Darwinism is a Nihilism

Research Master's Thesis in Philosophy

by Rob van de Ven

s404636

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Tilburg University

Supervisor: Prof. dr. R. H. A. (Raymond) Corbey

Second reader: Dr. A. J. P. W. (Hans) Dooremalen

The only one who knows this ounce of words is just a token
is he who has a tongue to tell that must remain unspoken

- Moondog

Preface

Let's be realistic. Just like David Hume's *Treatise of Human Nature* (1739) initially did, this thesis most likely falls "dead-born from the press, without reaching such distinction as even to excite a murmur among the Zealots" (Hume 1776). Most of the nowadays written theses mainly serve as a proof of competence, unlocking the door for the author's future career, in order to hardly become read ever after. But let me not throw in the towel in advance. Maybe a few people will briefly scan, thoroughly read or even intensely discuss this essay when finished. It might even become published, spread, reprinted, translated, a bestseller or the most influential text of the 21st century. Who knows. "Only time (whatever that may be) will tell." (Hawking 1998, p. 2)

Be that as it may, competing with other books, texts and thoughts, this thesis will have to fight its way through a struggle for attention in order to survive. It will only manage to escape oblivion for as long as it is being read, printed, copied, spoken about, etcetera. To use Derrida's term, it should remain *iterated* (Derrida 1988, p. 7) in order to continue its existence. To stay alive[1], to prevent itself from perishing, it needs to ensure that it remains being copied. To accomplish this, it will have to require a certain eloquence that will trick people into reading and spamming its content, the way a cuckoo's chick blackmails its foster-parents by persuading them to feed it. Metaphorically speaking, it continuously has to keep on shouting Multatuli's famous phrase: *'ik wil gelezen worden!'* (Multatuli 1992, p. 287) over and over again. Only for as long as this call is being heard, it will defy the struggle for existence.

[1] "Anything that can use the resources of the world to get copies of itself made is alive; the most likely form for such a thing to take is a digital message - a number, a script or a word." (Ridley 1999, p. 15)

At the moment the iteration comes to a halt – when people stop reading and copying the content – the text turns out to be a *dead-end replicator*[2] and vanishes.

Due to a scarcity of repository and available reading time, there is a differential survival among texts. Some are more popular, last longer and leave more sedimented traces than others. Persistent texts – those that provisionally endure the test of time – are more successful at being iterated than their shorter lasting competitors.[3] The reproductive success of a certain text ultimately comes at the expense of its less fortunate antagonists in the sense that they gradually become overshadowed by the growth of the prosperous one. There are only ten slots in the weekly book top 10 and, as we all know, one man's meat is another man's poison. The upcoming future will show for how long the content of this thesis will manage to keep its chin up before it clogs.

I should stop here for a minute. Before you continue reading, I owe you a warning. Nothing written in the thesis you are about to read is namely by any means true. The ideas in it do not hit on a supra-temporal Platonic truth or even make a miniscule progressive step towards it. This text neither is an explication of the way the world works, nor an attempt to convince you of my thoughts. In fact, it does not even contain *my* thoughts at all. Let me elucidate these awkwardly seeming statements before you accuse me of plagiarism or immediately commit the work to the flames like Hume suggested one should do with texts containing mere sophistry and illusion.[4]

Although the topic of this treatise is Darwinism, it should not be read as an academic disquisition, written by an autonomous subject, describing a state of affairs. An undertaking like that would namely instantly undermine Darwin's legacy, which precisely deprived man of its status as substantive *auctor intellectualis*. Instead of self-governing helmsmen steering

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[2] "A *dead-end replicator* […] is a replicator which may be copied a finite number of times, giving rise to a short chain of descendants, but which is definitely not the potential ancestor of an indefinitely long line of descendants." (Dawkins 2008, p. 83)

[3] In this respect, *the Bible* for instance might be designated as a fortunate replicator. It counts millions of copies, has been in circulation for thousands of years, has been translated into hundreds of different languages and persistently keeps on exerting a great deal of influence on current states of affairs.

[4] "If we take in our hand any volume; of divinity or school metaphysics, for instance; let us ask, *does it contain any abstract reasoning concerning quantity or number?* No. *Does it contain any experimental reasoning concerning matter of fact and existence?* No. Commit it then to the flames: for it can contain nothing but sophistry and illusion." (Hume 2005, p. 93)

their ships[5], Darwin revealed humans as subsidiary parts of a historical natural stream. He showed that a purposeless evolutionary process is responsible for the creation of all living things that have ever habituated earth. If he is right, this of course also integrally embraces me as a human being – i.e. including all the things I am, do, think, say and write. Dennett for this reason claims that:

> "All the achievements of human culture—language, art, religion, ethics, science itself—are themselves artifacts (of artifacts of artifacts ...) of the same fundamental process that developed the bacteria, the mammals, and *Homo sapiens*. There is no Special Creation of language, and neither art nor religion has a literally divine inspiration." (Dennett 1995, p. 144)

Consequently, this thesis itself becomes a cultural artifact, created by the same fundamental process that developed the bacteria, the mammals, and *Homo sapiens*. The thought that I, as an autonomous *ego cogito*, am currently writing this text hereby radically becomes undermined. Instead, it turns out that actually nature's creative ability is responsible for this thesis being written[6], with 'me' merely functioning as its spatiotemporal mouthpiece.[7] In that sense I am

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[5] "I went on to describe the rational soul, and showed that, unlike the other things of which I had spoken, it can't be derived from the powers of matter, but must be specially created as a sheer addition to the human body. The soul has been thought to be lodged in the human body like a helmsman in his ship." (Descartes 2007, p. 23)

[6] "In the case of living machinery, the 'designer' is unconscious natural selection, the blind watchmaker." (Dawkins 1986, p. 37)

[7] "'I' am not an independent conscious entity creating the ideas out of nowhere. Rather, this brain has picked up millions of memes* from all its education, reading, and long hours of thinking, and they are all fermenting in there as the fingers type." (Blackmore 1999, p. 210)

> * The term *meme* has been initiated by Richard Dawkins in his book *The Selfish Gene* (1976). It denotes a cultural unit of transmission in the evolutionary process. A *meme* is the proposed cultural counterpart to the biological *gene*. More about this subject will be said in paragraph 2. 2.

like a conduct, comparable to the rhapsode in Plato's *Ion*[8], passing on an ancient language that nature speaks *through* me.[9] In the words of the novelist David Lodge:

> "[T]here is no such thing as an author, that is to say, one who originates a work of fiction *ab nihilo*. Every text is a product of intertextuality, a tissue of allusions to and citations of other texts; and, in the famous words of Jacques Derrida […], '*il n'y a pas de hors-texte*', there is nothing outside of the text. There are no origins, there is only production, and we produce our 'selves' in language. Not '*you are what you eat*' but '*you are what you speak*' or, rather '*you are what speaks you*'." (Lodge 1989, p. 40)

Can, taking this into account, what you are reading right now rightfully said to be *true*? Since thoughts, theories and texts emerge from the workings of nature just like organisms, families and species do, they are never primarily true or false in any traditional sense of the word but rather survive or die out, depending on their ability to replicate and cope with the environment. This thesis itself will, without mercy, engage in the ongoing struggle for existence when divulged. Instantly delivered to a reckless battle, that cannot be won in the end[10], it will nevertheless vainly partake. Only retrospectively can be determined whether, and for how long, it managed to survive. At the moment I would consequently not dare to say more about the status of this scripture.[11] Darwin deprived me of the neutral ground from where to judge.[12]

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[8] In Plato's dialogue *Ion*, Socrates says to Ion: "The gift which you possess of speaking excellently about Homer is not an art, but, as I was just saying, an inspiration; there is a divinity moving you." (533d) "The rhapsode like yourself and the actor are intermediate links, and the poet himself is the first of them." (536a)

[9] Heidegger writes: "Die Sprache spricht, nicht der Mensch. Der Mensch spricht nur, indem er geschicklich der Sprache entspricht." (Heidegger 1956*,* p. 161)

[10] No matter how long this text might endure, eventually its extinction is inevitable. One day, in the near or far future, it will, like all other texts and earthly objects, become erased, ignored and/or forgotten completely. It ends up in a file shredder, all people who read it kick the bucket, the USB-stick containing the last remaining copy gets lost or ultimately the eventual *heath death of the universe* (Schneider & Sagan 2005, p. 324) will take care of the job.

[11] This remark should not be construed as some form of false modesty. It hints at a fundamental *hermeneutical difficulty* that is insurmountably linked to our existence as finite beings. To illustrate what I mean by this, look, with the thought – that 'thoughts, theories and texts emerge from the workings of nature just like organisms, families and species do' – in mind, at what Dennett writes about speciation (the process by which distinct species come into existence):

When Friedrich Nietzsche (1844–1900) announced *the death of God*[13] he rhetorically asked:

> "Wohin bewegen wir uns? […] Stürzen wir nicht fortwährend? Und rückwärts, seitwärts, vorwärts, nach allen Seiten? Gibt es noch ein Oben und ein Unten? Irren wir nicht wie durch ein unendliches Nichts?" (Nietzsche 1966, II, p. 127)

Darwin's theory of evolution answers these questions affirmatively since it reveals humans as part of a permanently changing aimless process.[14] A meandering stream without goal or progression.[15] The contingent course of evolution as described by Darwin has no fixed direction.[16] It is not teleological. Continuously, new things emerge, prevail and flourish, but

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> "Speciation can […] be seen to be a phenomenon in nature that has a curious property: you can't tell that it is occurring at the time it occurs! You can only tell much later that it has occurred, retrospectively crowning an event when you discover that its sequels have a certain property. This is not a point about our epistemic limitations – as if we *would* be able to tell when speciation occurs if only we had better microscopes, or even if we could get in a time machine and go back in time to observe the appropriate moments. This is a point about the objective property of being a speciation event. It is not a property that an event has simply by virtue of its spatio-temporally local properties." (Dennett 1995, p. 96)

[12] Dennett – without really paying further attention to it – acknowledges this same 'problem':

> "What foundation can we stand on as we struggle to keep our feet in the meme-storm in which we are engulfed? If replicative might does not make right, what is the eternal ideal relative to which 'we' will judge the value of memes? We should note that the memes for normative concepts - for *ought* and *good* and *truth* and *beauty* - are among the most entrenched denizens of our minds. Among the memes that constitute us, they play a central role." (Dennett 1995, p. 366)

[13] According to Walter Kaufmann (1921–1980), Nietzsche was "aroused from his dogmatic slumber by Darwin, much as Kant was a century earlier by Hume." (Kaufmann 1974, p. xiii)

See §125 *Der Tolle Mensch* in Nietzsche's *Die Fröhliche Wissenschaft* (1882) for the aphorism about the death of God. Dennett writes about this passage:

> "Friedrich Nietzsche saw – through the mists of his contempt for all things English – [a] cosmic message in Darwin: God is dead. If Nietzsche is the father of existentialism, then perhaps Darwin deserves the title of grandfather." (Dennett 1995, p. 62)

[14] "It is about change, change and change. Nothing stays the same forever." (Ridley 1999, p. 146)

[15] "Evolution has no pinnacle and there is no such thing as evolutionary progress." (*Ibid.*, p. 24)

[16] In his book *Wonderful Life* (1990), Stephen Jay Gould ushered the thought-experiment of 'rewinding the tape of life' (Gould 1990, p. 45). In an interview he gave after his work had been published, he said:

> "Evolution has oddly contingent pathways, and we never run the same way twice. If you could go back 500 million years and run the tape of life again, you wouldn't get human beings, and you probably wouldn't get anything conscious." (Gould 1991)

equally ruthless they subsequently diminish and perish. Nature's economy (Darwin 2006, p. 64) is without remorse. It just keeps on blindly wandering on a path heading nowhere.

Inescapably stuck in this progression-free flow, it would be hubris to claim that any of the thoughts put forward in this thesis are right, true or even slightly improving our view on reality.[17] John Gray pulls no punches:

> "In the world shown us by Darwin, there is nothing that can be called progress." (Gray 2002, p. 4)

Dennett uses the analogy of a *universal acid* – a liquid so corrosive that it will eat through anything – to denote the eroding impact of Darwin's idea on our worldview:

> "Darwin's idea […] eats through just about every traditional concept, and leaves in its wake a revolutionized world-view, with most of the old landmarks still recognizable, but transformed in fundamental ways." (Dennett 1995, p. 63)

In the revolutionized worldview affected by the corrosive power of the *universal acid* there is nothing that rightfully can be called progress. And just like Miguel de Cervantes (1547–1616) – who started his *Don Quixote* (1605) with an apology[18] – I therefore unfortunately will also not be able to counteract nature's law in this respect. No matter how much I squirm, I won't

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To this statement, Simon Conway Morris rightfully reacted by claiming that *converging trends* (Conway Morris 2001, p. 304) – reoccurring patterns – are frequently being observed in the course of evolution. In a wide range of different species, nature has come up with 'more or less' similar survival strategies. *Good tricks* in the adaptive landscape, as Dennett calls them (Dennett 1995, p. 77), have emerged again and again. This however does not refute my claim that evolution is a goalless contingent process. As Oudemans writes:

> "Zeker, er bestaat zoiets als *convergent evolution*. Het oog is misschien wel tientallen malen opnieuw ontstaan. Dat zijn terugkerende trends, telkens gemuteerd, geen universele wetmatigheden." (Oudemans 2012, p. 23)

[17] "This is who we are: smart but unquestioning Idea machines hosting an auto-evolving culture as it continues its pointless, almost imperceptible shuffle to nowhere." (Hughes 2011, p. 104)

[18] The first line of the preface to Cervantes' *Don Quixote* reads: "Idle reader: thou mayest believe me without any oath that I would this book, as it is the child of my brain, were the fairest, gayest, and cleverest that could be imagined. But I could not counteract Nature's law that everything shall beget its like."

be able to escape nature's treacherous bewitchment.[19] It is beyond my modest human capacity to make an actual leap ahead. Deviated from the appealing Enlightened path heading from ignorance to knowledge, this scripture should therefore be regarded as located on a *Holzweg* (Heidegger 1977); yet another dead-end in a shadowy forest.

> "For, in fact, what is man in nature? A Nothing in comparison with the Infinite, and All in comparison with the Nothing, a mean between nothing and everything. Since he is infinitely removed from comprehending the extremes, the end of things and their beginning are hopelessly hidden from him in an impenetrable secret; he is equally incapable of seeing the Nothing from which he was made, and the Infinite in which he is swallowed up. […] We sail within a vast sphere, ever drifting in uncertainty, driven from end to end. When we think to attach ourselves to any point and to fasten to it, it wavers and leaves us; and if we follow it, it eludes our grasp, slips past us, and vanishes forever." (Pascal 1660, pp. 13-15)

[19] Wittgenstein famously defined philosophy as being "ein Kampf gegen die Verhexung unseres Verstandes durch die Mittel unserer Sprache." (Wittgenstein 1982, p. 79) To this definition however, Cornelis Verhoeven's cautious remark should be added:

> "Het is niet bewezen, dat wie alle illusies wegneemt, een zuivere waarheid overhoudt; het kan ook zijn, dat hij niets overhoudt." (Verhoeven 1966, p. 164)

Contents

If there were no eternal consciousness in a man, if at the foundation of all there lay only a wildly seething power which writhing with obscure passions produced everything that is great and everything that is insignificant, if a bottomless void never satiated lay hidden beneath all– what then would life be but despair?

- Søren Kierkegaard

Introduction

The title of this thesis *Darwinism is a Nihilism* is a nod to Sartre's famous lecture, held in Paris, called *Existentialism is a Humanism*[20] (1946). In it, Sartre argued that the existentialist thought that man is "nothing other than what he makes of himself", ultimately is a humanistic thought since, as he claims, if one chooses for himself "he is choosing for all men" (Sartre 1946, pp. 23-24). In a similar way this essay will be an attempt to show that the Darwinian thought that all life on earth has evolved due to an indifferent mechanical process, turns out to have utterly nihilistic consequences. It deprives humans of their unique distinct status in nature, deducts their autonomy, destroys metaphysics and rejects all conceivable forms of progress.

The place of man within nature is a subject that has long been disputed in Western philosophy. Traditionally, man has been assigned a distinct status, separated from all other living organisms inhabiting earth. Interpreted as the *animal rationale*[21] – the composition of a physical (*animal*) and a metaphysical (*rational*) part – man was categorically divided from the, merely instinctive operating, non-human animals.[22] Endowed with reason, self-

[20] Original French title: *L'existentialisme est un humanisme*.

[21] Heidegger's translation of the Greek *ζῷον λόγου ἔχον* (Heidegger 2001, p. 165).

[22] "De mens was een fysisch wezen, een *animal*. Maar het echt menselijke was metafysisch: het niet aan de waarneming gebonden geestelijke of rationele dat nooit tot het fysische te reduceren was. De mens was een combinatie van fysica en metafysica: het *animal rationale* dat in staat was om zuiver te kennen en te redeneren door het animale weg te houden van het rationele." (Oudemans 2007, p. 37)

consciousness, language and culture, humans were uniquely believed to transcend the natural order. The blessing of this alleged metaphysical component enabled man to overlook, question and control nature in freedom.[23]

The above outlined traditional conception of man, which permeated throughout the whole history of Western thought[24], received a heavy blow from the writings of Charles Darwin (1809–1882). Due to the publication of his *On the Origin of Species* (1859) the categorical separation between humans and other animals imploded.[25] Darwin revealed contemporary man, not as the crown on creation, not as shaped in the image of God, not as gifted with a rational metaphysical addition, but just like all other species as one of many transient branches on an ancient tree of life. (Corbey 2005) Darwin turned man integrally into a part of an all life on earth connecting tree that grew out of the working of an indifferent directionless process which he named *natural selection*. Herewith, he lifted the veil of mystery and replaced what was once magical and miraculous with dry, cold mechanics.

This thesis is about the profound consequences of Darwin's revolutionary thought. They are so enormous that even today, more than 150 years after Darwin initially published his theory, they mainly remain underexposed.[26] The biologist Richard Dawkins opens his book *The Selfish Gene* (1976) by writing:

> "Philosophy and the subjects known as 'humanities' are still taught almost as if Darwin had never lived." (Dawkins 2006, p. 1)

Richard Rorty characterized this traditional conception of man as 'a vague but emphatic dualism of ape and essence' (Rorty 1979, p. 45).

[23] According to Descarts, "we could […] make ourselves the masters and (as it were) owners of nature" (Descartes 2007, p. 24) by making use of reason.

[24] Some illustrative examples: Descartes positioned the uniquely human rational soul (*res cogitans*) in a separate substance alongside the mechanically operating nature (*res extensa*). According to Kant man was a citizen of two worlds; he partly belonged to the *phenomenal world* (the world governed by the mechanical laws of nature) and partly to the *noumenal world* (the domain of freedom). In his *Die Grundbegriffe der Metaphysik* (1929) Heidegger characterized man as world-forming (*weltbildend*), in sharp contrast to other animals which he denoted as being merely poor in world (*weltarm*).

[25] "Nevertheless the differences in mind between man and the higher animals, great as it is, certainly is one of degree and not of kind." (Darwin 2004, p. 151)

[26] "The 'Origin of Species' introduced a mode of thinking that in the end was bound to transform the logic of knowledge, and hence the treatment of morals, politics, and religion." (Dewey 1910, p. 2) "How can such intellectual changes occur and leave philosophy what it was and where it was?"(*Ibid.*, p. v)

He is right. The immense implications that Darwin's finding entails have hitherto mainly been overlooked.[27] In a great deal of philosophical disciplines currently active, Darwin's theory is totally ignored and/or played down as irrelevant. Lots of contemporary thinkers shamelessly continue their writing as if Darwin had never lived.[28] It is remarkable to see for how long philosophical currents can live on, simply by warding off the confrontation with the *status quo* of the prevailing zeitgeist. By structurally neglecting all scientific results that might potentially falsify the foundations of your beloved philosophical position, you can keep on dwelling around in a safeguarded, immunized, bubble for years. People who happily habituate such a safe haven however – at least in my humble opinion – forsook philosophy and settled for dogma. They are like derelict vessels stuck in a dried bay, comparable to hypothetical 21st century chemists still vainly occupied with alchemy or the phlogiston theory[29]. In Oudemans' words:

> "Wie doet alsof deze wereld intact is – een *sine qua non* voor het behoud van academische of literaire filosofie – is een machinale struisvogel met een geestelijk spookhoofd in het metafysische drijfzand." (Oudemans 2007, p. 40)

This thesis will not be a vain attempt to convince those delicate souls. If one does not dare to rock the boat himself, I won't bother tipping him over.

But not only within those latitudes, I claim, aren't the far-reaching consequences of Darwin's finding fully penetrated. Also a great deal of present-day neo-Darwinian philosophers, who seem to be doing justice to Darwin's legacy by acknowledging the fact that humans are – just like all other organisms – integrally shaped by the process of natural selection, are in their disquisitions generally not going the whole nine yards. They shy away from the ultimate consequences Darwin's finding entails as soon as they come into sight. Although those philosophers accept the fact that the driving force behind evolution is "a

[27] "The exact bearings upon philosophy of the new logical outlook are […], as yet, uncertain and inchoate. We live in the twilight of intellectual transition." (Dewey 1910, p. 9)

[28] "For over a hundred years, most social scientists have refused to face the Darwinian music - preferring instead to put their fingers in their ears and sing their own 'la-la' song." (Tyler 2011, p. 17)

[29] The phlogiston theory is an obsolete scientific theory on the nature of combustion. First formulated in 1667 by the German physician Johann Joachim Bechner (1635–1682).

mindless, purposeless, mechanical process" (Dennett 1995, p. 34) which is "neither good nor evil, neither cruel nor kind, but simply callous—indifferent to all suffering" (Dawkins 1995, p. 96), they keep on preaching *humanistic values* and believing in *scientific progress*.[30]

In this thesis, I will however argue that such remarks are un-Darwinian. They are inconsistent with the Darwinian credo and testify of wishful thinking. Humanism, in all its varieties, is based on the implicit (pre-Darwinian) assumption that man occupies a reserved position amidst nature.[31] The unarticulated belief that underlies the entire humanistic tradition is that man is principally capable of determining its own destiny by taking the course of evolution into its own hands.[32] In this text however, that assumption will be disputed. Also the widely held belief that our knowledge of the world is steadily making progress over time, will be shown to be ill-founded. It simply testifies of idle romanticism to think that our apparent abilities *to be moral* and *to obtain knowledge* are excluded from the ruthless, progression-free, meandering process that Darwin initiated. The ultimate consequence of Darwinism, I claim, is *nihilism*.

Nihilism is a term that bears many connotations. It probably arose during the French Revolution. (Goudsblom 2003, p. 3) In 1799 Friedrich Heinrich Jacobi (1743–1719) used the

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[30] As an example two quotations by Dawkins that endorse this statement:

> 1. "It is possible that yet another unique quality of man is a capacity for genuine, disinterested, true altruism. […] We can […] discuss ways of deliberately cultivating and nurturing pure, disinterested altruism – something that has no place in nature, something that has never existed before in the whole history of the world. […] We, alone on earth, can rebel against the tyranny of the selfish replicators." (Dawkins 2006, pp. 200-201)
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> 2. "There is a sense in which modern science is actually better than ancient science. Not only does our understanding of the universe change as the centuries go by: it improves." (Dawkins 2006, p. 190)

[31] "Humanism is a secular religion thrown together from decaying scraps of Christian myth." (Gray 2004, p. 31)

[32] This widely shared believe lays deeply rooted within our Judeo-Christian tradition. It can already be found in Pico della Mirandola's *Oration on the Dignity of Man* (1486). In this text, God places man – described as 'a creature of indeterminate image' – in the middle of the world, and says to him:

> "We have given you, Oh Adam; no visage proper to yourself, nor any endowment properly your own, in order that whatever place, whatever form, whatever gifts you may, with premeditation, select, these same you may have and possess through your own judgment and decision. The nature of all other creatures is defined and restricted within laws which We have laid down; you, by contrast, impeded by no such restrictions, may, by your own free will, to whose custody We have assigned you, trace for yourself the lineaments of your own nature. I have placed you at the very center of the world, so that from that vantage point you may with greater ease glance round about you on all that the world contains. […] It will be in your power to descend to the lower, brutish forms of life; you will be able, through your own decision, to rise again to the superior orders whose life is divine." (Pico della Mirandola 1953, pp. 7-8)

term as *a swear word* to criticize the philosophy of Johann Gottlieb Fichte (1762–1814). (*Ibid.*) Later, the word *nihilism* became generally known because of Ivan Turgenev's (1818–1883) use of it, in his popular novel *Father and Sons* (1862).[33] Also the oeuvre of that other great Russian author, Fyodor Dostoyevsky (1821–1881), heavily revolves around the issue of nihilism.[34] Currently, the concept takes a prominent place in the existentialist / post-modern discourse. (see e.g. Brassier 2007) Martin Heidegger (1889–1976), one of the key figures within this debate, used the term *nihilism* to denote the condition wherein people forgot about 'the question of Being' (*Seinsvergessenheit*).[35] I however interpret the meaning of the word in line with the writings of Nietzsche:

> "Was bedeutet Nihilismus? – *Daß die obersten Werte sich entwerten.* Es fehlt das Ziel; es fehlt die Antwort auf das 'Warum?'" (Nietzsche 1901, XV)

Within this text, nihilism means that all universal truths and values have been shattered. It denotes the absence of any transcendental anchor point to rightfully serve as an oriental mark for our beliefs and actions. It states that there is no goal to life, no progress, no God, no incontrovertible set of morals and no absolute truth.

While the announced argument will serve as the *leitmotif* of this thesis, it should be noticed that a methodological problem will be haunting the whole text throughout. A – widely ignored – methodological matter that co-emerged with Darwin's finding. The issue namely, that anyone who tries to speak *about* nature, is prevented from doing so

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[33] In the book, the characters Pavel and Nikolai Petrovich have the following conversation about Bazarov, the protagonist of the story:

> "'He's a nihilist.' 'How's that?' asked Nikolai Petrovich, while Pavel Petrovich raised his knife in the air with a piece of butter on the end of the blade and remained motionless. 'He's a nihilist,' repeated Arkady. 'Nihilist,' said Nikolai Petrovich. 'That's from the Latin *nihil*, nothing, as far as I can tell; therefore, the word signifies a person who... acknowledges nothing?' 'Say, rather, who respects nothing,' Pavel Petrovich put in, and once again set about spreading his butter. 'Who approaches everything from a critical point of view,' observed Arkady. 'Isn't it all the same thing?' asked Pavel Petrovich. 'No, it isn't all the same thing. A nihilist is a person who doesn't bow down before authorities, doesn't accept even one principle on faith, no matter how much respect surrounds that principle.'" (Turgenev 1996, p. 16)

[34] In his novel *The Brothers Karamazov* (1880), one of the protagonists – Ivan Karamazov – famously uttered the nihilistic statement that in a world without God, everything is permitted.

[35] "In der Vergessenheit des Seins nur das Seiende betreiben – das ist Nihilismus." (Heidegger 1976, p. 155).

unambiguously because he is not an outsider, but himself included in the topic he is trying to talk about.[36]

Let me illustrate what I mean by this on the basis of what Darwin himself wrote about language in *The Descent of Man* (1871):

> "A struggle for life is constantly going on amongst the words and grammatical forms in each language. The better, the shorter, the easier forms are constantly gaining the upper hand, and they owe their success to their own inherent virtue. […] The survival or preservation of certain favoured words in the struggle for existence is natural selection." (Darwin 2004, p. 113)

The interesting – but mindboggling – thing about the above quoted passage is that what Darwin asserts in it, immediately refers back to him. Not only is he describing some process that is objectively happening out there, in nature. No. The mechanism he describes is – when he is right at least – also at work *in his own writing* at the moment he is describing it. And the same goes for me right now. In my attempt to write a disquisition on Darwinism, natural selection is itself persistently at work in my thinking and writing. I am continuously being affected by words and thoughts that are, during the realization of this text, engaged in a struggle for existence. Oudemans writes:

> "Ik ben bezet door *mind snatchers*, die mij laten dromen van een *ego cogito* als heerser over de natuur. Maar ik *ben* een slagveld van parasieten en contraparasieten, die ook nu, in deze woorden, elkaar bestrijden." (Oudemans 2012, p. 53)

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[36] Darwinism is, as Oudemans notices, the first science with the peculiar property of biting its own tail:

> "Nergens is de overbodigheid van filosofie duidelijker dan in het darwinisme. Dit is zijn eigen filosofie. Het betreft *alles* wat zich vermenigvuldigt. Daartoe behoort *ook* de darwinistische wetenschap *zelf*. Het darwinisme is de eerste wetenschap die in haar eigen staart bijt. De darwinist is product van de door hem beschreven evolutie. Wetenschappelijke waarheid is een variant daarbinnen." (Oudemans 2007, p. 154)

Speaking *about* nature (or Darwinism), as an alleged outsider, herewith becomes problematic. In Oudemans' book *In Natura* (2012) this theme has explicitly been worked out:

> "Heraclitus en Parmenides schreven *over* de natuur, *peri physeôs*. Hier wordt gesproken *binnen* de natuur, *in natura*. (Oudemans 2012, p. 9)

The thought that I am a self-employed thinking subject, capable of saying something valid about nature and the processes within, has had its day. The unscrupulous up crawling *universal acid* has dismantled "the illusion of our own authorship, our own divine spark of creativity and understanding" (Dennett 1995, p. 63). Any formerly alleged Archimedean point or safeguarded panopticon from where to speak unambiguously has become flooded by means of the Darwinian tsunami.

Last year I wrote an email to the British psychologist Susan Blackmore, author of the book *The Meme Machine* (1999). I addressed this issue to her by asking the question: "Are you yourself telling the truth in your books? Can you keep that up after having realized that your own mind itself is constantly being snatched by memes?" She was so kind to respond to my email. This is what she replied:

> "I think scientists who honestly pursue understanding by doing experiments have some firm ground on which to stand – even though scientific theories are memes. But philosophically this is tricky stuff and I am no philosopher!"

Sadly for me however, I *am* a philosopher. Or at least, that is what I am (officially) trying to become by finishing this thesis. I would be renouncing my profession from the outset if I would just be leaving the uneasy 'tricky stuff' out. The gnawing methodological problem associated with Darwin's theory – the issue that "we are not on the outside, but pieces in the very puzzle we are trying to assemble" (Schneider & Sagan 2005, p. 59) – will therefore not be ignored. It will be haunting the whole argument throughout, putting everything that is being stated constantly in perspective.[37]

Do I truly know the things that I am claiming? Might the thoughts expressed in this text perhaps not be sheer illusions fed to me by the dynamic workings of nature? By what criterion would I be able to solidify the pedantic feeling that I know better than the people I criticize? Is there actually even a substantial 'I' in all this? Or might it just be so that certain

[37] A year before his death, Darwin himself struggled with this same issue. In a letter to William Graham (1840 – 1910) he wrote:

> "[W]ith me the horrid doubt always arises whether the convictions of man's mind, which has been developed from the mind of the lower animals, are of any value or at all trustworthy. Would any one trust in the convictions of a monkey's mind, if there are any convictions in such a mind?" (Darwin 1881)

fertile *mind snatchers* are temporally taking the upper hand in the ruthless struggle for existence, while 'I' merely function as a nugatory vessel trough which they spread?

Tricky stuff indeed.

Wer gab uns den Schwamm, um den ganzen Horizont wegzuwischen?

- Friedrich Nietzsche

Chapter 1: Darwinism

1. 1 Darwin's philosophical relevance

Charles Darwin's theory of evolution by means of natural selection is no doubt one of the most groundbreaking, revolutionary scientific discoveries in the history of mankind. In his book *Darwin's Dangerous Idea* (1995) Daniel Dennett even writes:

> "If I were to give an award for the single best idea anyone has ever had, I'd give it to Darwin, ahead of Newton and Einstein and everyone else." (Dennett 1995, p. 21)

Apart from this (possibly justified) admiration, the question – to certain people – might perhaps remain why a biologist like Darwin would be of interest to a philosopher at all. Ludwig Wittgenstein for instance stated in his *Tractatus Logico-Philosophicus* (1922) that:

> "4.1122 Die Darwinsche Theorie hat mit der Philosophie nicht mehr zu schaffen als irgendeine andere Hypothese der Naturwissenschaft.
>
> 4.113 Die Philosophie begrenzt das bestreitbare Gebiet der Naturwissenschaft." (Wittgenstein 1959, p. 42)

According to the early Wittgenstein thus, the discipline of philosophy *per definition* operates on a more fundamental level than any natural science (including Darwin's) ever will. In fact, he even claims that it is the task of philosophy to delimit the playfield of science. If this were right, Darwin's theory would indeed be utterly irrelevant for philosophy in general.

It might however perhaps not come as a surprise to you that I happen to disagree with (the early) Wittgenstein on this. Aside from the fact that I think that he misjudges the task, and vastly overestimates the power, of philosophy in theorem 4.113, I also firmly object his assertion that Darwin's theory would be of no relevance for philosophy. The philosophical importance of Darwin's insight namely, unlike 'equally any other hypothesis of natural science', lays in the fact that it managed to reveal a totally new way of looking at nature as a whole. Darwin disclosed a view that had hitherto been concealed. In the preface of *The Selfish Gene* Dawkins writes:

> "Rather than propose a new theory or unearth a new fact, often the most important contribution a scientist can make is to discover a new way of seeing old theories or facts." (Dawkins 2006, p. xvi)

Darwin's work is a striking example of such an 'important contribution'. Instead of just adding a missing piece to a yet existing puzzle, it rather opened up a whole new way of seeing the world. Darwin caused, to use Thomas Kuhn's terminology, a *paradigm shift* (Kuhn 1970) – a *gestalt switch*.[38] Not only did Darwin come up with a new scientific theory; his finding moreover drastically altered the structure of the conceptual framework through which we perceive reality as such.[39] Due to this transformation, a whole new light became shed on nature, our place within, and our identity.[40]

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[38] About Nicolaus Copernicus' discovery that initiated the heliocentric worldview Kuhn writes:

> "Copernicus' innovation was not simply to move the earth. Rather, it was a whole new way of regarding the problems of physics and astronomy, one that necessarily changed the meaning of both 'earth' and 'motion.'" (Kuhn 1970, pp. 149-150)

Something similar – perhaps even more rigorous – applies to Darwin.

[39] "We all look at the world through goggles. Many of us are unaware of this fact (and those who are aware are loath to admit it), but we all perceive the world about us through tinted lenses – tinted with the ideas stored in our memories. Only by referring to the millions of ideas we have consciously and unconsciously logged in our brains can we continually make sense of the world we experience. No one has a goggles-free view of the world, because no living brain is ideas-free." (Hughes 2011, p. 3)

[40] "That the publication of the 'Origin of Species' marked an epoch in the development of the natural sciences is well known to the layman. That the combination of the very words origin and species embodied an intellectual revolt and introduced a new intellectual temper is easily overlooked by the expert." (Dewey 1910, p. 1)

The influence of Darwin's *On the Origin of Species* on philosophy is – contrary to what Wittgenstein claimed – for this reason far from irrelevant. Its impact, in fact, is so profound that the consequences of it can hardly be overseen. The Darwinian paradigm shift has ruthlessly destroyed traditional metaphysics. Numerous of conventionally accepted categorical distinctions[41] – on which entire philosophical systems have been (and are actually still being!) built – like [*animal / human*], [*instinct / ratio*], [*mechanics / intelligence*] and [*nature / culture*] simply have collapsed because of it. Also concepts that allegedly characterized our 'human specialty', such as *reason, self-consciousness, free will, language, culture, intentionality, intuition* and *dignity*, have all become affected by the corrosive power of Darwin's idea.

Darwin's finding preluded a new era. Not so much did this shift *solve* the formerly reigning philosophical disputes – like mathematical formulas –, but it rather caused them to *dissolve*, – like sugar cubes in water. A great deal of anciently chewed metaphysical 'problems' simply evaporated due to Darwin's finding. In Dewey's words: we got over them.[42] Darwin's

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[41] I say 'numerous' here, but in fact, without exaggerating I could have used the word 'all' instead. Darwin caused all apparent 'categorical distinctions' to blur. About *species*, Darwin writes:

> "No one can draw any clear distinction between individual differences and slight varieties; or between more plainly marked varieties and sub-species, and species. […] On the view that species are only strongly marked and permanent varieties, and that each species first existed as a variety, we can see why it is that no line of demarcation can be drawn between species." (Darwin 2006, p. 294)

That this impossibility to draw clear (categorical) lines of demarcation between the different *species* also applies to *concepts* in general, has later been pointed out by Wittgenstein. In his *Philosophische Untersuchungen* (1958) Wittgenstein transferred the term 'family resemblances' from the domain of biology to that of language:

> "Betrachte z. B. die Vorgänge, die wir 'Spiele' nennen. Ich meine Brettspiele, Kartenspiele, Ballspiel, Kamfspiele, usw. Was ist allen diesen gemeinsam? […] [W]enn du sie anschaust, wirst du zwar nicht etwas sehen, was *allen* gemeinsam wäre, aber du wirst Ähnlichkeiten, Verwandtschaften, sehen, und zwar eine ganze Reihe. […] Wir sehen ein kompliziertes Netz von Ähnlichkeiten, die einander übergreifen und kreuzen. Ähnlichkeiten im Großen und Kleinen. Ichkann diese Ähnlichkeiten nicht besser charakterisieren als durch das Wort 'Familienähnlichkeiten'; denn so übergreifen nd kreuzen sich die verschiedenen Ähnlichkeiten, die zwischen den Gliedern einer Familie bestehen: Wuchs, Gesichtszüge, Augenfarbe, Gang, Temperament, etc. etc. – Und ich werde sagen: die 'Spiele' bilden eine Familie." (Wittgenstein 1982, pp. 56-57).

[42] In his essay *The Influence of Darwinism on Philosophy* (1910) John Dewey wrote:

> "Old ideas give way slowly; for they are more than abstract logical forms and categories. They are habits, predispositions, deeply ingrained attitudes of aversion and preference. Moreover, the conviction persists – though history shows it to be a hallucination – that all the questions that the human mind has asked are questions that can be answered in terms of the alternatives that the questions themselves present. But in fact intellectual progress usually occurs through sheer abandonment of questions together with both alternatives they assume – an abandonment that results from their decreasing vitality and a change of urgent interest. We do not solve them: we get over

impact on philosophy can therefore best be regarded as a big sobering gesture. For this cleanup however, there are no (empirically grounded) reasons to mourn. To quote Wittgenstein: "es sind nur Luftgebäude, die wir zerstören, und wir legen den Grund […] frei, auf dem sie standen." (Wittgenstein 1982, p. 80) One of Darwin's great merits was that he did some serious, religiously inspired, *humbug* weeding.[43] So much even, that Dawkins, without taking a mince, writes in *The Selfish Gene*:

> "When you are actually challenged to think of pre-Darwinian answers to the questions 'What is man?' 'Is there a meaning to life?' 'What are we for?', can you, as a matter of fact, think of any that are not now worthless except for their (considerable) historic interest? There is such a thing as being just plain wrong, and that is what, before 1859, all answers to those questions were." (Dawkins 2006, p. 267)

That Darwin himself was aware of the fact that his finding would have such a profound effect on philosophy becomes apparent when we take a look at his personal notebooks. There he wrote revealing passages like:

> "Origin of man now proved. – Metaphysics must flourish. – He who understands baboon would do more towards metaphysics than Locke." (Darwin 1838, p. 84)

And:

> "Plato says in *Phaedo* that our 'necessary ideas' arise from the preexistence of the soul, are not derivable from experience – read monkeys for preexistence." (*Ibid.*, p. 128)

The fact that it was possible for a biologist like Darwin to give Locke and Plato a beat, indisputably falsifies Wittgenstein's theorem that philosophy limits the disputable sphere of

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> them. Old questions are solved by disappearing, evaporating, while new questions corresponding to the changed attitude of endeavor and preference take their place. (Dewey 1910, p. 19)

[43] In the next paragraph (1. 2), this statement will be further elaborated on.

natural science. It moreover proves that the Darwinian theory has way more to do with philosophy than the early Wittgenstein could have ever imagined.

Darwin's legacy exercises a great deal of influence on traditional philosophy. Its impact, although stubbornly ignored by some (Corbey 2005), is severe, and here to stay.[44] The Darwinian revolution can be impugned as an unwelcome guest – which threatens our most beloved values –, but it can also be seen as an opportunity. In our current epoch, which waved traditional metaphysics goodbye, all philosophical questions about the world, humans and their identity, have lost their conventional answers. Oudemans:

> "Wat mij tot een mens maakte raakt in de *melting pot*. (Oudemans 2007, p. 22) Mensen staan *niet centraal* in de natuur, zijn *geen onbeschreven bladen*, vormen *geen afzonderlijke species*, zijn *geen redelijke wezens*, *geen* ego cogito, *niet vrij* en *niet gelijk*." (Oudemans 2012, p. 54)

The wasteland left behind by the Darwinian blow, may serve as a fresh starting point for some serious, *up-to-date*, philosophy to take off. This is a task of which only the surface has yet slightly been scratched. Without bothering to *resist*, this thesis will be an attempt to *undergo* the corrosive working of the *universal acid*. It is only by actually daring to face this challenge, I believe, that the far-reaching consequences entailed by the newly loomed horizon may possibly come into sight.

1. 2 A strange inversion of reasoning

Before the (nihilistic) consequences entailed by Darwin's idea can be examined (chapter 2), Darwin's idea itself will first have to be explicated in order to get a grip. In this paragraph (1. 2), I will start off by saying something about the nature of the paradigm shift that Darwin's theory instantiated. Thereafter, in paragraph 1. 3, I will discuss the theory itself. The rest of

[44] Vain attempts to keep Darwinian thinking out of philosophy, cosmology, psychology, human culture, politics and religion – by appealing to some idle form of romanticism – might seem to succeed for a little while. But, as Dennett writes: "new waves of Darwinian thinking keep coming". (Dennett 1995, p. 63) "[A] certain amount of corrosive work has already been done by Darwin's dangerous idea, and can never be undone." (*Ibid.*, p. 83)

the chapter (paragraph 1. 4 and 1. 5) will be used to look at contemporary additions to, and reinterpretations of, Darwin's original theory.

Anyone who attempts to unravel the secrets of nature empirically, likely gets overwhelmed by the immense diversity, complexity and apparent harmony found during inquiry. For ages, people for that reason believed that only an intelligent designer – an unearthly mind – could have been responsible for all this magnificent fine-tuned design.[45] It was widely regarded to be "impossible to conceive that mere incogitative matter should ever produce a thinking intelligent being" (Locke 2007, p. 243). Rather obvious therefore, it seemed that the *mind* (of a creator) had come prior to *matter* (the creation). The thought that the found complexity perhaps not necessarily implied the existence of a supernatural engineering mind was generally not seriously considered.[46]

Thanks to an unorthodox idea – a "strange inversion of reasoning" (Dennett 1995, p. 65) – by Darwin however, this traditional 'mind-first' paradigm, for the first time in history, became confronted with a credible alternative.[47] In his *On the Origin of Species* Darwin claimed that life on earth as we find it today, had not always existed in its current constellation. Contra Plato, who believed that the different species were eternal, immutable and separately created[48], Darwin argued that they were transient, changeable and had developed historically:

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[45] In the literature, the attempt to deduce God's existence from the grandeur of life is called *the argument from design*. See William Paley's *Natural Theology* (1802) for perhaps the most famous and elaborately worked out version of this argument.

[46] Philosophers like Hume – in his *Dialogues Concerning Natural Religion* (1779) – and Kant – in his *Kritik der Urteilskraft* (1790) – speculated about alternatives to this traditional 'mind-first' view. Eventually they however did not take them seriously. After having flirted with some speculative possibilities, they both caved in because they "*just couldn't imagine* any other explanation of the origin of the manifest design in nature." (Dennett 1995, p. 32)

[47] Other evolutionary theories had been suggested before. Most famous is the one by Jean-Baptiste Lamarck (1744–1829). His theory however relied upon the erroneous assumption that skills, developed during organisms' lifetimes, become passed down to next generations by the mechanism of inheritance. This is not the case. His theory was therefore not a credible alternative to the traditional 'mind-first' paradigm.

[48] "The word 'species' was at one point a standard translation of Plato's Greek word for Form or Idea, *eidos*." (Dennett 1995, p. 36)

For instance in Plato's *Cratylus*, an example of his *essentialist* stance towards species can be found:

> "There is reason, I think, in calling the lion's whelp a lion, and the foal of a horse a horse; I am speaking only of the ordinary course of nature, when an animal produces after his kind, and not of extraordinary births;- if contrary to nature a horse have a calf, then I should not call that a foal but a

> "I can entertain, after the most deliberate study and dispassionate judgment of which I am capable, that the view which most naturalists entertain, and which I formerly entertained – namely, that each species has been independently created – is erroneous." (Darwin 2006, p. 4)

Darwin noticed that the entire traditional 'mind-first' paradigm suffered from a major anomaly. It namely was, what Heidegger would later be calling *onto-theological*, i.e. religion in disguise. In order to account for the complexity and harmony found in nature, all pre-Darwinian philosophers relied, – in or explicitly – on the creative force of an intelligent supernatural designer, at one stage or another. This maneuver however by no means solved, but only rather shifted the problem of how the design came about. As Dennett jocularly remarks:

> "If God created and designed all these wonderful things, who created God? Supergod? And who created Supergod? Superdupergod?" (Dennett 1995, p. 71)

The pre-Darwinian line of thought for this reason insurmountably leads to an infinite regress. Introducing 'God' as a means to explain something that you do not understand simply equals *giving up*. Measured by scientific criteria, the 'explanation' of something complex, by referring to something that is even more complex, vague or mysterious, does not count as a valid explanation at all. Being a rectilinear scientist, Darwin for that reason consistently rejected this religious road. He regarded God a *cul-de-sac*.[49]

The genius of Darwin then, consisted in the fact that he actually found a convincing way to parry this persistent creationist deadlock. He succeeded in offering a formidable

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> calf; nor do I call any inhuman birth a man, but only a natural birth. And the same may be said of trees and other things." (393b)

[49] In a letter to his friend Charles Lyell (1797–1875), Darwin wrote:

> "I would give nothing for the theory of natural selection if it requires miraculous additions at any one stage of descent… If I were convinced that I required such additions to the theory of natural selection I would reject it as rubbish." (Darwin 1911, pp. 6-7)

competitor to the conventional theological 'mind-first' paradigm.[50] This was a tremendous blessing to science since, as Dennett rightfully notices:

> "Only a theory with the logical shape of Darwin's could *explain* how designed things came to exist, because any other sort of explanation would be either a vicious circle or an infinite regress." (Dennett 1995*,* p. 70)

Instead of relying on mysterious acts of creation ('mind-first' forces) in order to account for the immense complex diversity encountered in nature, Darwin initiated a natural process capable of explaining how the different species had come about. Supported by the empirical evidence he had gathered at the Galapagos Islands during his voyage on *The Beagle*[51], he discovered a mechanism by which complex structures could emerge gradually from less advanced ones, without having to be aided by divine interventions during the procedure. This found mechanism he named *natural selection* (Darwin 2006, p. 51).

According to Darwin's theory of evolution by means of natural selection, all currently existing life forms have descended from lineages of predecessors due to a natural process that accumulates imperceptible changes over a very long lapse of time (*deep time*)[52]. Over the ages, a gigantic – all life on earth connecting – tree has grown from the working of this slowly operating process.[53] A pedigree of which the various branches represent the different species that, in the root, all share a common ancestor:

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[50] Ernst Mayr characterizes to this happening as: "the greatest intellectual revolution experienced by mankind" (Mayr 2002, p. 9).

[51] *The Beagle* was the name of the ship on board of which Darwin worked as a naturalist from 1831 to 1836.

[52] Darwin observed that life in its current consolation could only have been shaped by his proposed process of natural selection over a very long time span, i.e. millions of generations:

> "What an infinite number of generations, which the mind cannot grasp, must have succeeded each other in the long roll of years!" (Darwin 2006, p. 181)

Traditionally however, planet earth was only believed to be a couple thousand years old. In Charles Lyell's book *Principles of Geology* (1830–1833), "which the future historian will recognize as having produced a revolution in natural science" (Darwin 2006, p. 178), Darwin found the support for his theory he needed. On the basis of geographical fieldwork, Lyell had argued that the earth was not several thousands, but approximately several billions years old.

[53] Dennett summarizes Darwin's thought for this reason as:

> "Give me Order, and time, and I will give you design." (Dennett 1995, p. 221)

> "As buds give rise by growth to fresh buds, and these, if vigorous, branch out and overtop on all sides many a feebler branch, so by generation I believe it has been with the great Tree of Life, which fills with its dead and broken branches the crust of the earth, and covers the surface with its ever branching and beautiful ramifications." (Darwin 2006, p. 82)

Darwin herewith emphasized the importance of *history* as an indispensable factor for anyone attempting to make sense of living nature.[54] As Ernst Mayr writes:

> "Darwin introduced a historical perspective into science, which was absent from Newton's explanatory framework." (Mayr 2002, p. 82)

By revealing the mechanism of natural selection, it became clear that every constituting bit of life is thoroughly historical and bears the stamp of a long forgotten past. It moreover showed that a species' identity is not static, but necessarily remains inconclusive and choppy. All living things have welled up from ancient times and are still constantly evolving. This insight dealt a deathblow to Platonism; *there are no fixed essences*.[55]

Darwin put forward the controversial statement that the immense existing variety of species had *not* intendedly been shaped by the caring hand of a supernatural Father. According to Darwin, life – in its current form – was the result of *a glorious accident* (Kayzer 1993). Contrary to the prevailing 'mind-first' view, he propagated the counter intuitive idea that all the complex design in nature had bubbled from the 'bottom-up' thanks to an ancient mechanical, mindless, evolutionary process. (Dennett 1995, p. 66) Mind, according to Darwin, was therefore not *the source*, but rather *the result*, of this historical procedure.

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[54] Verhoeven stresses the importance of this finding:

> "Het historisme houdt verband met de ontdekking van de geschiedenis als een dimensie van het menselijk bestaan en van de evolutie als ontplooiing van mogelijkheden. Ieder denken dat deze dimensie mist, blijft ver van de werkelijkheid. Niemand kan zich boven de geschiedenis verheffen naar een standpunt dat kan bestaan los van de geschiedenis. Alles is in de tijd en daarmee in het uitstel. De tijd is het uitstel zelf. Alles is historisch." (Verhoeven 1967, p. 90)

[55] "[W]e shall […] be freed from the vain search for the undiscovered and undiscoverable essence of the term species." (Darwin 2006, p. 304)

The supernatural architect – whose existence had been presupposed in the traditional paradigm – herewith instantly became redundant.[56] His alleged labor was taken over by brainless mechanics. All mysterious 'top-down' working forces (denoted by Dennett as *skyhooks*[57]) formerly regarded requisite in order to explain the genesis of the complex design found in nature, could, according to Darwin's newly found theory, be substituted by natural mechanical 'bottom-up' operating processes (denoted by Dennett as *cranes*)[58]. By showing how *skyhooks* could be replaced by *cranes*, the phenomenon of life became integrated into the mechanical workings of nature.

Theodosius Dobzhansky (1900–1975) once famously wrote that "nothing in biology makes sense except in the light of evolution." (Dobzhansky 1973) In the newly formed Darwinian paradigm, *skyhooks* are therefore no longer accepted as explanatory means to account for any of the complex structures found in living nature. 'Mind-first' forces have been exposed as unwelcome religious remains. Only non-miraculous mechanical *cranes* do withstand the corrosive *universal acid*. To prevent accidentally falling back into latent forms of creationism, rectilinear Darwinists therefore tenaciously reject all conceivable forms of *skyhooks*.

Nature, that since the days of Newton had been conceived of as a giant rigid *clockwork*, appeared thanks to Darwin's finding suddenly in a new light. By laying bare "a scheme for creating Design out of Chaos without the aid of Mind" (Dennett 1995, p. 50), nature's creative ability was being exposed. In the Darwinian worldview, nature no longer

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[56] "With Darwin's natural selection at the helm, no one needed to consider what Life did next, or what it had done, or even what it was doing. Consideration was not a consideration. The mindless, ceaseless engine of natural selection would take care of the flight plan – such as it was, because, according to Darwin, it was making it all up as it went along, and there was no real purpose to the flight anyway, no confirmed destination. Life was flying just because it could fly. And God, the universe's former pilot, was out of a job." (Hughes 2011, p. 104)

[57] "*Skyhooks* are miraculous lifters, unsupported and insupportable. […] A *skyhook* is a 'mind-first' force or power or process, an exception to the principle that all design, and apparent design, is ultimately the result of mindless, motiveless mechanicity." (Dennett 1995, pp. 75-76)

[58] "A *crane,* in contrast [to a *skyhook*], is a subprocess or special feature of a design process that can be demonstrated to permit the local speeding up of the basic, slow process of natural selection, *and* that can be demonstrated to be itself the predictable (or retrospectively explicable) product of the basic process." (*Ibid.*, p. 76)

manifests itself as a static clock, but as a generative instance from which – due to a blind[59], mechanical, trial-and-error procedure – constantly new phenomena emerge:

> "Dankzij de even onverschillige als vrijgevige hand van de natuur kiezen reptielen het luchtruim, gebruiken vleermuizen sonar, worden vliegen gevangen in spinnenwebben en roepen reeënjongen om hun moeder." (Oudemans 2012, p. 57)

Within this newly looming paradigm, the human mind loses its alleged status as an external *Cartesian eye*.[60] Darwin's insight that humans are not categorically distinguished from, but an outgrowth of, living nature, radically undermines all traditional conceptions of man as an autonomous subject. If man is integrally shaped by an encompassing inhuman natural process, then nor its thoughts, nor its actions originate *causa sui*. In the paradigm ushered by Darwin, it is no longer primarily *man* who is creative, original and inventive, but *nature itself*. It is the working of the blind indifferent process of natural selection which is the genuine founding designer at work:

> "Natural selection […] is a power incessantly ready for action, and is as immeasurably superior to man's feeble efforts, as the works of Nature are to those of Art." (Darwin 2006, p. 40)

All human findings, its cultural achievements and even the most groundbreaking revolutionary 'insights' that man has accomplished over the years, therefore rightfully have to be awarded to the indifferent workings of nature, instead of the praised geniuses to which we are regularly inclined to ascribe them.[61] Ideas are never man-made. One cannot come up

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[59] The term 'blind' denotes that nature has no foresight. Nature just *does*, but it has no clue what it is doing or where it is heading.

[60] Maintaining this myth would mean; introducing a *skyhook*. See e.g. Ryle's *The Concept of Mind* (1949), Rorty's *Philosophy and the Mirror of Nature* (1979) and Dennett's *Consciousness Explained* (1991) for further elaborations on this issue.

[61] "The causes of production of great men lie in a sphere wholly inaccessible to the social philosopher. He must simply accept geniuses as data, just as Darwin accepts his spontaneous variations. For him, as for Darwin, the only problem is, these date being given, how does the environment affect them, and how do they affect the environment? Now, I affirm that the relation of the visible environment to the great man is in the main exactly what it is to the 'variation' in the Darwinian philosophy. It chiefly adopts or rejects, preserves or destroys, in short selects him. And whenever it adopts and preserves the great man, it becomes modified by his influence in

with a new idea or it is suggested to him by nature.[62] It is the process of natural selection at work that opens up niches, generates new ideas and comes up with inventive solutions. According to this view, humans are no *subjects*, but *nodes* – concentration points of significance – in a meandering natural stream.

Is it, now the traditional 'mind-first' worldview has been overthrown by Darwin's secular alternative, still conceivable that humans have the power to master their own destination? Is it possible for us to *rebel against* nature's working, like Dawkins suggests? Do we have what it takes to make the world a better place? Or are we hopelessly exposed to an indifferent course of events that we neither oversee nor control? These questions will be discussed in chapter 2.

1. 3 Evolution by means of natural selection

Now it has become clear how Darwin managed to overthrow the traditional 'mind-first' worldview, it is time to look at his theory itself. Darwin characterized his *On the Origin of Species* – the book that encompasses his theory of evolution by means of natural selection – as "one long argument" (Darwin 2006, p. 288). Let me use this paragraph to recapitulate this long argument.

Although it is probably not misplaced to regard Darwin a genius, it should be noted that he did not invent "the wonderful idea out of whole cloth all by himself" (Dennett 1995, p. 33). The idea did not fall from the sky. Conform to its own logic, Darwin's idea itself evolved. It descended from a great deal of work done by intellectual ancestors without whom Darwin could never have had the brilliant idea.[63] Or, as Hughes puts it: without

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an entirely original and peculiar way. He acts as a ferment, and changes its constitution, just as the advent of a new zoölogical species changes the faunal and floral equilibrium of the region in which it appears." (James 1880, p. 445)

[62] "Es ist immer von Gnaden der Natur, wenn man etwas weiß." (Wittgenstein 1997, p. 66)

[63] Matt Ridley names some:

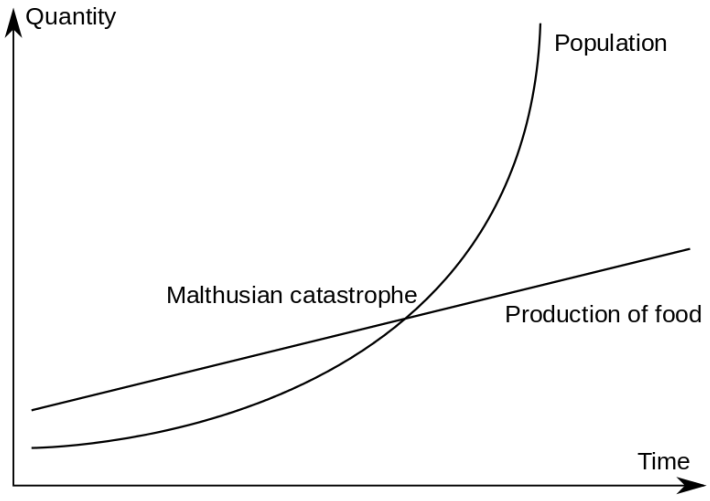
> "Thomas Hobbes was Charles Darwin's direct intellectual ancestor. Hobbes (1651) begat David Hume (1739), who begat Adam Smith (1776), who begat Thomas Robert Malthus (1798), who begat Charles Darwin (1859)." (Ridley 1996, p. 252)

whom *the idea* could never have had a brilliant Darwin.[64] One of the predecessors that left a significant deal of traces for Darwin to get affected by was Thomas Malthus (1766–1834). I will first say a few words about him, before I get to Darwin himself.

Malthus was a demographer studying the behavior of populations. In his *Essay on the Principle of Population* (1798) he stated that organisms, when unimpeded, replicate at a *geometrical* – or as we would call it today *exponential* – growth rate[65]. Since exponentially expanding populations always live on a finite amount of habitable space, with a limited quantity of available supply to feed on, Malthus calculated that the occurrence of *scarcities* eventually is inevitable. As he wrote:

> "Population, when unchecked, increases in a geometrical ratio. Subsistence increases only in an arithmetical ratio. A slight acquaintance with numbers will show the immensity of the first power in comparison of the second." (Malthus 2008, p. 13)

Plotted in a graph, Malthus' thought looks something like this:



And Dennett writes:

> "Had Darwin not had the benefit of being born into a mercantile world that had already created its Adam Smith and its Thomas Malthus, he would not have been in position to find ready-made pieces he could put together into a new, value-added product." (Dennett 1995, p. 73)

[64] "Darwin didn't have a brilliant Idea; the Idea had a brilliant Darwin." (Hughes 2011, p. 140)

[65] An exponential growth rate, stated in a mathematical function reads: $f(x) = 2^x$. The series resulting from this formula looks like: 2, 4, 8, 16, 32, 64, 128, 256 … etc.

By a simple equation, based on two ratios derived from nature, Malthus showed that the happening of shortages cannot be prevented. Regardless of the concrete situation, the lines in the graph *will* intersect.[66] No matter how massive an initial abundance might be, over time, the available resources will – due to "this great restrictive law" (*Ibid.*, p. 14) – inevitably become overtaken by the exponentially growing population. When this happens, the result is – as it is now called – a *Malthusian catastrophe*.

That a shortage induces a *catastrophe* is an insight that Malthus derived from Thomas Hobbes (1588–1679). In his *De Cive* (1654) Hobbes stated that anything that lives resists its extinction. A living entity avoiding its death, according to Hobbes, is as natural as a rock falling to the ground:

> "Every man is desirous of what is good for him, and shuns what is evill, but chiefly the chiefest of naturall evills, which is Death; and this he doth, by a certain impulsion of nature, no lesse than that whereby a Stone moves downward." (Hobbes 1987, p. 47)

In his *Leviathan* (1651), he moreover wrote:

> "If any two men desire the same thing, which nevertheless they cannot both enjoy, they become enemies; and in the way to their end (which is principally their own conservation, and sometimes their delectation only) endeavour to destroy or subdue one another." (Hobbes 1985, p. 184)

What Hobbes, in these passages, writes about man, applies to organisms in general. It is therefore not hard to see, that the combination of Hobbes' thoughts with those of Malthus, leads to a *struggle for existence* (Darwin 2006, p. 39). An excessive amount of death shunning organisms, all fighting for their share of a limited pile of resources, ultimately results in a struggle for life. When there are more organisms willing to live than the available recourses allow them to, the situation will turn into a "warre of every one against every one" (Hobbes

[66] "All other arguments are of slight and subordinate consideration in comparison of this. I see no way by which man can escape from the weight of this law which pervades all animated nature." (Malthus 2008, p. 14)

1985, p. 189) – *bellum omnium contra omnes*. This war is not something that any of the creatures wants or aims for, but rather the inevitable outcome of a purely mechanical process. Hence; *a* tragic *catastrophe*.

It was Darwin's encounter with this Malthusian insight that gave rise to his theory of natural selection. In his *Autobiography* Darwin describes how he got influenced by Malthus' work:

> "In October 1838, fifteen months after I had begun my systematic inquiry, I happened to read for amusement Malthus on Population, and being prepared to appreciate the struggle for existence which everywhere goes on, from long-continued observation of the habits of animals and plants, it at once struck me that under these circumstances favourable variations would tend to be preserved, and unfavourable ones to be destroyed. The result would be the formation of a new species." (Darwin 1958, p. 120)

Malthus had convincingly exposed the struggle for existence as an unavoidable event. As something that causes "a strong and constantly operating check on population" (Malthus 2008, p. 13). This, he perceived as a tragic catastrophe of which, even "the race of man cannot, by any efforts of reason, escape" (*Ibid*., p. 14).

Although Darwin endorsed Malthus' rather gloomy conclusion, he also caught sight of an aspect that Malthus had overlooked. Darwin namely saw that the inescapable battle – to which everything that lives is exposed – not exclusively works destructive, but also forms *a source of creation*. It occurred to Darwin that the unceasing competition that Malthus had unveiled – "nature, red in tooth and claw" (Tennyson 1849) –, could be the driving force behind an evolutionary process. Herewith, Darwin implicitly reanimated Heraclitus' ancient saying that "war is both father and king of all" – πόλεμος πάντων μεν πατήρ εστι (Heraclitus, fragment 53).

During a Malthusian catastrophe, nature blindly *selects* those who stand their ground, by indifferently letting all the rest – those who do not manage to keep up – go extinct. A continuous "tremendous destruction" (Darwin 2006, p. 44) is the result. Nature's laws are without mercy or remorse. As Dawkins writes:

> "Nature is not cruel, only pitilessly indifferent. This is one of the hardest lessons for humans to learn. We cannot admit that things might be neither good nor evil, neither cruel nor kind, but simply callous – indifferent to all suffering, lacking all purpose." (Dawkins 1995, p. 96)

Organisms that, for whatever reason, do not manage to stay alive and reproduce simply vanish.[67] Darwin however, conceived that it is not *totally* random who lives and who dies. He observed that "nature is prodigal in variety" (Darwin 2006, p. 295). All organisms – even the members of the same species – slightly differ in size, appearance, physique, speed, dexterity etcetera. It was Darwin's key insight that this variation *can*, and at times *does*, make a vital difference.

In the struggle for life, certain characteristics will – depending on the nature of the environment – turn out to be more beneficial in order to endure the battle than others. Organisms that randomly[68] happen to be equipped with those advantageous properties will, most likely, manage to survive a little longer and leave slightly more offspring than their less fortunate competitors. A battle over scarce goods between a bunch of slightly dissimilar organisms therefore leads to *differential survival*. Some will turn out to be more fortunate survivors than others, because they accidentally happen to be blessed with properties beneficial for coping with the particular environment in which they are located. The well adapted generally have the highest chance of surviving under severe circumstances. This is why Darwin's theory is often denoted by Herbert Spencer's notorious phrase *the survival of the fittest*.

The fittest – the organisms that happen to be best suited for the specific environment in which they live – statistically survive longer and leave more posterity than the competing less adapted variants.[69] Because of *the principle of inheritance* (of which the working was observed, but not understood, in Darwin's days), the traits of the individuals that successfully manage to reproduce, become passed on to next generations. Since the

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[67] "The currency used in the casino of evolution is survival." (Dawkins 2006, p. 55)

[68] Those properties are, in the words of Darwin: 'freely given and distributed by the generous hand of Nature' (Darwin 2006, p. 40).

[69] The *fitness* of an organism is therefore generally measured by its success in leaving progeny.

output (i.e. the offspring) of each 'survival round' serves as the input (i.e. the potential parents) for the next, hereditary traits accumulate over time. Over multiple generations herewith, the *apparently* appropriate traits – carried down by 'the fittest' – gradually become more numerous in the population. The amount of well-adapted organisms will, in the process of time, steadily increase, at the expense of a decreasing number of inferior ones. The identity of a population herewith never remains stable, but constantly keeps on evolving. This *evolution* happens *by means of natural selection*.

At the end of the fourth chapter of his book, Darwin summarized his theory. Let me quote the passage in its entirety:

> "If during the long course of ages and under varying conditions of life, organic beings vary at all in the several parts of their organisation, and I think this cannot be disputed; if there be, owing to the high geometrical powers of increase of each species, at some age, season, or year, a severe struggle for life, and this certainly cannot be disputed; then, considering the infinite complexity of the relations of all organic beings to each other and to their conditions of existence, causing an infinite diversity in structure, constitution, and habits, to be advantageous to them, I think it would be a most extraordinary fact if no variation ever had occurred useful to each being's own welfare, in the same way as so many variations have occurred useful to man. But if variations useful to any organic being do occur, assuredly individuals thus characterised will have the best chance of being preserved in the struggle for life; and from the strong principle of inheritance they will tend to produce offspring similarly characterised. This principle of preservation, I have called, for the sake of brevity, Natural Selection." (Darwin 2006, p. 80)

What characterizes a *fit* organism entirely depends on the nature of the environment in which it is situated. In different habitats, exposed to different selection pressures, populations can therefore evolve into all sorts of directions. Already during his trip to the Galapagos Islands, Darwin had noticed that *geographical isolation* could give rise to a wide spectrum of characteristics, appearances, and survival strategies. The different isles of the archipelago were namely populated by a variety of – significantly distinct – types of finches that all seemed to have descended from a common ancestor. Only years later, at the moment

Darwin figured out his theory of natural selection, it occurred to him that this mechanism accounted for the diversification. Impressed by the possible scope of this thought, he wrote:

> "Slow though the process of selection may be, […] I can see no limit to the amount of change, to the beauty and infinite complexity of the coadaptations between all organic beings, one with another and with their physical conditions of life, which may be effected in the long course of time by nature's power of selection." (Darwin 2006, p. 69)

This extrapolation led to Darwin's groundbreaking idea that the mechanism of natural selection had, in *deep time*, caused the *origin of* all the *species*. It sprung to his mind that, over the ages, a great tree of life had grown from the workings of nature. This meant that all the organisms that ever lived form one giant family. Not a single creature was ever created by a divine intervention. Herewith, the pressing problem of how the tremendous design we currently encounter in living nature had come about, was solved.

1. 4 The genetic book of the dead

The idea, to which Darwin gave rise, was far from 'done' at the moment he published it. It has kept on evolving ever since. Many aspects have been confirmed, deepened, revised, added and/or reinterpreted by neo-Darwinian thinkers. Perhaps the biggest contribution, that moreover heavily reinforced Darwin's original theory, came from the study of *genetics*.

As I said in the previous paragraph, the principle of inheritance was a mysterious matter in Darwin's days. Every time organisms reproduced, the phenomenon occurred, but the working of it was far from being understood. It would take until the 20th century for the riddle to be solved. This discovery would moreover drastically alter the way we perceive organisms.

Already during Darwin's lifetime, the Augustinian Gregor Mendel (1822–1884) – who did scientific experiments with pea plants – had discovered some remarkable laws governing the process of inheritance. For decades however, the importance of those results did not become recognized by the scientific community. When they finally became revived,

by Hugo de Vries (1848–1935) in the year 1900, Darwin himself had passed away already. The reevaluation of Mendel's writings led to numerous of discoveries on the working of the mechanism of inheritance in the first half of the 20th century. The fusion of those findings with Darwin's theory of evolution by means of natural selection led up to what is now called the *New Synthesis* (Huxley 1942) – of evolution and genetics.

In 1943 the physicist Erwin Schrödinger (1887–1961) gave a series of public lectures that later became bundled in the book *What is Life?* (1944). In it, Schrödinger argued that *an aperiodic crystal* (Schrödinger 1944, p. 5), that he believed to be present in every living organism, accounted for the transfer of genetic traits over the generations. According to him, this crystal carried some kind of *code-script* containing "the entire pattern of the individual's future development and its functioning in the mature state." (*Ibid.*, p. 21) Although Schrödinger coined the term 'code-script' himself, he actually considered it to be too narrow, since:

> "[These] structures are at the same time instrumental in bringing about the development they foreshadow. They are law-code and executive power – or, to use another simile, they are architect's plan and builder's craft – in one." (*Ibid.*, p. 22)

When two organisms reproduce, Schrödinger thought, the code-scripts that both of them carry around in their aperiodic crystals become mingled. The recipe that results from this mixture then, both *programs* and *crafts* the embryo. This interesting, but rather speculative, assertion encouraged Francis Crick and James Watson to start investigating the matter empirically. In 1953 they proved that Schrödinger's hypothesis had been correct. The aperiodic crystal indeed existed, and it was shaped like a double helix. This was the revolutionary discovery of DNA.

The happening of this event exposed a whole new way of looking at organisms. An organism, it turned out, consists of a *genotype* (the genetic information stored in its DNA) and a *phenotype* (the worldly appearance of the organism itself). In the literature, this distinction is often made apparent by comparing it to the *software* and the *hardware* of a computer. (Schneider & Sagan 2005, p. 169) In this analogy, every organism carries an ingenious piece of software – a digital code-script – around in its genome. This software is written in a language that can be read like a book:

> "The idea of the genome as a book is not, strictly speaking, even a metaphor. It is literally true. A book is a piece of digital information, written in linear, one-dimensional and one-directional form and defined by a code that transliterates a small alphabet of signs into a large lexicon of meanings through the order of their groupings. So is a genome." (Ridley 1999, pp. 6-7)

Unlike a regular book though, DNA is written in a language based on a four letter alphabet; A, T, C and G.[70] The information stored in the sequence of those symbols contains the recipe (the software) for both *coding* and *shaping* the phenotype (the hardware) of an organism. (Dennett 1995, p. 113) In the neo-Darwinian worldview therefore, organisms appear as cybernetic machines, programmed and built by their DNA genes.

By the discovery of DNA, it moreover became possible to read organisms' genetic encodings. This allowed scientists to empirically test Darwin's hypothesis that all life on earth stems from a common ancestor and unites into one big family tree. After investigating the matter, this indeed turned out to be the case. Darwin's view herewith became corroborated by science's most advanced measurements.

In the previous paragraph I explicated that according to Darwin's theory, (genetic) variants continuously emerge from nature's generous hand. In the struggle for life, organisms are constantly being confronted with harsh environments and put to the test. Nature persistently selects 'the fittest' by indifferently letting a great deal of unlucky ones go extinct. The recursive evolutionary process that results from this selection mechanism has been going on for approximately 3,5 billion years on our planet.

By analysing the genetic data, it became clear that the 'lines of code-script', carried down by reproducing organisms have indeed been sedimented over time. Like Darwin predicted, the traits that program for successful survival strategies accumulate due to the mechanism of natural selection. Ancient solidified experience has hereby become packed into a vast amount of genomes. Billions of years of weathered confrontation between

[70] "Whereas English books are written in words of variable length using twenty-six letters, genomes are written entirely in three-letter words, using only four letters: A, C, G and T (which stand for adenine, cytosine, guanine and thymine). And instead of being written on flat pages, they are written on long chains of sugar and phosphate called DNA molecules to which the bases are attached as side rungs." (Ridley 1999, p. 7)

persisting organisms and the hostile environments in which they were thrown, have been piled up into a giant fragmented digital library. The bodies and behaviours of the organisms crafted by this genetic software, as a result, have become functionally – or *rationally* – structured.[71]

Long dead organisms left their genetic traces to next generations. The decayed ancestors of currently living organisms are therefore, though apparently *absent*, nevertheless still *present* – in a way.[72] They still exert a great deal of impact on our contemporary era. The genes that were carried down by faraway forgotten forbears, still influence how current organisms look, act, think and perceive.[73] Contrary to the traditional view, organisms do therefore not exist as independent substances, but as ancient solidifications of preserved confrontations with the environment. About living creatures Oudemans writes:

> "Zij bestaan als gestold *over en weer* met de natuurlijke omstandigheden. Een levend wezen is niet eerst een zelfstandig zijnde dat vervolgens een relatie aangaat met zijn omgeving, maar de voortgaande geschiedenis van het één ten overstaan van het ander." (Oudemans 2012, p. 36)

By applying this view to humans, it becomes clear that Heidegger was right for criticizing Kant's famous *scandal to philosophy*. In his *Kritik der Reinen Vernunft* (1787) Kant stated that it was a scandal to philosophy and to the human intellect in general, that the existence of the

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[71] John Gray writes:

> "We look at the world through eyes of ancient mud. The old dualisms tell us that matter lacks intelligence and knowledge can exist only where there are minds. In truth, knowledge does not need minds, or even nervous systems. It is found in all living things." (Gray 2003, p. 59)

Or, put into the words of Nietzsche:

> "Es ist mehr Vernunft in deinem Leibe, als in deiner besten Weisheit." (Nietzsche 1966, II, p. 301)

[72] "Ihr habt den Weg vom Wurme zum Menshen gemacht, und vieles ist in euch noch Wurm. Einst wart ihr Affen, und auch jetzt noch ist der Mensche mehr Affe, als irgendein Affe." (Nietzsche 1966, II, p. 279)

[73] "Most certainly Hume was wrong when he wanted to derive all that is a priori from that which the senses supply to experience. Adaptation of the a priori to the real world has no more originated from 'experience' than has adaptation of the fin of the fish to the properties of water. Just as the form of the fin is given a priori, prior to any individual coping of the young fish with the water, and just as it is this form that makes possible this coping: so is it also the case with our forms of perception and categories in their relationships to our coping with the real external world by means of experience." (Lorenz 1962, p. 25)

external world had still not yet adequately been proven.[74] To this, Heidegger responded in *Sein und Zeit* (1927) by saying:

> "Der Skandal der Philosophie besteht nicht darin, daß dieser Beweis bislang noch aussteht, sondern *darin, daß solche Beweise immer wieder erwartet und versucht werden.*" (Heidegger 2001, p. 205)

According to Heidegger, humans reside *within* the world (*in-der-Welt-sein*). This means that they do not first get out of an inner sphere in which they have been proximally encapsulated; but they are – from the outset – always 'outside' in a world already discovered. (*Ibid.*, p. 62) This view nicely matches with the findings of modern genetics. Man, just like every other organism, is not primarily a *worldless subject* that subsequently connects up to an objective external world (as Kant assumed), but he exists as the solidified confrontation between both. The way an organism is structured cannot be understood without paying attention to the environment in which it originated. The white furry skin of a polar bear for instance, only makes sense in relation to the climate of its habitat. In a symbiotic feedback loop, organisms and their environments constantly shape each other.[75] Just like Leibniz' monads, organisms therefore are *mirrors* of their environments.[76] As Dawkins writes:

> "Like sandbluffs carved into fantastic shapes by the desert winds, like rocks shaped by ocean waves, camel DNA has been sculpted by survival in ancient deserts, and

[74] "Der Idealism mag in Ansehung der wesentlichen Zwecke der Metaphysik für noch so unschuldig gehalten werden (das er in der Tat nicht ist), so bleibt es immer ein Skandal der Philosophie und allgemeinen Menschenvernunft, das Dasein der Dinge außer uns (von denen wir doch den ganzen Stoff zu Erkenntnissen selbst für unsern inneren Sinn her haben) bloß auf Glauben annehmen zu müssen, und, wenn es jemand einfällt, es zu bezweifeln, ihm keinen genugtuenden Beweis entgegenstellen zu können." (Kant 1998, B XL)

[75] The botanist Michael Pollan therefore writes:

> "We're prone to overestimate our own agency in nature. Many of the activities humans like to think they undertake for their own good purposes - inventing agriculture, outlawing certain plants, writing books in praise of others - are mere contingencies as far as nature is concerned. Our desires are simply more grist for evolution's mill, no different from a change in the weather: a peril for some species, an opportunity for others. Our grammar might teach us to divide the world into active subjects and passive objects, but in a coevolutionary relationship every subject is also an object, every object a subject." (Pollan 2001, p. xxi)

[76] "[E]ach monad is a perpetual living mirror of the universe." (Leibniz 2007, p. 8)

> even more ancient seas, to yield modern camels. Camel DNA speaks - if only we could understand the language - of the changing worlds of camel ancestors. If only we could read the language, the DNA of tuna and starfish would have 'sea' written into the text. The DNA of moles and earthworms would spell 'underground'. Of course all the DNA would spell many other things as well. Shark and cheetah DNA would spell 'hunt', as well as separate messages about sea and land. Monkey and cheetah DNA would spell 'milk'. Monkey and sloth DNA would spell 'trees'. Whale and dugong DNA presumably describes very ancient seas, fairly ancient lands and more recent seas: complicated palimpsests again." (Dawkins 1998, p. 233)

Those remarks – of course – also apply to humans:

> "We are digital archives of the African Pliocene, even of Devonian seas; walking repositories of wisdom out of the old days. You could spend a lifetime reading in this ancient library and die unsated by the wonder of it." (*Ibid.,* p. 234)

Kant's alleged scandal herewith turns out to be illusory. Demanding a proof for the existence of the external world is ridiculous, since it already lays encapsulated in every fibre of your being.

The DNA that lays hidden in every genome has a grammatically structured organisation; it is *syntactical*. Since, due to natural selection, organisms survive differentially, the syntactical elements (the hereditary traits), gain a *semantic* meaning – a meaning in terms of functionality. Geneticists for this reason are able to state that 'gene X *is for* property Y'[77]. When this came to light, biological and medical studies fell into a huge momentum. Technical applications became possible that heretofore had been considered unimaginable. Today for instance, already before an embryo is born, geneticists have the capacity to diagnose certain diseases and/or abnormalities, solely by looking at its DNA code. Matt Ridley therefore writes:

[77] For instance, a certain gene is responsible for you having blue eyes.

> "Your fate is in your genes. Like a pure Augustinian, you go to heaven by God's grace, not by good works. It reminds us that the genome, great book that it is, may give us the bleakest kind of self-knowledge: the knowledge of our destiny, not the kind of knowledge that you can do something about, but the curse of Tiresias." (Ridley 1999, p. 64)

By solving the mysterious working of heredity, Darwin's theory became heavily strengthened and generally accepted in the scientific community. The discovery of DNA moreover opened up a whole new space of technological possibilities, like e.g. DNA tracking, cloning and genetic manipulation. The applications of those techniques steadily become more and more common in our daily lives. They affect and transform the world in which we live in an unprecedented way. All of this would never have been possible without Darwin's initial idea and the reversal of the worldview it instantiated.[78]

1. 5 Selfish genes and lumbering robots

Besides instantiating an enormous amount of new technical possibilities, the discovery of DNA – indirectly – also opened up a hitherto concealed perspective on life: *the gene's eye view*. This paragraph will be devoted to this reinterpretation of Darwin's original theory that was instantiated by Richard Dawkins in 1976.[79]

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[78] Without Darwin's existence though, a – more or less – similar revolution would probably eventually have happened. As Jared Diamond writes:

> "The question is whether the broad pattern of world history would have been altered significantly if some genius inventor had not been born at a particular place and time. The answer is clear: there has never been any such person. All recognized famous inventors had capable predecessors and successors." (Diamond 2005, p. 245)

Alfred Russell Wallace (1823–1913) for instance – independent from Darwin – co-discovered the mechanism of natural selection. (Wallace 1908)

[79] For the sake of brevity I should mention that Dawkins too did not come up with this view all by himself:

> "This book is largely based on […] new ideas. Their originators are acknowledged in the appropriate places in the text; the dominant figures are G. C. Williams, J. Maynard Smith, W. D. Hamilton, and R. L. Trivers." (Dawkins 2006, p. xxii)

Just like any other idea, the *gene's eye view* came about by an evolutionary process.

Life is generally not as "poore, nasty, brutish, and short" (Hobbes 1985, p. 186) as one might expect it to be in a world governed by nature's ruthless laws. Every day we encounter acts of kindness, generosity and altruism. How can these phenomena possibly exist in a world that is ruled by *dog-eat-dog* principles? This was an issue that had struck Hobbes already. In order to overcome this anomaly, he stated that man had escaped the state of nature by subduing itself to a social contract. (Hobbes 1985, p. 192) Herewith, he thought, we managed to detach ourselves from the uncompromising laws reining the animal kingdom.[80] This conviction (be it in a mutated form) later became taken over by philosophers like Rousseau, Kant, and others.

Despite how appealing this traditional 'solution' to the problem might possibly seem, Darwin made clear that man by no means transcends the natural order. We are subject to the same laws that govern the rest of the animal kingdom. Hobbes' 'solution' – the instantiation of an unnatural covenant – therefore is a *skyhook*. It does not withstand the Darwinian *universal acid*. Besides that, scientists nowadays generally agree that 'the virtue' that requires an explanation is not something exclusively human (as Hobbes believed). See the works of Frans de Waal for instance, for extensive reports on 'kind' behavior amongst primates. Also numerous kinds of other organisms commonly seem to behave altruistically. Even suicidal acts of self-sacrifice regularly happen in nature. How is it possible that these types of behavior exist in a Darwinian world?

Richard Dawkins' influential *The Selfish Gene* deals with this issue. In the first chapter, he kicks off by writing:

> "My purpose is to examine the biology of selfishness and altruism. Apart from its academic interest, the human importance of this subject is obvious. It touches every aspect of our social lives, our loving and hating, fighting and cooperating, giving and stealing, our greed and our generosity. These are claims that could have been made for Lorenz's *On Aggression*, Ardrey's *The Social Contract*, and Eibl-Eibesfeldt's *Love and Hate*. The trouble with these books is that their authors got it totally and utterly wrong. They got it wrong because they misunderstood how evolution works." (Dawkins 2006, pp. 1-2)

[80] "Thomas Hobbes […] defended the idea of a wild primordial state of humankind which was constrained or overcome by civilized behavior and society." (Corbey 2005, p. 179)

Strong words by a young biologist. The philosophers to which Dawkins is so hostile were, just like him, all occupied with the problem of altruism. In the words of Dawkins:

> "An entity […] is said to be altruistic if it behaves in such a way as to increase another such entity's welfare at the expense of its own." (Dawkins 2006, p. 4)

An altruistic organism thus – unconsciously or deliberately – undermines its own *fitness* for the benefit of others. This is a mysterious phenomenon, since it does not seem to rhyme with the Darwinian precepts. How can altruism possibly exist in a Darwinian world? Why does it not get *selected out* by natural selection?

The answer, according to the philosophers that Dawkins criticizes, is that organisms behave altruistically because that works *species-preserving*.[81] Herewith, they implicitly assumed "that the important thing in evolution is the good of the *species* (or the group) rather than the good of the individual (or the gene)." (Dawkins 2006, p. 2) This belief in *group selection* still is a persistent view. In the Dutch documentary *De Nieuwe Wildernis* (2013) for instance – a picture that gives a wonderful glimpse into the wildlife of the Oostvaardersplassen – the voiceover, during a tear-jerking image of a dying deer, says:

> "Hoe verdrietig het verlies van het leven ook is, de groep – de belangrijkste eenheid – overleeft." (De Nieuwe Wildernis 2013)

No matter how beautiful this might sound, according to Dawkins, it is utterly wrong. He states that anyone who thinks that the mechanism of natural selection cares for the good of the group does not understand how evolution works. An alleged *species-preserving function*, in the eyes of Dawkins, is just as much of a *skyhook* as Hobbes' initial social contract was. He makes this conviction apparent by writing:

[81] "What is the significance of all this fighting? In nature, fighting is such an ever-present process, its behaviour mechanisms and weapons are so highly developed and have so obviously arisen under the selection pressure of *a species-preserving function* that it is our duty to ask this Darwinian question." (my italics, Lorenz 2002, p. 20)

> "Even in the group of altruists, there will almost certainly be a dissenting minority who refuse to make any sacrifice. If there is just one selfish rebel, prepared to exploit the altruism of the rest, then he, by definition, is more likely to than they are to survive and have children. Each of these children will tend to inherit his selfish traits. After several generations of this natural selection, the 'altruistic group' will be over-run by selfish individuals, and will be indistinguishable from the selfish group." (Dawkins 2006, pp. 7-8)

Free-riders – selfish individuals that parasitically exploit the generosity of others – "prosper in the short term at the expense of altruists." (*Ibid.*, p. 8) Since natural selection is a mechanical process without foresight, organisms that act in the interest of the group will therefore ultimately lose the battle to more narcissistic types. A hunch for serving the higher good (like the preservation of the species) can, for this reason, by no means be a valid explanation for the existence of altruism. It simply does not withstand the *universal acid*:

> "Much as we might wish to believe otherwise, universal love and the welfare of the species as a whole are concepts that simply do not make evolutionary sense." (*Ibid.*, p. 2)

Altruism amongst organisms however nevertheless exists. In order to account for this behavior without having to introduce a *skyhook*, Dawkins proposes a *gestalt switch*:

> "I want to argue in favour of a particular way of looking at animals and plants, and a particular way of wondering why they do the things that they do. What I am advocating is not a new theory, not a hypothesis […], not a model […]. What I am advocating is a point of view, a way of looking at familiar facts and ideas, and a way of asking new questions about them." (Dawkins 2008, p. 1)

In the previous paragraph I explicated that since the discovery of DNA it has become possible to perceive organisms as cybernetic machines, programmed and crafted by their genes. Dawkins endorses this view. His conviction then, is that strictly speaking not *the organisms* – which he characterizes as "lumbering robots" (Dawkins 2006, p. 19) – are the

true protagonists in the evolutionary story, but the *genes*[82] that they carry inside them.[83] According to Dawkins' view, genes replicate *selfishly*, and only build organisms around them, in order to secure *their own* survival chances.[84] Like chamois, genes skip free and untrammeled down the generations, by temporally being brought together in throwaway survival machines. (*Ibid.*, p. 234) In *The Extended Phenotype* (1982), Dawkins visualizes the *gestalt switch* that he proposes:

> "We look at life and begin by seeing a collection of interacting individual organisms. We know that they contain smaller units, and we know that they are, in turn, parts of larger composite units, but we fix our gaze on the whole organisms. Then suddenly the image flips. The individual bodies are still there; they have not moved, but they seem to have gone transparent. We see through them to the replicating fragments of DNA within, and we see the wider world as an arena in which these genetic fragments play out their tournaments of manipulative skill." (Dawkins 2008, pp. 4-5)

This new way of looking at living nature makes it possible to explain how altruism came into our world without having to rely on *skyhooks*. The genes that organisms carry around in them, *at times* namely benefit from their hosts behaving altruistically. Ants, for instance, continuously sacrifice themselves. Not however because they care about the welfare of the

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[82] "One gene may be regarded as a unit that survives through a large number of successive individual bodies." (Dawkins 2006, p. 25)

[83] "Evolution works by natural selection, and natural selection means the differential survival of the 'fittest'. But are we talking about the fittest individuals, the fittest races, the fittest species, or what?" (Dawkins 2006, p. 7) "I shall argue that the fundamental unit of selection, and therefore of self-interest, is not the species, nor the group, nor even, strictly, the individual. It is the gene, the unit of heredity." (*Ibid.*, p. 11) "In sexually reproducing species, the individual is too large and too temporary a genetic unit to qualify as a significant unit of natural selection. The group of individuals is an even larger unit. Genetically speaking, individuals and groups are like clouds in the sky or dust-storms in the desert." (*Ibid.*, p. 34)

> "The selfish gene theory is Darwin's theory, expressed in a way that Darwin did not choose but whose aptness, I should like to think, he would instantly have recognized and delighted in. It is in fact a logical outgrowth of orthodox neo-Darwinism, but expressed as a novel image. Rather than focus on the individual organism, it takes a gene's-eye view of nature. It is a different way of seeing, not a different theory." (*Ibid.*, p. xv)

[84] "[T]he individual body, so familiar to us on our planet, did not have to exist. The only kind of entity that has to exist in order for life to arise, anywhere in the universe, is the immortal replicator [the gene]." (Dawkins 2006, p. 266)

group, or the preservation of the species, but because their selfish DNA – which the whole colony has in common[85] – instructs them to. Organisms that behave altruistically are therefore no unnatural heroes. They are, as it turns out, being drugged and manipulated by replicating pieces of software, that solely 'care' for their own survival advantage.[86]

Organisms, Dawkins thus conceives, are actually *slaves*, steered by *selfish genes*.[87] This view sheds a whole new light on life as such. Instead of looking at the world through our regular human eyes, Dawkins instructs us to look at it from the perspective of the genes. The genes namely, are the true masters steering the evolutionary process. They uncompromisingly 'attempt' to use the resources of the world to get themselves copied.[88] You see that I bracket the word 'attempt' here. Dawkins' anthropomorphic language to describe the genes' *selfish* behavior should namely – as he says himself – be taken with a grain of salt. Genes, just like for instance viruses, do not truly 'want' anything. They neither have feelings nor intentions. They are just molecules, containing informative pieces of digital code-script. Dawkins only uses his figurative speech, as a shortcut, to describe how natural selection works at the level of the gene – a purely mechanical process.[89]

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[85] "What is the selfish gene? It is not just one single physical bit of DNA. […] it is *all replicas* of a particular bit of DNA, distributed throughout the world." (Dawkins 2006, p. 88)

[86] "De rups die wordt uitgewoond door de larven van de parasitaire braconide wesp. [https://www.youtube.com/watch?v=vMG-LWyNcAs] De rups is de ideale kantiaan: tegen zijn neigingen in volgt hij zijn van boven ingegeven plicht tot altruïsme ten opzichte van de braconide wespen. Een ethicus *avant la lettre*." (Oudemans 2012, p. 59)

A lot more about the mechanical reduction of altruistic behavior can be said. This however lies beyond the scope of this text, which primarily is concerned with the nihilistic consequences of Darwin's thought. For detailed treatises on this matter see e.g. Dawkins' *The Selfish Gene* (1976) and Ridley's *The Origins of Virtue* (1996).

[87] Dawkins' view herewith underlines Nietzsche's conception:

> "Du wirst getan! In jedem Augenblicke! Die Menschheit hat zu allen Zeiten das Aktivum und das Passivum verwechselt, es ist ihr ewiger grammatikalischer Schnitzer." (Nietzsche 1966, I, p. 1096)

[88] Impressed by Dawkins' newly instantiated view, Ridley revised the classical biblical verse John 1:1:

> "In the beginning was the word. The word proselytised the sea with its message, copying itself unceasingly and forever. The word discovered how to rearrange chemicals so as to capture little eddies in the stream of entropy and make them live. The word transformed the land surface of the planet from a dusty hell to a verdant paradise. The word eventually blossomed and became sufficiently ingenious to build a porridgy contraption called a human brain that could discover and be aware of the word itself." (Ridley 1999, p. 11)

[89] "Personifying genes, if done with due care and caution, often turns out to be the shortest route to rescuing a Darwinian theorist drowning in muddle." (Dawkins 2006, p. xi)

To some, this newly proposed view came as an inconvenient truth. The Dutch biologist and novelist Maarten 't Hart for instance was at the conference where Dawkins for the first time presented his *Selfish Gene* theory. In his book *De Ortolaan* (1984) 't Hart writes about this event:

> "De volgende morgen hield Richard Dawkins een lezing waarin hij ons voorhield dat wij de evolutie van organismen dienden te begrijpen als de evolutie van zelfzuchtige genen. Wij, en alle andere dieren en planten waren slechts het omhulsel voor genen die zich reproduceren wilden. Wij waren de blikken auto's, de genen waren de chauffeurs." ('t Hart 1984, p. 83)

He then goes on:

> "Terwijl ik naar hem luisterde, besefte ik dat dit verhaal kon worden beschouwd als een consequent, onverbiddelijk logisch doordachte slotsom van de evolutietheorie. Het verbaasde mij dat ik het me zo aantrok, dat ik mij er met hart en ziel tegen te weer stelde, hoewel dat op zuiver (bio-)logische gronden niet goed kon. Het verwonderde mij dat ik, daar op het balkon, en neerkijkend op de met gloedvolle overtuiging pratende Dawkins, maar steeds moest denken aan wat Dokter Glas had geschreven: 'Ik was vierkant tegen het Darwinisme: ik had het gevoel dat dat alles zinloos maakte, dom, ordinair. Het mag onder geen voorwaarde waar zijn; als het waar is wil ik er niet langer bij zijn; in zo'n wereld heb ik niets te maken.' En terwijl hij maar verder praatte, vielen mij ook de woorden van Kierkegaard weer in: 'Indien er ten grondslag aan alles slechts een wild gistende macht lag die, terwijl ze zich in de duistere hartstochten wentelde, alles voortbracht, zowel het grote, als het onbeduidende, wat was het leven dan leeg en troosteloos.'" (*Ibid*., pp. 83-84)

't Hart was baffled by the nihilistic consequences that Dawkins' consistent elaboration of Darwin's initial theory entails. So much even, that he started to doubt whether he actually still wanted to live in such a world. The same thing was the case for George Price (1922–1975), who taught himself genetics in order to disprove the thesis that altruism is just genetic selfishness. Despite all his efforts however – contrary to what he had hoped for – he

indisputably proved it correct, and even made important contributions to the theory himself. This was something that he mentally could not bear. As a result, he started to lose his mind, turned to religion for solace, gave away all his possessions to the poor, and eventually committed suicide in a bare and cold London squat. (Ridley 1996, p. 19)

This unhappy ending brings us to chapter 2: Nihilism.

Let us imagine a number of men in chains and all condemned to death, where some are killed each day in the sight of the others, and those who remain see their own fate in that of their fellows and wait their turn, looking at each other sorrowfully and without hope. It is an image of the condition of men.

- Blaise Pascal

Chapter 2: Nihilism

2. 1 Can we keep 'em separated?

The word 'descent' in the title of Darwin's book *The Descent of Man* – the book that deals with the genesis of man; a subject that had been left aside in *The Origin of Species*[90] – has a twofold meaning. In the first place it means something like *origin* or *derivation*. The book tells the story how man emerged from nature. But secondly – and this is easily overlooked – the word also bears the connotation of *falling down*, *apostatizing*. By bringing out his ideas, Darwin pushed man off its alleged pedestal. He obliterated the traditional Judeo-Christian image[91], wherein man tacked between God and the animals in the *scala naturae*. This came as a shock to certain people:

[90] Only at the very end of *the Origin* Darwin wrote:

> "In the distant future I see open fields for far more important researches. Psychology will be based on a new foundation, that of the necessary acquirement of each mental power and capacity by gradation. Light will be thrown on the origin of man and his history." (Darwin 2006, p.306)

[91] "And God said, Let us make man in our image, after our likeness: and let them have dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth." (Genesis 1)

> "It is said that when the theory of evolution was first announced it was received by the wife of the Canon of Worcester Cathedral with the remark, 'Descended from the apes! My dear, we will hope it is not true. But if it is, let us pray that it may not become generally known.'" (Montagu 1942, p. 27)

The shock that Darwin's ideas induced gets a sequel in Dawkins' neo-Darwinian view. Herein, the human 'embarrassment' goes even further. Not only are we just one among many species, we moreover are temporary disposable products – *lumbering robots* – steered by mechanically copying *selfish genes*. At the end of the previous chapter I showed that, to some, this image of man is so depressing that they simply cannot bear it. Dawkins is aware of this fact. At the beginning of his *Unweaving the Rainbow* (1998), he writes:

> "A foreign publisher of my first book [*The Selfish Gene*] confessed that he could not sleep for three nights after reading it, so troubled was he by what he saw as its cold, bleak message. Others have asked me how I can bear to get up in the mornings. A teacher from a distant country wrote to me reproachfully that a pupil had come to him in tears after reading the same book, because it had persuaded her that life was empty and purposeless. He advised her not to show the book to any of her friends, for fear of contaminating them with the same nihilistic pessimism." (Dawkins 1998, p. 9)

As you see; history repeats itself. The rebuttal of uneasy truths continues. According to Dawkins however, the *nihilistic pessimism* that people deduce from his view is by no means grounded. He does not understand why the ultimate fate of the universe would affect people's personal hopes and feelings:

> "Presumably there is indeed no purpose in the ultimate fate of the cosmos, but do any of us really tie our life's hopes to the ultimate fate of the cosmos anyway? Of course we don't; not if we are sane. Our lives are ruled by all sorts of closer, warmer, human ambitions and perceptions." (*Ibid.*, p. 9)

According to Dawkins thus, the answer to the question 'what is our conception of the universe?', does not have to interfere with the question 'what is our rule of life?'. He believes that our 'close, warm, human ambitions and perception' remain unaffected by the ruthlessly up crawling *universal acid*.

A similar view was held by the theologian David Strauss (1808–1874) in his *Der Alte und der Neue Glaube* (1872). The third part of this book is devoted to the question 'wie begreifen wir die Welt?' (*Ibid.*, p. 149). Impressed by Darwin's theory of evolution by means of natural selection – which was just becoming the norm in his days –, Strauss stood up for this view on life. He acknowledged that humans came about through natural selection and share a common ancestor with the apes. In the fourth part of the book however, which deals with the question 'wie ordnen wir unser Leben?' (*Ibid.,* p. 230), he recapitalized the traditional Judeo-Christian values and prescripts, as if they totally remained unaffected by all the things he wrote before.

In the first of his four *Unzeitgemässe Betrachtungen*, Nietzsche wrote a devastating critique on Strauss' book, entitled *David Strauss: Der Bekenner und der Schriftsteller* (1871). Herein, he portrayed Strauss as a *Bildungsphilister* (Nietzsche 1966, I, p. 142) who schizophrenically 'defends' the prescriptions of the Judeo-Christian tradition, in a world that he himself acknowledges to be ruled by ruthless laws. According to Nietzsche, Strauss herewith brushed off the nihilistic conclusions that a rectilinear Darwinist actually *should* have drawn:

> **"**Mit einem gewissen rauhen Wohlbehagen hüllt er sich in das zottige Gewand unserer *Affengenealogen* und preist Darwin als einen der grössten Wohlthäter der Menschheit — aber mit Beschämung sehen wir, dass seine Ethik ganz losgelöst von der Frage: 'wie begreifen wir die Welt?' sich aufbaut. Hier war eine Gelegenheit, natürlichen Muth zu zeigen: denn hier hätte er seinen 'Wir' den Rücken kehren müssen und kühnlich aus dem *bellum omnium contra omnes* und dem Vorrechte des Stärkeren Moralvorschriften für das Leben ableiten können, die freilich nur in einem innerlich unerschrockenen Sinne, wie in dem des Hobbes, und in einer ganz anderen grossartigen Wahrheitsliebe ihren Ursprung haben müssten, als in einer solchen, die immer nur in kräftigen Ausfällen gegen die Pfaffen, das Wunder und den 'welthistorischen Humbug' der Auferstehung explodirt. Denn mit einer ächten und

> ernst durchgeführten Darwinistischen Ethik hätte man den Philister gegen sich, den man bei allen solchen Ausfällen für sich hat." (*Ibid.*, pp. 167-168)

In Nietzsche's words, Strauss drapes a "linderende Universal-Öl" (*Ibid.*, p. 171) on the "starres Räderwerk" (*Ibid.*) of nature. Against all odds, Strauss keeps on preaching classical humanistic imperatives in a Darwinian world. Nietzsche however writes:

> "[S]eine [Strauss'] Aufgabe wäre vielmehr gewesen, die Phänomene menschlicher Güte, Barmherzigkeit, Liebe und Selbstverneinung, die nun einmal thatsächlich vorhanden sind, aus seinen Darwinistischen Voraussetzungen ernsthaft zu erklären und abzuleiten: während er es vorzog, durch einen Sprung in's Imperativische sich vor der Aufgabe der *Erklärung* zu flüchten." (*Ibid.*, p. 168)

Precisely this is what Dawkins eventually did in *The Selfish Gene*. Instead of prescribing ethical imperatives, Dawkins *explained* how phenomena like human kindness, compassion, love and self-denial can exist within the (neo-)Darwinian worldview. By a *gestalt switch* he reduced altruistic behavior to Hobbes' *bellum omnium contra omnes*, reigning at the genetic level.

Dawkins too however remains a descendant of Strauss. In his eyes, our 'close, warm, human ambitions and perception' remain unaffected by the implications of Darwin's theory. In *The God Delusion* (2007) he even formulates 'his own' ethical imperatives:

> "• Do not do to others what you would not want them to do to you. • In all things, strive to cause no harm. • Treat your fellow human being, your fellow living things, and the world in general with love, honesty, faithfulness and respect." (Dawkins 2007, pp. 298-299)

The 'nihilistic' answer to the question 'what is our conception of the universe?' herewith remains totally separated from our *alleged* humane considerations. According to Dawkins, this is possible because "we [humans] are not necessarily compelled to obey [our genes] all our lives" (Dawkins 2006, p. 3) He believes that we, "alone on earth, can rebel against the tyranny of the selfish replicators." (*Ibid.*, p. 201) Because of this 'power', humans apparently

gain "a capacity for genuine, disinterested, true altruism" (*Ibid.*, p. 200) – "something that has no place in nature." (*Ibid.*, p. 201)

To this conviction, which I believe to be erroneous, the next paragraph will be devoted.

2. 2 Rebelling against replicators

In *The Selfish Gene* Dawkins observes that humans, although not distinct from the animal kingdom, have something that all other organisms lack: *culture*. We have spoken language, scripture, science, technology and lots of other things, developed to a degree that no other species has. This comes, according to Dawkins, because our brains are so well-developed that we have the power to *imitate* behaviors that we observe from others. (Dawkins 2006, p. 192)

Languages for instance, are not *genetically* inherited. The fact that I speak the Dutch language is not something that lays wired in my DNA. I 'imitated' it from my parents – and others – during my childhood. Languages have to be learned during a person's lifetime. As Deacon says, they "must pass through a narrow bottleneck: children's minds" (Deacon 1997, p. 110). Despite the fact that languages are not inherited genetically however, they are by no means *unnatural*. In fact, they seem to evolve by the process of natural selection just like biological nature does.[92] Already in the preface I cited Dennett, saying:

> "All the achievements of human culture—language, art, religion, ethics, science itself—are themselves artifacts (of artifacts of artifacts ...) of the same fundamental process that developed the bacteria, the mammals, and *Homo sapiens*." (Dennett 1995, p. 144)

In the introduction, I moreover quoted Darwin, who claimed that:

[92] "We don't *design* language at all. It 'designs' itself. Languages just change spontaneously over the course of many generations. Every effort to design a language has flopped. Languages don't just change, they *evolve*." (Deacon 1997, p. 109)

> "The survival or preservation of certain favoured words in the struggle for existence is natural selection." (Darwin 2004, p. 113)

For those reasons, Dawkins attempts to explain the existence of languages and other 'cultural' affairs without having to rely on *skyhooks*.

In the 11th chapter of *The Selfish Gene* Dawkins coins the term *meme* in order to accomplish this goal.[93] The meme denotes the cultural counterpart to the biological gene. According to Dawkins, genes are not the only replicating entities on our planet. At the moment people started imitating each other, another replicator came into existence:

> "I think that a new kind of replicator has recently emerged on this very planet. It is staring us in the face. It is still in its infancy, still drifting clumsily about in its primeval soup, but already it is achieving evolutionary change at a rate that leaves the old gene panting far behind. The new soup is the soup of human culture." (Dawkins 2006, p. 192)

Through man[94], a new branch grew on the tree of life. A *non-genetic* replicator made its appearance into the natural world. It accounts for all the cultural phenomena that we currently encounter all around us. Just like genes, memes are 'chunks of information'. Unlike genes however, they are not carried around in genomes, but lay stored in brains, books, cultural artifacts, hard disks etc. By the act of imitation, they hop from brain to brain and skip free and untrammeled down the generations. They evolve by means of natural selection, just like genes do. Some ideas or rituals are more catchy, appealing, comforting and/or functional than others. Over time, the successfully replicating memes will for this reason

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[93] "We need a name for the new replicator, a noun that conveys the idea of a unit of cultural transmission, or a unit of imitation. 'Mimeme' comes from a suitable Greek root, but I want a monosyllable that sounds a bit like 'gene'. I hope my classicist friends will forgive me if I abbreviate mimeme to meme. If it is any consolation, it could alternatively be thought of as being related to 'memory', or to the French word meme. It should be pronounced to rhyme with 'cream'." (Dawkins 2006, p. 192)

[94] To explain the working of memetics I primarily focus on humans in this paragraph, but several other species have forms of 'culture' too. As an example Blackmore mentions songbirds:

> "True imitation does occur in birds. […] Many songbirds have long traditions. The young learn what to sing by imitating their parents or neighbours. […] So we can count birdsong as a meme." (Blackmore 1999, p. 49)

become more numerous in the *meme pool* – our cultural heritage –, at the expense of less *fit* ones, that gradually go extinct.[95]

As an example to illustrate how memetic transfer works, Dennett writes:

> "A wagon with spoked wheels carries not only grain or freight from place to place; it carries the brilliant idea of a wagon with spoked wheels from mind to mind." (Dennett 1995, p. 348)

One could also take the recently popular *ALS Ice Bucket Challenge*[96] for instance as a striking example of a memetic invasion. People from all over the world suddenly started imitating each other in filming themselves while throwing a bucket filled with ice cubes over their heads. At the end of each clip, three other persons were nominated to do the same thing. The videos were put on the internet, in order to get publicly shared. Only in the time-span of a couple of days, the meme went viral, i.e. it started spreading like crazy. During the hype, a wide range of variations on the initial theme emerged. Charlie Sheen for instance threw a bucket filled with *money* over his head[97] and Patrick Stewart threw the ice cubes *in his glass of scotch* instead of over his head[98]. The meme thus evolved.

The memes cause us to read, write, dress, make fire, perform arts, do science, use contraception, and many other *seemingly* unnatural things. According to Dawkins therefore, it is due to the existence of memes, that "we, alone on earth, can rebel against the tyranny of the selfish replicators" (Dawkins 2006, p. 201) – "something that has no place in nature"

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[95] A linguistic example from Huizinga's *Homo Ludens* (1938):

> "In merkwaardige tegenstelling tot het Grieksch met zijn gevarieerde en heterogene expressie voor de spelfunctie staat nu het Latijn met eigenlijk slechts één woord, dat het gansche gebied van spel en spelen uitdrukt; *ludus*, *ludere* waarvan *lusus* slechts een afleiding is. Daarnaast staat *iocus*, *iocari*, doch met de specifieke beteekenis van scherts, grap. […] Het is opmerkelijk, dat *ludus*, *ludere* als algemeen woord voor spel, spelen in de Romaansche talen niet alleen niet overgaat, maar dat het daarin, voorzoover ik zie, zelfs nauwelijks eenig spoor achterlaat. In alle Romaansche talen, dus blijkbaar reeds in vroege periode, heeft het specifieke *iocus*, *iocari* zijn beteekenis tot die van spel, spelen verwijd, en *ludus*, *ludere* geheel en al verdrongen. De vormen zijn: Fransch *jeu*, *jouer*, Italiaansch *giuoco*, *giocare*, Spaansch *juego*, *jugar*, Portugeesch *jogo*, *jogar*, Roemeensch *joc*, *juca*. Of het verdwijnen van *ludus* aan phonetische of aan semantische oorzaken te wijten is geweest, blijve hier in het midden." (Huizinga 1952, p. 37)

[96] http://en.wikipedia.org/wiki/Ice_Bucket_Challenge

[97] https://www.youtube.com/watch?v=qat9gR5nrpM

[98] https://www.youtube.com/watch?v=Ty6-Ug1wk-0

(*Ibid.*).[99] Convinced by this fact, he calls us to 'upset our designs' by 'teaching generosity and altruism' – "something that no other species has ever aspired to" (*Ibid.*, p. 3).

What escapes Dawkins' mind – in these statements – however, is first that memes *do* have a place in nature. The whole point of coining the meme-theory was to avoid unnatural *skyhooks*. And second, that memes themselves are selfish replicators too. By the genesis of memes, we therefore by no means transcended our biological roots into some 'humanistic space of freedom' (like Dawkins assumes), but – on the contrary – remained as *slavish* as all the other organisms in nature are. Instead of *one* however, we – humans – now have *two types of* selfish *replicators* to serve. This becomes apparent when we look at how Nicholas Humphrey – who Dawkins himself cites with approval – talks about memes:

> "[M]emes should be regarded as living structures, not just metaphorically but technically. When you plant a fertile meme in my mind you literally parasitize my brain, turning it into a vehicle for the meme's propagation in just the way that a virus may parasitize the genetic mechanism of a host cell." (*Ibid.*, p. 192)

The memes replicate *selfishly*, solely 'caring' for their own survival advantage. Like viruses, they infect our brains, in order for us to spread and propagate them. This image of culture nicely matches with the view of Terrence Deacon, who also compares ideas to viruses. Instead of memes however, he calls them: *parasitic symbionts*. (Deacon 1997, p. 112) He writes:

> "We are not just a species that uses symbols. The symbolic universe has ensnared us in an inescapable web. Like a 'mind virus', the symbolic adaptation has infected us, […], we have become the means by which it unceremoniously propagates itself throughout the world." (*Ibid.*, p. 436)

According to this view – the ultimate consequence of Dawkins' meme-theory –, there is no 'independent mind' struggling to protect itself from alien and dangerous memes. (Dennett 1995, p. 365) From the outset, infestations of memes have been playing a major role in

[99] "Dawkins (1976) applies a double standard: he makes an exception for human altruism, which is claimed to be of a different order." (Corbey 2005, p. 156)

determining who or what we are. The human mind in fact, is *nothing but* a vast amount of battling memes.[100] As Blackmore writes:

> "If we take memetics seriously then the 'me' that could do the choosing is itself a memetic construct: a fluid and ever-changing group of memes installed in a complicated meme machine. The choices made will all be a product of my genetic and memetic history in a given environment, not of some separate self that can 'have' a life purpose and overrule the memes that make it up." (Blackmore 1999, pp. 241-242)

Herewith it becomes apparent that Dawkins' alleged *rebellion* is fictional. It is impossible to rebel against the tyranny of the selfish replicators, because there simply is *no one out there* to rebel.[101] The apparent opposition of 'we' versus 'replicators' that Dawkins instantiates is therefore, to use his own strong words; utterly wrong. At the end of his – otherwise marvelous – book, Dawkins unfortunately revives the classical Cartesian error by accepting a dualistic *deus ex machine*: a *skyhook* of unprecedented proportions.

By 'fixing' Dawkins' error, it becomes apparent that his entire humanistic quest falls to pieces. His call to "*teach* generosity and altruism" (Dawkins 2006, p. 3) and the ethical imperatives he wrote down in *The God Delusion* become utterly idle. Moralistic philosophers may preach whatever they please, but it does not make any difference. We are not the masters of our own destination. Nature's indifferent working is at the helm and it does not care about our feelings and hopes – at all.[102]

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[100] "[O]ur *selves* have been created out of the interplay of memes exploiting and redirecting the machinery Mother Nature has given us. […] what makes a person the person he or she is are the coalitions of memes that govern - that play the long-term roles in determining which decisions are made along the way." (Dennett 1995, pp. 367-368)

[101] "We once thought that biological design needed a creator, but we now know that natural selection can do all the designing on its own. Similarly, we once thought that human design required a conscious designer inside us, but we now know that memetic selection can do it on its own. We once thought that design required foresight and a plan, but we now know that natural selection can build creatures that look as though they were built to plan when in fact there was none. If we take memetics seriously there is no room for anyone or anything to jump into the evolutionary process and stop it, direct it, or do anything to it. There is just the evolutionary process of genes and memes playing itself endlessly out - and no one watching." (Blackmore 1999, p. 242)

[102] "Genes [and memes!] will spread by reason of pure parasitic effectiveness, as in a virus. We may think this spreading for the sake of spreading rather futile, but nature is not interested in our judgments, of futility or of anything else." (Dawkins 1999, p. 276)

2. 3 Heading nowhere

Gottfried Wilhelm Leibniz (1646–1716) famously stated that we live in the best of all possible worlds.[103] He believed that God's compassion guaranteed for this fact. Although this assumption probably sounds ridiculous to most of our contemporary secular ears, it nevertheless still lurks in the background of our current epoch. The idea that evolution, in the course of time, leads up to optimization and perfection – and thus gradually walks into the direction of the best of all possible worlds – is a persistent one.

By reading Darwin's writings it becomes apparent that he was still under the spell of Leibniz' legacy. In *On the Origin of Species* Darwin wrote passages like:

> "Recent forms are generally looked at as being, in some vague sense, higher than ancient and extinct forms; and they are in so far higher as the later and more improved forms have conquered the older and less improved organic beings in the struggle for life." (Darwin 2006, p. 298)

> "The inhabitants of each successive period in the world's history have beaten their predecessors in the race for life, and are, in so far, higher in the scale of nature; and this may account for that vague yet ill-defined sentiment, felt by many palæontologists, that organization on the whole has progressed." (*Ibid.*, p. 216)

And:

> "[A]s natural selection works solely by and for the good of each being, all corporeal and mental endowments will tend to progress towards perfection." (*Ibid.*, p. 307)

He ended his book with the famous line:

[103] "Now, since in the ideas of God there is an infinity of possible universes, and since only one can exist, there must be a sufficient reason for God's choice of that one—a reason that leads him to choose one rather than some other of the possible universes. And this reason can only be found in the *suitability* or *degrees of perfection* that these worlds contain, with each possible world's right to claim existence being proportional to the perfection it contains. And that is the reason for the existence of the best, which God's wisdom brings him to know, his goodness brings him to choose, and his power brings him to produce." (Leibniz 2007, p. 8)

> "There is grandeur in this view of life, with its several powers, having been origionally breathed into a few forms or into one; and that, whilst this planet has gone cyling on according to the fixed law of gravity, for so simple a beginning endless forms most beautiful and most wonderful have been, and are being, evolved." (*Ibid.*, p. 307)

As you see; words like 'higher', 'lower', 'more or less improved', 'progress' and 'perfection' are omnipresent in Darwin's work. This is so because he believed that evolution, be it 'in some vague sense', gradually progresses over time. In line with the traditional image of the 'scale of nature' – the Great Chain of Being, in which God is placed on top and inanimate matter at the bottom (Dennett 1995, p. 64) – Darwin speaks of 'higher' and 'lower' animals.

In this paragraph I will however argue that those statements are – although they were written down by Darwin himself – actually *un-Darwinian*. They do not stroke with Darwin's core idea, namely that natural selection is a – non-teleological – ruthless meandering process that keeps on heading *nowhere*. The passages that I just quoted illustrate that the classical picture of the *scala naturae* was still bewitching Darwin's mind. This, while nature's hierarchical structure actually had just been abolished by his own theory.[104] Speaking of 'higher' and 'lower' organisms can by no means be substantiated in a truly Darwinian worldview. As Ernst Mayr writes:

> "Are not vertebrates and angiosperms (flowering plants) more highly evolved, more progressive, than 'lower' animals and plants, and bacteria? […] The answer is 'No', because most evolutionary changes are dictated by the need to cope with current temporary changes of the physical and biotic environment. Hence, considering also the enormous frequency of extinction and the occurrence of regressive evolution, it is inevitable that one must reject the notion of universal progress in evolution." (Mayr 2002, p. 235)

[104] "On the one hand, Darwin developed a theory of transmutation by blind, strictly accidental variation and selective retention of features which are advantageous for survival, rather than seeing nature as an unfolding of a predetermined structure and hierarchy. […] On the other hand, however, there are quite a few passages in his writings where he uses high/low metaphors himself, and speaks of progress and human worthiness." (Corbey 2005, p. 67)

All organisms that ever lived on earth form one giant family. They all stem from a common ancestor. 'Higher' and 'lower' are concepts that do not apply to the tree of life. The only thing that matters in the course of evolution is whether organisms – in specific environments – survive or not.[105]

One could argue, like Darwin does, that 'the inhabitants of each successive period in the world's history have beaten their predecessors in the race for life' and are, for that reason, *better adapted*, *more advanced* or *further developed* than their ancestors were. This assumption however is erroneous for two reasons. Firstly, because organisms do not necessarily become *higher developed* in the course of time. In nature, species can be found that have barely changed for over more than 100 million years.[106] At times in fact, natural selection even filters out rudimentary organs – making organisms *less advanced*.[107] And secondly, even if a child turns out to be *further developed* (measured by whatever criterion), and for that matter *better adapted* than its parents were, then that by no means implies that progress – in an absolute sense – has been made. Not only the species, but also the climates and environments in which they live namely gradually change. What counts as a magnificently advanced survival strategy in one environment, might turn out to be a burden in another:

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[105] "In Charles Darwin's bottom-up approach, the traditional view of nature as a hierarchy, created and ruled by divine providence, was replaced by that of nature as random competition, red in tooth and claw. Design was substituted by chance, meaning by matter, and the traditional metaphor of a scale or ladder of nature by that of the branching tree of life." (Corbey 2005, p. 65)

[106] "[W]e vind the so-called living fossils – certain species of animals and plants that have not visibly changed in more than 100 million years. This includes the horseshoe crab (*Limulus*; Triassic), the fairy shrimp (*Triops*), and the lampshell (*Lingula*; Silurian). Equally long-lived genera have been found among plants: *Gingko* (dating to the Jurassic), *Araucaria* (probably Triassic), *Equisetum* (mid-Permian), and *Cyas* (*Primo-Cycas*; late Permian)." (Mayr 2002, p. 215)

[107] "It is well known that several animals, belonging to the most different classes, which inhabit the caves of Styria and of Kentucky, are blind. In some of the crabs the foot-stalk for the eye remains, though the eye is gone; the stand for the telescope is there, though the telescope with its glasses has been lost. As it is difficult to imagine that eyes, though useless, could be in any way injurious to animals living in darkness, I attribute their loss wholly to disuse. In one of the blind animals, namely, the cave-rat, the eyes are of immense size; and Professor Silliman thought that it regained, after living some days in the light, some slight power of vision. In the same manner as in Madeira the wings of some of the insects have been enlarged, and the wings of others have been reduced by natural selection aided by use and disuse, so in the case of the cave-rat natural selection seems to have struggled with the loss of light and to have increased the size of the eyes; whereas with all the other inhabitants of the caves, disuse by itself seems to have done its work." (Darwin 2006, p. 87)

> "Overleven of sterven is van toevalligheden afhankelijk. *A grain in the balance will determine which individual shall live and which shall die.* Het resultaat van natuurlijke selectie is vaak irrationeel, *abhorrent to our ideas of fitness.* […] Vroegere aanpassingen worden irrationeel: ijsberen bewonen de ontdooide Noordpool. Egels rollen zich op tegen aanstormend rubber." (Oudemans 2012, p. 52)

The evolutionary process overall, is therefore not progressive. Without foresight, it keeps on wandering *wie durch ein unendliches Nichts*. This implies that we do not inhabit Leibniz' alleged best possible world. The world in which we live came about through a vast series of radically contingent events. It contains lots of *irrational* historical remains – or QWERTY phenomena[108], as they are sometimes called in the literature. As a striking example of such an irrational remainder, Dawkins mentions the laryngeal nerve in the neck of a giraffe that takes a detour of 15 feet.[109] Which rationally operating designer would have ever built such a cumbersome construction? The answer is obvious: none would. Natural selection is a clumsy, inefficient and wasteful designer. It does not create *perfect* designs, but merely ones that are 'just good enough' to stand the test of time – for a little while. When the environmental conditions shift, the designs change, but this does not mean that they, by any means, *improve*.

The nihilistic message to be drawn from this reflection is that we do not inhabit a righteous world that a caring Creator has set up for us. On the contrary, we dwell around in an indifferent universe that does not care about our presence or wellbeing at all. The human condition, to put it in the words of Albert Camus (1913–1960), is *an absurd* one. Like the

[108] "The top row of alphabetic keys of the standard typewriter reads QWERTY. For me this symbolizes the way in which technology can all to often serve not as a force for progress but for keeping things stuck. The QWERTY arrangement has no rational explanation, only a historical one. It was introduced in response to a problem in the early days of the typewriter: They keys used to jam. The idea was to minimize the collision problem by separating those keys that followed one another frequently…. Once adopted, it resulted in many millions of typewriters and … the social cost of change … mounted with the vested interest created by the fact that so many fingers now knew how to follow the QWERTY keyboard. QWERTY has stayed on despite the existence of other, more 'rational' systems." (Papert 1980, p. 33)

[109] "In a person, the route taken by the recurrent laryngeal nerve represents a detour of perhaps several inches. But in a giraffe, it is beyond a joke – many feet beyond – taking a detour of perhaps 15 feet in a large adult!" (Dawkins 2009, p. 360)

ancient Greek hero Sisyphus we keep on rolling[110], without making any progress over time. Our situation is that of the Red Queen, in Lewis Carroll's *Through the Looking Glass* (1871), who has to keep running as fast as she can, in order to stay right at the spot where she started off. (Carroll 1871, pp. 39-42) Life keeps on evolving, just because it does, but it isn't improving nor heading anywhere.

In this paragraph I underlined the words by John Gray that I cited earlier:

> "In the world shown us by Darwin, there is nothing that can be called progress." (Gray 2002, p. 4)

In another book, Gray however writes:

> "The reality of scientific progress cannot be seriously disputed – it is demonstrated by the fact of increasing human power." (Gray 2004, p. 75)

This latter statement clearly conflicts with his former one.[111] Nevertheless, it probably sounds very appealing to many. Can the intellectual progress that man has accomplished over the years seriously be disputed? Don't we currently have a far better view on reality than we did, say, a thousand years ago? Is it not an indisputable fact that our human power has increased because of our most advanced scientific endeavors? My answer is: no. As Oudemans says:

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[110] According to an ancient Greek myth, the Gods condemned Sisyphus to the task of endlessly keeping on rolling a huge stone up a mountain:

> "At the very end of his long effort measured by skyless space and time without depth, the purpose is achieved. Then Sisyphus watches the stone rush down in a few moments toward that lower world whence he will have to push it up again toward the summit. He goes back down to the plain." (Camus 1955, p. 76)

Sisyphus' situation, according to Camus, resembles the condition of man. We keep on living, but we are not heading anywhere. We do not make any progression over time. Life is a futile endavour:

> "This universe henceforth without a master seems to him neither sterile nor futile. Each atom of that stone, each mineral flake of that night-filled mountain, in itself forms a world. The struggle itself toward the heights is enough to fill a man's heart." (*Ibid.,* p. 78)

[111] The fact that Gray contradicts himself is something that – probably – does not bother him. He writes:

> "A contradiction to itself, the human animal cannot do without one." (Gray 2002, p. 199)

> "Wil ik geloven in groei, dan *moet* ik verkeren in een roes, die mij mijn eindigheid binnen de natuur laat vergeten." (Oudemans 2012, p. 45)

This statement applies to our apparent knowledge, just as much as it does to the rest of the evolutionary process. This issue will be elaborated in the next paragraph.

2. 4 Science's success

Science is a practice that has brought us lots of beautiful things; cars, computers, mobile phones, power plants, the internet, antidotes to deadly diseases, genetically manipulated crops, and what not. By great minds like Galilei, Newton, Einstein, Darwin and many others – again and again – new spaces of theretofore unprecedented possibilities have been opened up. Thanks to the benefits of contemporary science, we are capable of a tremendous amount of practices that lay beyond the scope of any other species on earth. The current pragmatic success of the scientific method can therefore hardly be disputed.

The question I would like to raise in this paragraph however, is whether this implies that we are gradually becoming "the masters and (as it were) owners of nature" (Descartes 2007, p. 24). I moreover wonder whether scientific discoveries actually provide us a *better*, or *deeper*, insight into reality. Does our knowledge about the world progress over time? Are we, due to our scientific endeavors, getting closer to – as Stephen Hawking metaphorically calls it – "knowing the mind of God" (Hawking 1998, p. 191)? Or might those appearances perhaps just be sheer illusions?

In the introduction I cited Dawkins, who writes:

> "There is a sense in which modern science is actually better than ancient science. Not only does our understanding of the universe change as the centuries go by: it improves." (Dawkins 2006, p. 190)

According to Dawkins thus, science truly progresses as the centuries go by. Not only was Newton's view on nature *different* from that of Aristotle; it was *better*. Since (good) science

improves our view on reality, and religions and pseudo-sciences do not, Dawkins preaches the former and denounces the latter. In *The God Delusion* he writes:

> "If the demise of God will leave a gap, different people will fill it in different ways. My way includes a good dose of science, the honest an systematic endeavour to find out the truth about the real world." (Dawkins 2007, p. 405)

In his eyes, 'a good dose of science' provides us the truth about the *real* world. A couple of pages later, in the same book, this conviction however becomes less apparent. There he writes:

> "'Really' isn't a word we should use with simple confidence. If a neutrino had a brain which had evolved in neutrino-sized ancestors, it would say that rocks 'really' do consist mostly of empty space. We have brains that evolved in medium-sized ancestors, who couldn't walk through rocks, so our 'really' is a 'really' in which rocks are solid. 'Really for an animal, is whatever its brain needs it to be, in order to assist its survival. And because different species live in such different worlds, there will be a troubling variety of 'reallys'." (*Ibid.*, p. 416)

The *real* world about which we can find the truth according to Dawkins thus, turns out *not* to be – to use Kant's phrase – *das Ding an sich*[112], but *a construct* that has been shaped by the process of natural selection, in order to serve our survival.[113] This means that the world as it

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[112] "Ich […] sage: es sind uns Dinge als außer uns befindliche Gegenstände unserer Sinne gegeben, allein von dem, was sie an sich selbst sein mögen, wissen wir nichts, sondern kennen nur ihre Erscheinungen, d. i. die Vorstellungen, die sie in uns wirken, indem sie unsere Sinne affizieren. Demnach gestehe ich allerdings, daß es außer uns Körper gebe, d. i. Dinge, die, obzwar nach dem, was sie an sich selbst sein mögen, uns gänzlich unbekannt, wir durch die Vorstellungen kennen, welche ihr Einfluß auf unsre Sinnlichkeit uns verschafft, und denen wir die Benennung eines Körpers geben, welches Wort also bloß die Erscheinung jenes uns unbekannten, aber nichtsdestoweniger wirklichen Gegenstandes bedeutet." (Kant 1920, pp. 43-44)

[113] "What we see of the real world is not the unvarnished real world but a *model* of the real world, regulated and adjusted by sense data – a model that is constructed so that it is useful for dealing with the real world. The nature of that model depends on the kind of animal we are. […] The general form of the mind model […] is an adaptation to the animal's way of life, no less than its wings, legs and tail are." (Dawkins 2007, pp. 416-417)

Dawkins' claim that the *models* are shaped in order to assist *the animals*' survival chances is carelessly formulated. By taking the *gene's/meme's eye view*, it becomes apparent that the *models* actually only 'care' about *their own* survival

appears to us, is not *the* real world, but just *a* world – one out of a troubling variety of possible 'reallys'. Insight into reality *as such* is something that even science cannot yield. Scientists necessarily remain bounded to the *model* – the perspective – that was addressed to them by nature's generous hand.[114] It is therefore that Nietzsche writes: "es gibt […] kein Entrinnen, keine Schlupf- und Schleichwege in die *wirkliche Welt*!" (Nietzsche 1966, I, p. 1092)

Following this line of reasoning, Oudemans writes:

> "De vraag of wetenschappelijke theorieën *waar* zijn, wanneer dat wil zeggen of ze de natuur zelf in het vizier hebben, is even filosofisch als irrelevant. Een wetenschappelijke gedachte wordt geconfronteerd met de werkelijkheid. Hoe gebeurt dat? Via de ervaring. Biedt de ervaring toegang tot de natuur zelf? Die vraag is niet te beantwoorden, want ervaringen zelf zijn vervuld van het theoretisch licht waarbinnen ze worden opgedaan. […] De vraag of de natuurwetenschappen de natuur zelf zien kan niet beantwoord worden." (Oudemans 2007, pp. 31-32)

Empirical observations are always *theory-laden*.[115] Data are paradigm-dependent and they have no meaning apart from the conceptual frameworks that define them. (Clark 2001, pp. 145-146) Since we are unable – be it for just one moment – to see besides (or past) our 'paradigmatic goggles'[116], the question whether Newton's ideas represent nature *more adequately* than Aristotle's did cannot be answered. We do not have access to a *God's eye point*

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chances. In most cases however, the survival of the animal and the survival of the model logged into its brain will probably go hand in hand.

[114] To avoid misunderstandings, it should be noted that this view is *not* idealistic:

> "Het idealisme, dat zegt dat de natuur alleen binnen een menselijk perspectief te zien is, vergeet dat dit perspectief een product is van de natuurlijke historie, de evolutie." (Oudemans 2007, p. 184)

[115] "[W]hat is tested against reality is always a whole assemblage, not, as an atomistic view would maintain, a single proposition. Furthermore, the reality the assemblage is somehow tested against is always, to some extent, already perceived in terms of that theoretical assemblage or paradigm." (Corbey 2005, p. 184)

[116] "Niemand kan achter zijn eigen woorden langs kijken om te zien of ze stroken met de werkelijkheid die ze indelen." (Oudemans 2007, p. 48)

Or, as Nietzsche says: "[W]ir können nicht um unsre Ecke sehn." (Nietzsche 1966, II**,** p. 250)

of view (Putnam 1981) from which this dispute can be settled. Anthony O'Hear is therefore right when he states:

> "[T]he appearance of homo sapiens after 3,0000 million years of evolution certainly does not mean that we at this late stage have a truer or better representation of the world than any other species; we may so have, but this is not a message that can properly be gleaned from evolutionary theory, which [is] simply a theory about the survival of creatures for a time in certain environments." (O'Hear 1987, p. 29)

What O'Hear says about the different species in this quote, also applies to the different stages within our historical scientific development. In the strict sense therefore, it cannot be stated that Newton's view is *more right* than Aristotle's was. They are just *different*.

Something that *can* be stated however, is that Newton's ideas – under the reigning conditions – have turned out to be more *pragmatically successful* than Aristotle's.[117] In the Newtonian worldview, predictions could be made and constructions could be realized, that had been incomprehensible in Aristotle's days. The view that I am advocating is therefore not *relativistic*. Dawkins is most certainly right when he writes:

> "Show me a cultural relativist at thirty thousand feet and I'll show you a hypocrite. Airplanes built according to scientific principles work. They stay aloft, and they get you to a chosen destination. Airplanes built to tribal or mythological specifications, such as the dummy planes of the cargo cults in jungle clearings or the beeswaxed wings of Icarus, don't." (Dawkins 1995, pp. 31-32)

The post-modern conviction that *anything goes* (Feyerabend 1975) is false because some things simply work, while others don't. *We* are not the ones who decide what constructions, and which theories, stay afloat – *nature* does.

According to a rectilinear Darwinian view, scientific theories are memes, engaged in a struggle for life. (Hull 1988) Karl Popper (1902–1994) was perhaps the first philosopher to

[117] "Newton was better than Aristotle not because his words better corresponded to reality but simply because Newton made us better able to cope [with reality]." (Rorty 1979, p. 269)

notice the 'remarkable similarities' between the practice of science and a Darwinian evolutionary process. He wrote:

> "[T]he whole problem of scientific method cleared itself up, and with it the problem of scientific progress. Progress consisted in moving towards theories which tell us more and more— theories of ever greater content. But the more a theory says the more it excludes or forbids, and the greater are the opportunities for falsifying it. So a theory with greater content is one which can be more severely tested. This consideration led to a theory in which scientific progress turned out not to consist in the accumulation of observations but in the overthrow of less good theories and their replacement by better ones, in particular by theories of greater content. Thus there was competition between theories—a kind of Darwinian struggle for survival." (Popper 2002, p. 88)

Kuhn's view concerning this issue resembles Popper's:

> "Scientific development is, like biological, a unidirectional and irreversible process. (Kuhn 1970, p. 206) Imagine an evolutionary tree representing the development of the modern scientific specialties from their common origins in, say, primitive natural philosophy and the crafts. A line drawn up that tree, never doubling back, from the trunk to the tip of some branch would trace a succession of theories related by descent." (*Ibid.*, p. 205)

In the light of evolution, the question whether a certain scientific theory is *true* or *false* (according to the classical correspondence theory of truth), loses its relevance. It dissolves as a nonissue. It is, in fact, equally absurd to ask whether *Aristotle's theory* is true, as it is to ask whether *the panda* is. Instead of one theory being *right* and another one being *wrong* – when the two of them are in conflict –, they actually battle each other on life and death in a struggle for existence.[118] Eventually, the most 'fit' one (the one that is pragmatically the most

[118] Kuhn writes:

> "[T]he superiority of one theory to another is something that cannot be proved in the debate. Instead, I have insisted, each party must try, by persuasion, to convert the other." (Kuhn 1970, p. 198)

successful) will most likely win, in order to become widely embraced by the scientific community. The loser, over time, fades into the background – as has happened to Aristotle's view on nature. Has Aristotle herewith been *falsified*? Not really. His legacy is just going extinct, due to a lack of success.[119]

While Popper and Kuhn both embrace the conviction that the enterprise of science is nothing but a Darwinian struggle, reigning at the memetic level (my words), they keep assuming that it works *progressive*. They both believe that, over time, our scientific views improve. The quotation by Popper that I just cited clearly shows that, according to him, science progresses. In Kuhn's case however, it is a bit more ambiguous. By some of his critics, he has even been accused of *relativism*.[120] This accusation Kuhn himself however regarded unfounded. In the *postscript* that he (7 years later) added to his book *The Structure of Scientific Revolutions*, he wrote:

> "Later scientific theories are better than earlier ones for solving puzzles in the often quite different environments to which they are applied. That is not a relativist's position, and it displays the sense in which I am a convinced believer in scientific progress." (Kuhn 1970, p. 206)

According to Popper and Kuhn thus, contemporary views have 'more severely been tested', 'bear more content' and are 'better for solving puzzles' than obsolete ones. They are therefore *improved* versions of the ones they replaced. Scientific discoveries amplify our ability to cope with the 'hostile' environment that we use to call *reality*. Thanks to science's historical progress, nature's destructive working nowadays seems to be tamed more than ever before by man's powerful hands. We build dikes to prevent our cities from becoming

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Seen from 'our' perspective this is indeed what is seemingly happening. Seen from the *meme's eye perspective* however, the theories *themselves* are in conflict. They are infecting our brains in order to get themselves spread.

[119] Nietzsche wrote: "Wer das Wort 'dionysisch' nicht nur begreift, sondern *sich* in dem Wort 'dionysisch' begreift, hat keine Widerlegung Platos oder Christentums oder Schopenhauers nötig – er *richt die Verwesung*…" (Nietzsche 1966, II, p. 1110)

[120] "One consequence of the position just outlined has particularly bothered a number of my critics. They find my viewpoint relativistic […]. The proponents of different theories are like the members of different language-culture communities. Recognizing the parallelism suggests that in some sense both groups may be right. Applied to culture and its development that position is relativistic." (Kuhn 1970, p. 204)

flood, mechanically produce food at an unprecedented scale and invent medicines to cure all sorts of diseases. Herewith, Descartes' quest of becoming 'the masters and (as it were) owners of nature' seems to be succeeding.

To this – in my view – 'idle hope', I react by placing the same objections as I, in the previous paragraph, did to Darwin's conviction that biological evolution is 'in some vague sense' a progressive process. There I stated that not only the species, but also the climates and environments in which they live gradually change. What counts as a magnificently advanced survival strategy in one environment might turn out to be a burden in another. The biological evolutionary process overall, is for that reason by no means progressive. It just blindly keeps on wandering around. The same, I claim, holds for science's apparent development.

Thanks to Darwin, we know that humans are not *the ruler*, but in fact *a part*, of nature. Despite all our scientific endeavors therefore, it is nature that has – and always will have – the final word. No matter how hard we try, we cannot escape our natural bondage. The environment in which we – humans – are thrown, keeps on changing beyond our control. Any model that we impose on nature, in order to attempt to control her, will therefore eventually lose its grip. Due to nature's dynamic workings, it is impossible to keep on maintaining the stability of the *ceteris paribus*-clause on which 'our control' depends.[121] Michael Pollan is just being realistic when he writes:

> "Today's gain in control over nature will be paid for by tomorrow's new disorder. (Pollan 2001, p. 215) [O]ne species' attempt at total control can engender its own nemesis. (*Ibid.*, p. 214) [T]he more thorough our control of nature is, the sooner natural selection will overthrow it." (*Ibid.*, p. 213)

[121] "De enorme vlucht van de darwinistische technologie in dienst van de humanisering van de aarde zou ik niet graag ontkennen. Maar: net als die van de natuurwetenschap geldt die zolang het lukt om de cocon van omstandigheden rondom de regelmatigheden constant te houden. Ieder moment kan de *ceteris paribus*-clausule instorten." (Oudemans 2012, p. 52)

Continuously, our scientific 'achievements' slap us in the face. As a side-effect of our vain attempts to control nature, constantly new unforeseen dangers emerge.[122] Resistant bacteria, massive deforestation and stacking barrels of nuclear waste are examples. Science's juggernaut cannot be stopped, and no one can oversee the consequences that it entails. The plausibly seeming belief that science's *pragmatic success*, and thereby our control our over nature, truly grows over time, is therefore by no means substantiated. At the moment that the incalculable effects of science's most marvelous performances induce our own nemesis, it becomes painfully clear that it would have perhaps been a *more successful* survival strategy if we (in the course of evolution) had just stayed amoebae.

To avoid confusion, let me emphasize (again) that the view on science that I endorse is not *relativistic* – in the strongest sense of the word.[123] Certain theories – under the given conditions – simply work better than others do. In an absolute sense however, I claim that the belief in progress is a phantasm. Just like the species *Homo sapiens* is by no means 'higher' or 'better' than the *Australopithecus* was, Newton's view on nature isn't 'better' than Aristotle's. Even the question whether Newton's findings *truly* improved our control over nature can be doubted. What we do notice however, is that the Aristotelian view, *within our current epoch*, has a hard time surviving. It is being suppressed by more successfully replicating clusters of memes. As a scientist, it might therefore – perhaps – not be a wise decision, to bet on this dying horse. But… who am I to judge? It cannot be ruled out that Aristotle's ideas – in a near or far future – will revive in a mutated, strengthened form.[124] When this – or some other unforeseen event – happens, our whole worldview might become overthrown and/or revised.[125] We do not know what the upcoming future will bring.[126] Again: "Only time (whatever that may be) will tell." (Hawking 1998, p. 2)

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[122] "Overal waar gewerkt wordt, dus waar de organisatie graad vergroot wordt, daar heerst een economie die ervoor zorgt dat de vergroting van de ordening samengaat met de vergroting van chaos." (Oudemans 2012, p. 87)

[123] Samuel IJsseling rightfully notices: "[H]et benadrukken van het belang van de context is niet hetzelfde als relativisme." (IJsseling 1994, p. 123)

[124] See in fact Terrence Deacon's *Incomplete Nature* (2012) for a nice example of an attempt to revive some of Aristotle's fainting ideas into our contemporary neo-Darwinian worldview.

[125] In his *Philosophy and the Mirror of Nature* (1979) Rorty makes a similar point. After having debunked 'systematic philosophy' and 'the traditional correspondence theory of truth' for nearly 400 pages, he writes:

This is the point where it becomes tricky. As stated in the introduction, Darwin's theory bites its own tail. In this context, this means that Darwin's view itself, strictly speaking, isn't *more right* than the pre-Darwinian one was. Both views jostle each other in a struggle for life, and there is no external tribune from where this battle can be overseen. Within our current epoch however, it can be noticed that the pre-Darwinian conceptions are – slowly but surely – going extinct. They are fading away. Darwinian cybernetic technology is ubiquitously present in the contemporary era, and the pre-Darwinian disputes do not make any substantial difference anymore. That is why, in the introduction, I taunted people who play down the impact of Darwin's theory, by claiming that they are like derelict vessels stuck in a dried bay, comparable to hypothetical 21st century chemists still vainly occupied with alchemy or the phlogiston theory.

In his book *The Metaphysics of Apes* (2005) Raymond Corbey writes:

> "Can we subscribe to the naturalist view that any species, including the human one, is a purely historical entity, because if there is no essence to species, but only genetic variation, there is no essence to humans? […] Empirically, yes, but philosophically or metaphysically speaking, the matter is far from clear. […] [O]ne must be hesitant." (Corbey 2005, p. 198)

I agree with his statement that one must always remain hesitant in order not to overestimate its own finite view. Not however out of respect for peoples' outdated metaphysical beliefs, nor because of some apparent distinction between 'the empirical' and 'the philosophical' – for, in fact, what is philosophy except for the unwavering attempt of becoming thoroughly empirical?[127] –, but because we lack the solid ground under our feet to be truly certain about

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> "I do not know whether we are in fact at the end of an era. […] It may be that mirror-imagery and 'mainstream', systematic philosophy will be revitalized once again by some revolutionary of genius." (Rorty 1979, p. 393)

[126] Our insuperable inability to (accurately) predict the future isn't primarily a shortcoming from *our side*, but rather a peculiar property of *nature itself*. The future of life on earth is not preordained, but made up by natural selection as it comes along (Hughes 2011, p. 104). It is therefore that Dennett writes:

> "[We] are being unable to predict the brilliant moves that Mother Nature herself was oblivious of until she'd stumbled upon them." (Dennett 1995, p. 252)

[127] "'Echte' filosofie is *grondige empirie*: ervaren hoe het is, niet in dienst van enige praktijk." (Oudemans 2007, p. 59)

anything. We all wander around through a web of contingent traces that a lengthy historical process has left behind. Not only the minds of lunatics and/or dogmatic believers are constantly being infected by selfishly replicating memes, but *all our minds* (including mine) are. We are therefore stuck in a precarious situation. No matter how much we squirm, we cannot detach ourselves from nature's trickery shenanigans. Oudemans for this reason says:

> "Ik kan alleen proberen om de levende natuur via haar sturing van mijn woorden te laten spreken, in de hoop dat ik van dit onverschillige en onverhoedse spel niet ben losgezongen. Maar weten doe ik dat niet. Nooit." (Oudemans 2012, p. 57)

This impasse brings us to the final paragraph of this essay.

2. 5 Trapped inside contingent traces

A classical Latin adage reads; *tempora mutantur, nos et mutamur in illis*, which means something like 'times change, and we change with them'. That is the view that I have tried to adhere in this thesis. Darwin is the node around which the whole text resolves, but Darwin I believe, did not tell us the unshakeable truth about nature. He actually opened up an abyss. He wiped away all alleged solid ground under our feet. More explicit than ever before, Darwin made us realize that we wander around in a contingent historical stream without goal or end. Nietzsche has beautifully captured the human condition in his text *Über Wahrheit und Lüge im außermoralischen Sinn* (1873):

> "In irgend einem abgelegenen Winkel des in zahllosen Sonnensystemen flimmernd ausgegossenen Weltalls gab es einmal ein Gestirn, auf dem kluge Tiere das Erkennen erfanden. Es war die hochmütigste und verlogenste Minute der 'Weltgeschichte': aber doch nur eine Minute. Nach wenigen Atemzügen der Natur erstarrte das Gestirn, und die klugen Tiere mußten sterben. – So könnte jemand eine Fabel erfinden und würde doch nicht genügend illustriert haben, wie kläglich, wie schattenhaft und flüchtig, wie zwecklos und beliebig sich der menschliche Intellekt innerhalb der Natur ausnimmt. Es gab Ewigkeiten, in denen er nicht war; wenn es

> wieder mit ihm vorbei ist, wird sich nichts begeben haben. Denn es gibt für jenen Intellekt keine weitere Mission, die über das Menschenleben hinausführte." (Nietzsche 1966, III, p. 309)

Darwin's sponge has wiped away the Platonic transcendent horizon. All alleged supra-temporal anchor points, which formerly functioned as oriental landmarks, have been crushed. Darwin has made clear that the essence of a species is not fixed; it evolves. That also applies to *us*. We are products of living nature. Inescapably stuck in a web of contingent traces – that a great deal of selfishly replicating entities left behind – we vainly dwell. The urge to interpret and control nature continuously imposes itself, but it is (and remains) a futile endeavor since we do not transcend the instance to which we are exposed.[128] We cannot escape nature's treacherous bewitchment, that keeps on feeding *the illusion of autonomy* to 'our minds', while in fact, we are battlefields of *mind snatchers* that ruthlessly struggle to ensure their own chances of survival – an image which, in turn, is a phantasm itself…[129]

> "Was ist also Wahrheit? Ein bewegliches Heer von Metaphern, Metonymien, Anthropomorphismen kurz eine Summe von menschlichen Relationen, die, poetisch und rhetorisch gesteigert, übertragen, geschmückt wurden, und die nach langem Gebrauche einem Volke fest, canonisch und verbindlich dünken: die Wahrheiten sind Illusionen, von denen man vergessen hat, dass sie welche sind." (Nietzsche 1966, III, p. 314)

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[128] Karl Marx (1818–1883) famously stated:

> "Die Philosophen haben die Welt nur verschieden *interpretiert*, es kömmt drauf an, sie zu *verändern*." (Marx 1845)

Oudemans' 'parody' resembles the view that I am advocating:

> "Filosofen hebben de wereld willen interpreteren en veranderen, maar het probleem is, dat zij van de wereld afhankelijk zijn, en toch moeten geloven haar te kunnen interpreteren en veranderen." (Oudemans 1980)

[129] "Het lijkt of hij [Dawkins] mij wil overtuigen van een waarheid, maar als hij gelijk heeft dan probeert een parasiet mij te drogeren via zijn tekst. Intussen is *ook* het brein van Dawkins zo ver beneveld dat hij denkt iets te zeggen wat waar kan zijn of onwaar, terwijl het parasitair gestuurd is. En het mijne?" (Oudemans 2012, p. 62)

Darwinism is a nihilism. Self-control, progress, justice, truth… they are all wishful, but indelible, illusions. The impact of this realization however, is *so* profound, that we are *too finite* to truly get our heads wrapped around it.[130] We cannot stop overestimating ourselves – in every step we take.

In our daily routines, we remain convinced of 'the truth' of 'our own' thoughts. In philosophical disputes we keep on arguing, and trying to prove our opponents wrong. We cannot resist believing that we actually *have insights*, *know* and *control*. We continuously utter, spam and preach hopeful imperatives. Too weak to actually bear the nihilism, we convulsively cling to solidified 'certainties' and flee into comfortable thoughts.[131] As Pascal beautifully wrote:

> "When I see the blindness and the wretchedness of man, when I regard the whole silent universe and man without light, left to himself and, as it were, lost in this corner of the universe, without knowing who has put him there, what he has come to do, what will become of him at death, and incapable of all knowledge, I become terrified, like a man who should be carried in his sleep to a dreadful desert island and should awake without knowing where he is and without means of escape. And thereupon I wonder how people in a condition so wretched do not fall into despair. I see other persons around me of a like nature. I ask them if they are better informed than I am. They tell me that they are not. And thereupon these wretched and lost beings, having looked around them and seen some pleasing objects, have given and attached themselves to them." (Pascal 1660, p. 143)

Our human condition is a baffling one. We are inescapably trapped in a web of contingent traces that a lengthy historical process has left behind. Not *for us*, but just, because it did. We were not meant to be. There is no plan to nature. From the working of an indifferent,

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130 "Zo nemen we in de mens een voortdurend heen en weer gaan waar tussen de menselijk noodzakelijke hybris in de aanspraak, de geschiedenis te overstijgen, en besef van geringheid, dat de mens terugwerpt op zijn eindigheid en historiciteit, maar dat zelf tot hybris verwordt, zodra de mens meent, zich in zijn historiciteit te kunnen schikken: de mens is zo eindig, dat hij zijn eindigheid niet op zich kan nemen." (Oudemans 1980, p. 149)

131 "Humans cannot live without illusion. For the men and women of today, an irrational faith in progress may be the only antidote to nihilism" (Gray 2004, p. 29)

mechanically operating process we accidentally emerged. If we happen to go extinct, then that is what it is. Nature doesn't care. It just keeps on wandering – heading nowhere.

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