or other creature) can exhibit such reactions under many different circumstances. As one example, on a TV show that aired 20 or more years ago, the host was explaining why the snake he had around his neck won't bite him, saying that the snake 'doesn't feel threaten by him, nor is he venomous to try and attack him' (as if the snake could be aware of whether he was venomous or not). 30 seconds later, the snake bit his neck. Here's the video.





You see, snakes produce saliva, as we do, but some snakes also produce a 'special' kind of saliva, stored in tiny sacks below their eyes, that contains molecules that are harmful to us and many other creatures. When the snake from our story bites, due to his anatomy, his 'special' saliva ends up in the body of the man.

When you have a wound, signals are transmitted to certain molecules in your body that stick to the broken tissue and that stops the flow of blood out of your veins and closes the wound. Along with other compounds that affect its victim in various ways, the 'special' saliva from this snake includes a molecule that dissolves the 'patching' molecules in your blood, so your blood lacks their ability to 'fix' the broken vein, and the blood from your veins continues to freely escape your normally closed-looped circulatory system.

Without enough blood flowing through them, your muscles are unable to function and the oxygen levels throughout your body begin to decline. If the man receives no medical help to 'fix' his body-machine, then his body eventually fails and he dies. The man died because his mechanical body leaked too much of an essential substance (blood), made possible because of the snake's 'special' saliva.[\(source\)](#)


Snake venom includes a variety of 'toxins', harmful molecules that, once injected, disrupt numerous functions throughout our bodies. This is similar to how large objects clog up a toilet's functionality, or how too much cholesterol does the same to our circulatory system. The large objects and cholesterol could be labeled as viruses, or poison, or venom, or toxins to those systems :).

When a virus enters your body, it has no plan and no purpose. It just enters and it just so happens that its own molecular shape and complexity allows it to 'merge' and 'stick' with molecular parts from your own body causing those parts of your body to malfunction. I recommend this [documentary](#) to help you understand more about the mechanics of the human body, and to also see how, like so many others, this documentary erroneously presents these events through human values ('purpose').

I saw a documentary where a baby zebra was born almost completely black, and the mother zebra did not 'protect' it and ran away from the newborn. Zebras, like all living things, react to various stimuli (in this case, visual cues). There are animals that seem to 'take care' of other animals, whatever that means. Some project similar behaviors towards non-living objects.

Bacteria does not 'want' to protect or harm you; genes do not 'want' to survive; bees do not 'attack' you or 'protect' their hive; birds do not 'sing' - all of these things are merely human projections that have no place in reality.



A black silhouette of a person in a dynamic, expressive pose, possibly dancing or gesturing, set against a solid red background. The figure is positioned on the left side of the frame, with its right arm raised and bent, and its left leg extended forward.

Indeed, it's very tricky to not project human values when you think you recognize similarities between animal and human behavior, but that's not all that we need to be concerned about with such projections.

It may shock you a bit to learn that even with human values projected onto 'human' behavior (what we tend to think of each other's motives, reasons, purpose, etc.), the projections are very often wrong and, without exception, always incomplete.

Example: You go out to a dance club and see a guy dancing 'around' a girl. You might say that:

- the guy is in love with that girl
- the guy is trying to make his girlfriend jealous
- the guy wants to infect her with HIV
- the guy knows that the girl is rich and wants to ask her for some money, but he's too shy to approach her directly. So he chose to dance around her to 'break the ice'
- the guy is just drunk and has no clue about any of this
- you are too drunk and are making random, erroneous interpretations of what you see
- you are not drunk, but you're still making erroneous interpretations

Whatever the full intention might be of the dancing guy in that situation, you can never fully guess. Even the guy doing the dancing is unable to fully understand every aspect of what he's doing or exactly what his plan is.

So think about it. If you can't guess the purpose of other people's behaviors from within a culture that you are an integral member, how could you dare to think that you may be able to understand why monkeys touch their lips, birds exhibit a particular behavior before mating, or they mate as a result of that behavior, or whatever... How could you?

When I was little, there was a guy that 'drove' around in an invisible taxi. He was homeless. All the people laughed at him, saying that he was crazy. He could not stop without 'parking' his invisible taxi. But he looked to me like a very nice guy, and I was sure that he viewed us, the other kids, as 'the privileged ones'. So, I thought that he must be extremely sad that he has no family, home, and nothing good to eat. I was very sad for him. Very!

So one day, I took all of the good food from my home's fridge (tomatoes, cake, steak, and so on) and went out to find him to give him the food, despite the fact that this would get my parents angry at me for taking food from our house. We were not at all rich, so taking the food that we all depend upon and giving it to a stranger was not such a good idea to them. But I was really happy about my decision and, with a smile on my face, I found this guy and I said, "Here, I brought you the best food we have in our house. Enjoy it!". The first thing I noticed is that he did not thank me! But that was ok, as I figured that maybe he just forgot, or he was simply too hungry. He opened the bag, took the tomatoes, looked at them, and threw them to a nearby dog, saying, "I don't eat tomatoes!" I was shocked... He took a bite of the steak and, although I suspected that he liked it, he mumbled that it was not well-cooked. I was observing his behavior in shock. When he took a bite from the cake, he asked, "Who made it?" I replied, "My mom!" So he said, "I recommend you buy it from the store next time. It tastes better from the store."... Wow! I was completely speechless.

I thought that I knew this guy, and that he would understand my 'help', but apparently, my projection was completely wrong, along with all my friends who projected the same about him, even though we knew him for many years. **From that moment on, I stopped projecting my own values into other people and understood that if I can be so wrong where it comes to human behavior, then I would be completely wrong in projecting about any other creatures' behavior.**



Remember the creatures that 'eat poop' at the beginning of the article? Do you still think that koala babies eat their mother's poop to improve their own gut bacteria? Of course not. They just happen to eat it, for whatever reasons baby koalas have for that (smell, temperature, etc.), and that happens to have some advantages for their own digestive system, alongside other effects or non-effects.

If you see a lion 'defending' its cubs, then stop and recognize that you are being that guy at the dance club, projecting his own values onto others. Lions do not have the understanding of 'social order' like we humans have. We cannot allow ourselves to think that we can understand what it is like to be a lion, when human men can barely understand what it's like to be a human 'woman' in any particular culture. Many times, I don't understand how girls think, and that's a matter of only slight cultural difference; just as I find myself unable to understand how 'normal' people from today's culture think.

If we can't understand how organisms like our own (humans) behave, influenced by significantly similar environments as us, then we need to be very careful about what we project about other organisms.



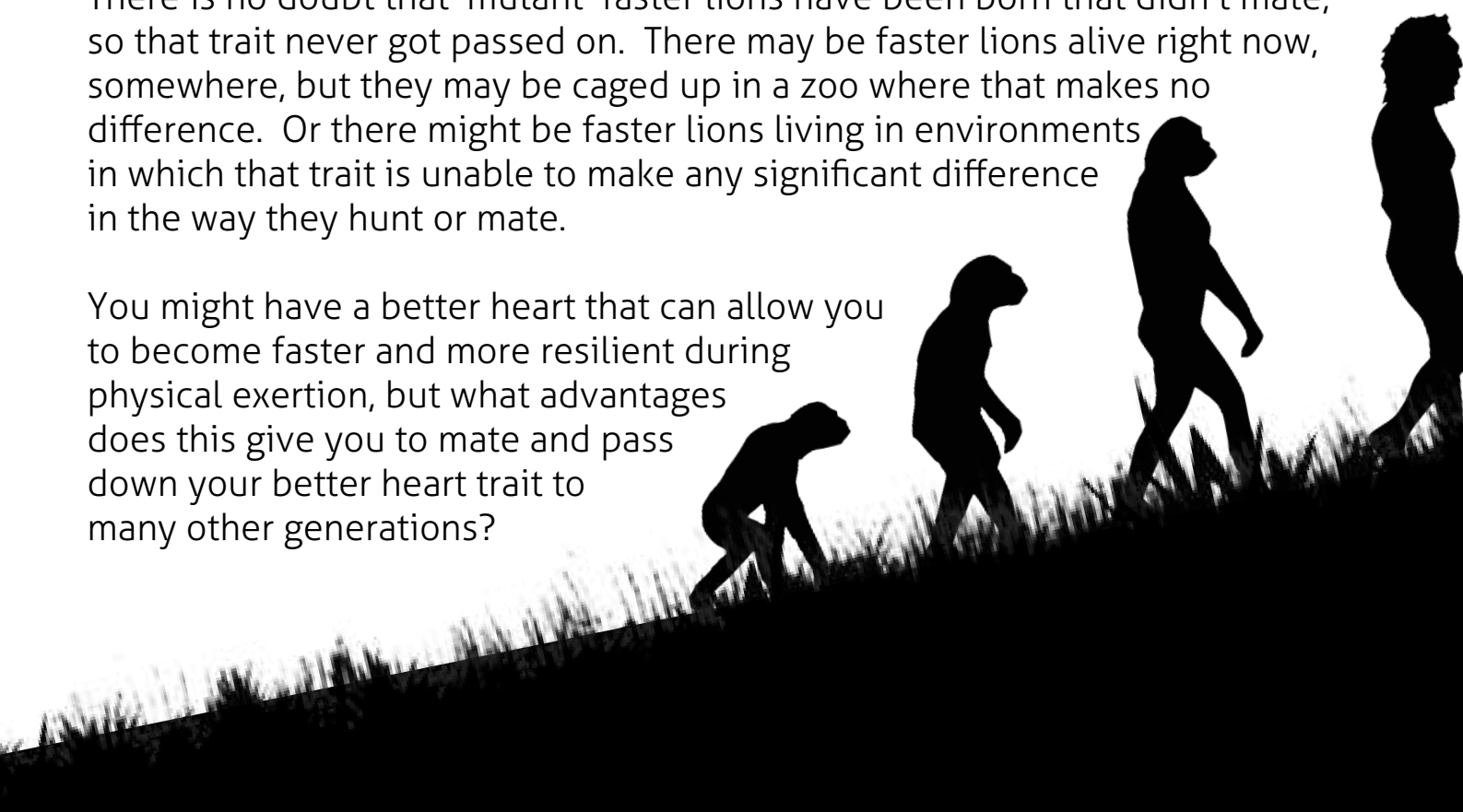
NOTHING ACTUALLY EVOLVES:

Organisms do not become smarter, stronger, or faster over generations, as these terms are merely human projections of 'progress or regress', and while they may become larger in size or more resistant to certain diseases over generations, organisms can only transform via DNA mutation or recombination. If one trait proves to be advantageous for a particular environment, and if those organisms replicate and transmit that trait to new generations, then that trait MIGHT eventually become the norm for that species. That's all there is to this, but there is no 'purpose' to it.

If a snake with 1,000 times more powerful saliva toxins is born tomorrow, then it may not mate with other snakes and that trait would never pass on. Even if it does mate, it makes no difference whatsoever to the snake population unless this new trait eventually becomes the norm, in which case we can later look at what 'forces' made this possible. In that situation, we may learn that because they are able to kill bigger prey, gaining more nutrition without hunting as often (something that may have threatened their existence), that they simply have gained opportunity to mate more often. Or it may turn out that, along with this more toxic saliva, they are slightly less 'smelly', and so a bit less detectable by other creatures that are able to eat them. Or it could be that their new trait also releases certain chemicals that make their potential partners more aroused when around them. Whatever the reasons, they are very complex and interrelated, connected with their total environment and many related circumstances that we can hardly imagine.


There is no doubt that 'mutant' faster lions have been born that didn't mate, so that trait never got passed on. There may be faster lions alive right now, somewhere, but they may be caged up in a zoo where that makes no difference. Or there might be faster lions living in environments in which that trait is unable to make any significant difference in the way they hunt or mate.

You might have a better heart that can allow you to become faster and more resilient during physical exertion, but what advantages does this give you to mate and pass down your better heart trait to many other generations?



There are people today that are born with six fingers per hand. That can prove to be a significant advantage in an era of advanced technology, right? Perhaps they type faster, better, can use tools more efficiently? Even if that is the case, this does not mean that people will choose to mate with them for their six fingers, or that they will have any real advantage in the cultures we live in today, or that this trait will become well-spread over time, just because it may prove to be a bit more advantageous.

There may be people who are immune to certain lethal viruses, but are you now more interested in mating with those people just to perpetuate their genes? Of course not. They don't really have much more advantage over others in the world we live in. Let's say that a particular virus kills 95% of the world population and only those with a certain mutated DNA (immunity) survive that plague. If the survivors never find anyone with whom to mate, or if no one wants to mate with them, or if they starve to death first, then that trait equated for nothing.

The background of the entire page is a solid bright orange. In the lower half, there are black silhouettes of a man and a woman running on a grassy hill. The man is in the foreground, running towards the left. The woman is slightly behind him, running towards the right. The grass is represented by dark, jagged silhouettes at the bottom of the frame.

More than that, if that trait does get passed on, it does not mean that humans 'evolved' in the sense of progress, it only means that the human population is now immune to that specific virus. It may be that those same humans will still be just as prone to all other diseases as they were before, and if the lethal virus hadn't killed the 95%, then the genes from those that survived wouldn't have been passed on nearly as quickly.

A trait gets pass down from generation to generation if this trait gets replicated (sex, cell division) and this process can be influenced by many environmental factors.



NOTHING REALLY ADAPTS:

When you see birds with a long beak that only eat from certain flowers that have a very narrow neck, then you might find yourself wondering how it is that they fit together so perfectly. Well, that is due to a multitude of factors: many different birds with different beaks eat pollen from flowers, and the long-beaked birds can eat from flowers with a slightly elongated neck. These birds get pollen on their beaks while they forage, and by moving from flower to flower, they unintentionally pollinate the other flowers (basically helping the longer-neck flowers have 'sex' more often), perpetuating this trait similar to how humans perpetuated the trait of wheat seeds sticking to their stalks. The flower and birds seem adapted because, over time, they have become more suited to each other by a near-random process.

There are also flowers that, some say, produce a kind of 'color' that only certain insects can see, and that they produce this color in order to attract bees to come to them, eat their nectar and get their pollen stuck to the bees' bodies so the bees will then go to other flowers and pollinate. Of course, this is exactly the opposite of reality as, similar to the birds and flowers, bees are attracted to certain kinds of lightwaves that, it just so happens, certain flowers produce (among thousands of other flowers). The bees end up eating more from those flowers which, in turn, happens to assist more replication of the flowers with that trait.

Imagine projecting the same way of thinking onto planets.

What if we say that, early in the formation of the Solar System, planet Earth moved closer to the Sun in order to produce humans? Or that Jupiter grew bigger in order to protect Earth from asteroids? Or that the Moon formed in order to create the tides? Of course those projections make no sense, as we instead look for the mechanics of such events. This is what we should do for everything we observe, and stop projecting our limited human values onto them.

Some people ask, "How do you explain that Earth is at a perfect position relative to the Sun? Isn't that too perfect? Wouldn't that explain a creator?" Well, the analysis is, again, backwards, because we are here specifically because those conditions made it possible for us to be here. It's like a pond saying: "Isn't it extraordinary that the temperature and the soil are so perfect that I can exist? Wouldn't that imply a creator?" Well, if the Sun and the soil were not the way they are, no pond could be there to ponder its existence (if only it could, of course).

99% of all species that ever existed are extinct! To call this process "adaptation" is really misleading and does not show an understanding of the process. What is happening is random circumstances and reproduction, and if the total environment does not support the configuration of the animal, it will not survive.



THE GENERAL IDEA:

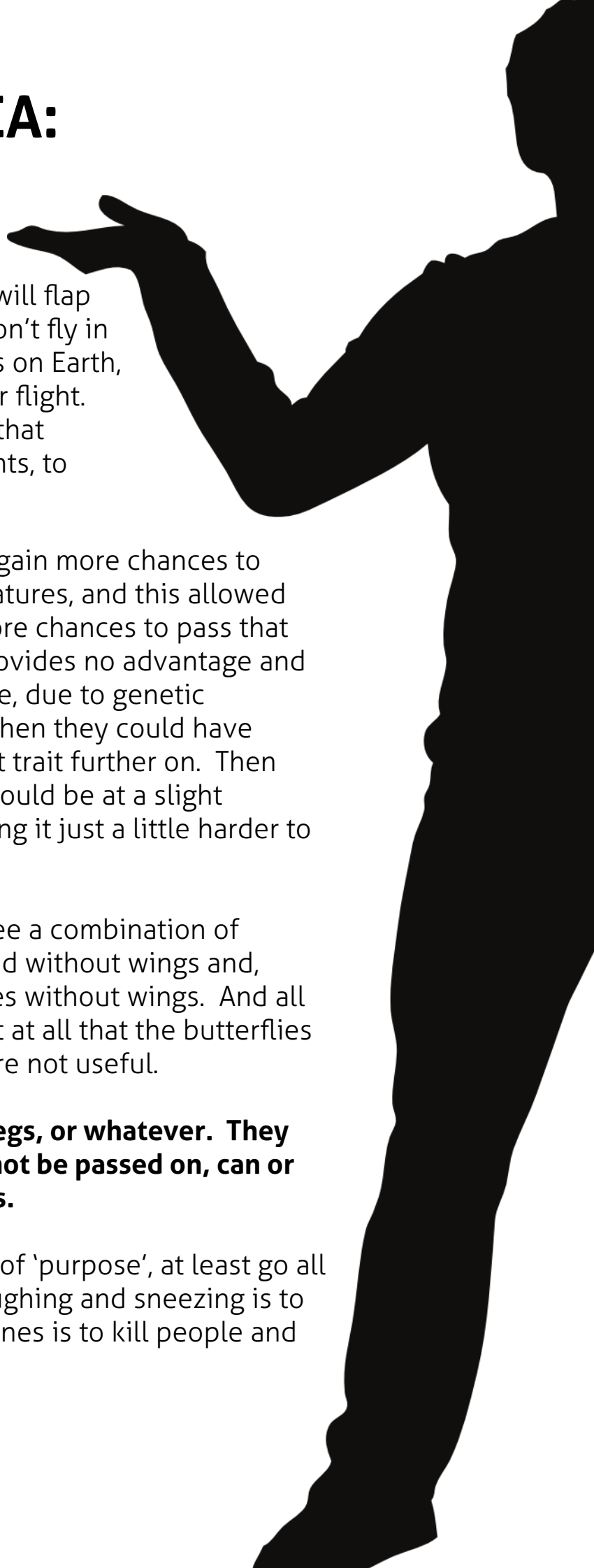
If you put butterflies in space, they will flap their wings (move them) but they won't fly in microgravity. If they flap their wings on Earth, they fly. So clearly, wings are not for flight. Wings are some parts of a butterfly that enables them, in certain environments, to move in certain ways.

On Earth, creatures with wings may gain more chances to escape being eaten by crawling creatures, and this allowed the creatures with wings to have more chances to pass that trait to others. In space, this trait provides no advantage and so, if some of the butterflies in space, due to genetic mutations, are born without wings, then they could have equal chances to mate and pass that trait further on. Then again, maybe the ones with wings would be at a slight disadvantage, with their wings making it just a little harder to mate in space.

After many generations, we might see a combination of different kinds of butterflies with and without wings and, maybe at some point, only butterflies without wings. And all because of random chances. It's not at all that the butterflies will lose their wings because they are not useful.

There is no purpose to ears, guts, legs, or whatever. They just are. And such traits can or cannot be passed on, can or cannot be useful. That's all there is.

And if you want to inject the notion of 'purpose', at least go all the way: say that the purpose of coughing and sneezing is to infect others, the purpose of hurricanes is to kill people and wipe out entire villages, and so on.





When it comes to evolution, the big confusion is what we highlighted at the beginning of the article: people tend to ask irrelevant questions. Instead of asking “Why do bees sting?”, you should ask “HOW do bees sting?” Rather than “Why did the snake attack?”, ask “How did the snake behave the way it did?” The difference that single rule makes, is huge.

To sum up the entire article, the ‘purpose’ of transmutation (evolution) is best described by the following example: There is a tubular aquatic creature that has no brain, but if you touch it, its muscles contract, creating a left-right movement. Since it’s in water, it appears to be swimming ‘away’ from you, as if it has an ‘intention’ of running away from predators. This is what happens to all creatures: They react to a multitude of stimuli and humans project their own cultural values onto these behaviors, significantly missing out on all of the science behind these events.

Transmutation happens every day and continuously creates slightly new kinds of organisms, and complexity/diversity is all about replication and time.

Once you understand the evolution of purpose, you will understand the ‘purpose’ of evolution.



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