

# Trying My Very Best to Believe Darwin\*, or, The Supernaturalistic Fallacy: From is to Nought\*\*

Conor Cunningham\*\*\*

*Materialism is really our established Church.*

(G.K Chesterton, 1922)

*There is a sense in which materialism is the religion of our time.*

(John Searle, 1995)

## Resumo

O artigo discute como a teoria de Charles Darwin, de uma simples hipótese sobre as origens das variedades das espécies, razoavelmente pouco agressiva em termos cosmológicos e ontológicos, passou a ser apresentada, pelos darwinistas e materialistas posteriores, como uma “tese científica” definitiva contra a consistência de qualquer especulação teológica e filosófica não materialista. Percebe-se assim que o verdadeiro movimento desses autores é um niilismo ontológico alimentado pela atávica tendência humana a confundir realidade empírica com utopias teóricas carregadas de desvios desejantes.

**Palavras-chave:** darwinismo, cosmologia, niilismo, materialismo.

## Abstract

The paper discusses how Charles Darwin's theory, from a simple hypothesis on the origin of species, reasonably non-aggressive on cosmological and ontological basis, became, under recent Darwinian and materialistic approach, a definite “scientific thesis” against any possible consistency on the side of any theological or non-materialistic philosophical theory. Here, we may realize that the real aim of such authors is a sort of ontological nihilism fed by human

---

\* For very helpful questions, I would like to thank audiences at Edinburgh University, University of Nottingham and the Edith Stein Institute, Granada, Spain. For a much more developed assessment of Darwinism, see my *Evolution: Darwin's Pious Idea (Interventions)* (Grand Rapids: Wm. B. Eerdmans, forthcoming 2008). I would also like to thank Aaron Riches for his very helpful comments.

\*\* I am here playing on the “naturalistic fallacy”, which consists in any move from is to ought.

\*\*\* Prof. Dr. da Universidade de Nottingham (Inglaterra), Coordenador do Centro de Filosofia e Teologia da Universidade de Nottingham.

ancestral tendency to replace empiric reality by theoretical utopias heavy loaded by wishful thinking.

**Keywords:** Darwinism, cosmology, nihilism, materialism.

---

## Introduction

What I shall try to do in this essay is outline, however briefly, Darwin's theory of evolution, and then present some rather broad consequences - scientific, philosophical and theological - that arise from its logic. Most of all, and throughout, I will try my very best to believe Darwin, that is, to believe what he says about the natural world, something which, as we shall see, becomes increasingly difficult, not because I seek to dispute his theory. No, not at all; rather, because under the influence of some of his disciples, a fairly simple, and in one sense, largely inoffensive, biological theory becomes hijacked, being co-opted as a vehicle for something else.<sup>1</sup> And for what does it become a vehicle? Well, quite simply, for one more version of reductive materialism or, better, nihilism.<sup>2</sup>

In 1873, Sir Charles Sherrington was given a copy of Charles Darwin's book: "*The Origin of Species By Means of Natural Selection, or the Preservation of Favoured Races in the Struggle For life*" (1859) when his mother handed the book to him, she said that "*it sets the door of the universe ajar.*" Why, we might ask, does it do this? Before we can hope to answer this, I shall outline that for which Darwin argued. After reading Thomas Malthus' Essay "*On the Principle of Population*" (1798), Darwin tells us plainly what he sees:

A struggle for existence inevitable follows from the high rate at which all organic beings tend to increase...[A]s more individuals are produced that can possibly survive; there must in every case be a struggle for existence, either one individual with another of the same species, or with individuals of distinct species, or with the physical conditions of life. It is the

---

1 I use the word "vehicle" deliberately, it being Richard Dawkins' term, which shall be discussed below.

2 For an interpretation of Darwinism as nihilism, from advocates of it, see Tamler Sommers and Alex Rosenberg, 'Darwin's nihilistic idea: evolution and the meaninglessness of life', *Biology and Philosophy* 18 (2003), pp. 653-668. For an extended analysis of nihilism see my *Genealogy of Nihilism* (London and New York: Routledge, 2002).

doctrine of Malthus applied with manifold force to the whole animal and vegetable kingdom (DARWIN, 2003:134).<sup>3</sup>

So, according to Darwin, nature is caught in a bind between geometric growth and competition for what are now scarce resources, and this initiates a war between species and within species as they compete to survive. Hence the famous phrase, “*the survival of the fittest*” - a phrase that does not appear until the 5<sup>th</sup> edition of the “*Origin of Species*”, and is borrowed from Herbert Spencer’s “*Principles of Biology*” (1864).<sup>4</sup> But in fact, Darwin’s theory does not argue for the survival of the fittest; rather, it is more accurate to say that it is a matter of the survival of the *fitter*, because the field upon which the struggle for existence is fought is relative - so what is beneficial today may well be a hindrance tomorrow. And it is important to remember that fitness, for Darwin, is simply about the variable success at breeding: those who procure resources enough to breed are fit, whilst those who procure more resources and so breed more than a conspecific are deemed fitter. Here we come to Darwin’s central insight:

If variations useful to any organic being do occur, assuredly individuals thus characterized will have the best chance of being preserved in the struggle of life; and from the strong principle of inheritance they will tend to produce offspring similarly characterized. This principle of preservation, I have called, for the sake of brevity, Natural Selection (DARWIN, 2003:175).

Thus, Darwin’s theory of evolution is a theory of evolution by Natural Selection, one that depends on three crucial principles: Variation, Reproduction, and Heritability, all of which give rise to what is termed ‘Descent with modification’, and any such modification is gradual, incremental, and additive.

So far, so good then; so what’s all the fuss about, we might ask? Well, there are a couple of radical implications bobbing around in his theory; or, if not radical, at least counter-intuitive, depending on whose intuition, of course. One such implication is the transmutation of

---

3 *On the Origin of Species, and other Texts*, Charles Darwin, ed., Joseph Carroll (Ontario, Canada: Broadview Texts, 2003), p. 134; all references will be to this edition. This volume also contains excerpts from *The Descent of Man*, and from Darwin’s *Notebooks*.

4 But to be fair to Darwin, Spencer himself only thought of this phrase after reading Darwin.

species, in other words, species change. We tend to think that a dog is a dog, and a cat is a cat, and that's that - separate and immiscible they remain. But after returning from his voyage on the Beagle (in 1836) Darwin gave up his belief in the fixity of species, a belief that is underwritten by an essentialism that has been around since Plato, if not before. Such essentialism argues that species have an essence, and that any such essence is immutable. In addition, such species are nested within a natural hierarchy - the great chain of being, or *scala naturae* - from the inanimate, to the vegetative, to the worm, all the way up to man, and from there to the angels, and lastly God. And accompanying this hierarchy of essences is of course ascending importance or significance. We do in sense still assign importance in a similar manner - we don't hesitate to cut the grass, but we are unlikely to cut the dog; likewise, we eat the chicken, but not our neighbour's child. But according to Darwin's theory, the natural world is not fixed, but fluid, accordingly all points of significance, or indeed reference are set adrift.<sup>5</sup>

Before coming back to this notion of fluidity, let me quote Darwin again, but doing so from his other major work, the provocatively entitled "*The Descent of Man*" (1871): "*Man with all his noble qualities...with his god-like intellect, which has penetrated into the movements and constitutions of the solar system - with all these exalted powers - man still bears in his bodily frame the indelible stamp of his lowly origin*" (DARWIN, 2003:561).

These origins are, according to Darwin, one of common descent, or ancestry, not only with the Great Apes but, crucially, with all life. For all animate, organic creatures have, it seems, crawled out from the same primordial swamp. Indeed, Darwin refers to "*some one primordial form*" (idem: 394) from which all life started, and it in turn appears to have developed in what he called "some warm little pond" - thus life is monophyletic - that is, it has one lineage. So, just as Post-Galilean science apparently tells us that the heavens have fallen to earth - there being no hierarchical difference between up and down<sup>6</sup> - it appears that for Darwin, there is

5 Though this fuss about transmutation of species maybe the result of something approaching a category mistake. Thus I am in agreement with E.J. Lowe when he says, 'I do not accept the doctrine that biological natural kind terms have their extension fixed partly by evolutionary descent. What I do accept is that the *dog species* that exists on Earth has its membership fixed by evolutionary descent...However, I do not identify species (in the biological sense) with kinds. Species have members, whereas kinds have instances: species are collectives, whereas kinds are universals', *The Possibility of Metaphysics* (Oxford: OUP, 1998), p. 187.

6 As Quine says, 'there is no up'; W. V. O. Quine, 'Designation and Existence', in *Readings in Philosophical Analysis* (eds.) T. Frieg and W. Sellars (New York: Appleton-Century-Crofts, 1949), p. 46.

no irreducible difference between man and animal, and by extending this insight, as we shall hear, mind and matter likewise inhabit a continuum (if indeed there is really such a thing as mind). First we discover that species - including *Homo Sapiens* - are somewhat arbitrary, and second that man shares a common ancestor with the Great Apes, and lastly, that man and the apes share a common ancestry with all life, and in so doing, inhabit a continuum right back to inanimate matter. If we translate this biological insight into ontological terms, we are, it seems, left to chase a cognitive will-o-the-wisp. For this Darwinian paradigm of species transmutation, conjoined to common ancestry, renders change, or becoming, normal (it being somewhat analogous to Newtonian inertia); and stability is then a deviant situation, one that is the product of temporal parochialism.<sup>7</sup> As Olivier Rieppel puts it,

Under the aspect of continuity, the species cannot be objectified except by arbitrary delineation of some segment of genealogical nexus...Continuity dictates a nominalistic view of species – it emphasizes *process*, thus rendering pattern a matter of arbitrary lines of demarcation. [emphasis mine] (RIEPPPEL, 1986:283)

Think of a green apple. We picture it as a real and stable entity, as something that can be qualified as “real”. But the truth of the apple, hidden behind a veil of mere minutes (no matter how many), is nothing more than a mound of dust: *from dust you came, and dust you remain*. Ontologically speaking, we still bathe in our ancestral swamp. Entities, and by extension species, are merely slices of time, thus they are only cross-sections of history, bearing no permanency or real identity. As John Dewey comments, Darwinism amounts to “*laying hands on the ark of absolute permanency*” (DEWEY, 1970:393). Consequently, when we cognise an apple, such cognition is, it seems, founded on perpetual lack - for we only manage to bestow reference by forcefully, and as said, parochially, bracketing the sheer continuity of history. Thus each would-be manifestation or cognition - like some Derridian signifier - points us endlessly away, back into the depths of a pre-history, just as our own thought processes likewise do (a theme we will return to below). Hence we are endlessly chasing after, seeking

---

<sup>7</sup> Cf. Timothy Shanahan, *The Evolution of Darwinism: Selection, Adaptation, and Progress in Evolutionary Biology* (Cambridge: C.U.P., 2004), p. 19. Also, see David Depew and Bruce Weber, *Darwinism Evolving: Systems Dynamics and the Genealogy of Natural Selection* (Cambridge, Massachusetts: A Bradford Book, MIT Press, 1995), p. 120.

to collect, both sense and reference. This means that all appearance is strictly epiphenomenal (another issue to which we will return below).

Here let us up the ante a little. Daniel Dennett characterizes Darwin's theory as a "dangerous idea". He does so because

Darwin's idea—bears an unmistakable likeness to universal acid: it eats through just about every traditional concept, and leaves in its wake a revolutionized worldview... Darwin's idea had been born as an answer to questions in Biology, but it threatened to leak out, offering answers—welcome or not—to questions in cosmology (going in one direction) and psychology (going in the other direction)... Darwin's idea thus also threatened to spread all the way up, dissolving the illusion of our own authorship, our own divine spark of creativity and understanding (DENNET, 1995:63).

(Incidentally, the philosopher John Dewey had already referred to Darwin's theory as the "*greatest dissolvent*"<sup>8</sup>). Here, then, it gets a little harder to believe Darwin. But to be fair to Dennett, Darwin did sometimes seem to invite the extension of his theory into realms other than that of strict biology. Here is a passage from his notebooks: "*Origin of man now proved - Metaphysics must flourish - He who understands baboon - will do more for metaphysics than Locke*" (DARWIN, 2003:468).<sup>9</sup>

## The Supernaturalistic Fallacy

We shall return below to the extension of Darwinism beyond biology. First let me outline my notion of the Supernaturalistic fallacy. Following a line of thought firmly established by Wilfrid Sellars, Richard Lewontin states that "*Science is the only begetter of truth*" (LEWONTIN, 1997:31). Leaving aside the fact that this proposition is extra-scientific—that is, it is a philosophical thesis, and not a scientific one—we might be inclined to enquire why he asserts something so question-begging? Well, Lewontin gives us an answer of sorts:

---

8 See John Dewey, *The Influence of Darwin on Philosophy and Other Essays* (New York: H. Holt and Co., 1910), p.19.

9 See also, p. 397.

We take the side of science in spite of the patent absurdity of some of its constructs, in spite of its failures to fulfill many of its extravagant promises...in spite of the tolerance of the scientific community for unsubstantiated just-so stories, because we have a prior commitment to materialism...Moreover that materialism is absolute, for we cannot allow a Divine foot in the door (idem: 131).

In light of such dogmatism, figures as disparate as G. K. Chesterton and Thomas Nagel seem to be correct when they tell us that, "*Fear of religion has had large and often pernicious consequences for modern intellectual life*" (NAGEL, 2003:130). Here we have a perfect example of this pernicious effect: If a phenomenon does not meet the sole *elected* scientific criteria, it simply does not exist. Thus, this fallacy moves from *is to nought*. For in our somewhat scientific modernity, we are instructed to abandon what is referred to as the 'manifest image' (SELLARS, 1963), instead adopting the "scientific image"(idem). Take Sir Arthur Eddington's two tables: on the one hand, we have the "solid' table in front of us, and on the other, we have the table according to Physics, one which is composed of, say, atoms and empty space. This seems fair enough, of course Physics is going to look at a table this way, and of course we are going to rest our cups and saucers - with some confidence, on the back of the table. But it is suggested that when it comes down to it, the only real image is the one that belongs to Physics. Why? Because *fundamental* particles, for example, are really real (*ontos onta*), whilst granny's table is just a folk-tale, that is, it is a manifestation of what is termed, pejoratively, "folk-psychology". We might possibly be able to stretch our credulity thus far, after all, what's in a table? - does it really matter? But of course when we abandon the manifest image, or better, when the manifest image surrenders its rights, things get a bit trickier, as it is now not really a question of tables. For instance, the world of colour must be given up, too. From Democritus to Galileo, and later John Locke, what are termed secondary qualities have been relegated to the cheap-seats, and then forcefully expelled from the building. Rather prophetically, W. B. Yeats once said that Newton's science, with its acceptance of only primary qualities, had left us in a world akin to "excrement" (YEATS, 1962: 325).<sup>10</sup> But as Anthony O' Hear says (following George Berkeley), "*Sauce for the*

<sup>10</sup> See W. B. Yeats, *Explorations* (New York: Macmillan, 1962), p.325. This Newtonian excrement is reminiscent of David Lewis' atomless gunk, and Alain Badiou's inconsistent multiplicity, and as we shall see, the ultra-Darwinian 'swamp'.

*secondary goose, is sauce for the primary gander*" (O'HEAR, 2002:87). In other words, the reasons one might relegate a secondary quality are equally applicable to primary qualities, for the simple reason that they, too, depend on the status of the perceiver - they are mind-involved, so to speak.

But this wish to reduce the complex to the simple does not stop at colour. No, as Paul Churchland says:

Consider sound. We know that sound is just a train of compression waves travelling through the air, and that the property of being high pitched is identical with the property of having a high oscillatory frequency. We have learned that light is just electromagnetic waves... We now appreciate that the warmth or coolness of a body is just the energy motion of the molecules that make it up.... What we now think of as 'mental states'...are identical with brain states in exactly the same way (CHURCHLAND, 1988:26).

Here we have gone from colour all the way to thought, itself. Again to quote Churchland, "*Could it turn out that nobody has ever believed anything?*" (idem: 43). According to him, "*Common Sense Psychology*" (hereafter CSP) consists in proto-scientific theories, which for the sake of exactitude (think of Borges "*On the Exactitude of Science*") should be reduced to neurophysiological explanation, and since CSP does not reduce to such a neurophysiological explanation it (by its own criteria) must therefore be eliminated. Of course if neurophysiology is contextless, ahistorical and completely extensional then how could CSP fit such a reduction? It is a round peg in a square hole! Moreover, to believe that CSP is false is to still employ CSP; such are the ways of these self-cancelling thinkers. So we are in a situation, it seems, where we do not even have *beliefs*, that is, an intentional life (this seems an eminent example of Bill Livant's cure for baldness: you just shrink the head until the remaining hair covers what's left).<sup>11</sup> And why would that be the case? Because of the *astonishing hypothesis*, as Francis Crick explains: "*The astonishing hypothesis is that you, your joys and your sorrows, your memories and your ambitions, your sense of identity and free will, are in fact no more than the behaviour of a vast assembly of nerve cells and their associated molecules*" (CRICK, 1994: 3).

<sup>11</sup> William Livant, 'Bill Livant's Cure for Baldness', *Science and Society* 62, pp.471-474; Dawkins' notion of the gene is a similar cure.



But what would it take for him for it to be otherwise? In other words, is this position falsifiable, and if indeed it is, what would such falsification look like? We shall return to the question of falsification below.

## The Question of Falsification

It seems fair to suggest, then, that the Supernaturalistic fallacy certainly involves what Lynne Rudder Baker, Thomas Nagel, and Chesterton call “*cognitive suicide*”.<sup>12</sup> And ironically, this leaves us in a much more mysterious world than that of the theist, for in an almost Humean sense everything is now “miraculous”, as it is beyond explanation. In light of “physicalism”,<sup>13</sup> Baker argues that lived-life has become mysterious, almost miraculous, this is what she refers to as the bizarre, “spiritualism” of the everyday. For example, in the absence of intentional agents (which physicalists argue is indeed the case), social practices that depend upon ordinary explanation and prediction of behaviour become unintelligible. Indeed the mind-body problem, so-called, is itself a result of physicalism. We often hear that methodological naturalism is there to safeguard science from the intrusion of mystery; for instance, it is surely unhelpful if when seeking to explain a kettle of boiling water we were entranced by the emission of steam, endeavouring to describe this phenomenon in supernatural terms. But here, maybe unexpectedly, we are left in a secular world of perpetual mystery. Moreover, the absurdity, or at least danger, of this mysterious world - one that has abandoned the manifest image - increases when, from an evolutionary perspective, we start to question all formal thought-logic, etc., and so all objectivity. Doing so because thought is no longer abstract, or immaterial, instead thought is a meaty mechanism, so to speak, one formed, say, on the savannah (during the Pleistocene period) many millions of years ago, and was put in place for reasons other than trigonometry; being so because our minds are mechanisms for survival. Consequently, according to the ultra-Darwinian advocates of Evolutionary Psychology, when you feel hungry and so eat, or are cold and so put on a coat, the reasons you give yourself are proximate reasons - whilst the ultimate cause is survival; in

12 Cf. Lynne Rudder Baker, *Saving Belief: a Critique of Physicalism* (Princeton, NJ: Princeton University Press, 1987), chapter 7; Thomas Nagel, *The View From Nowhere* (Oxford: OUP, 1986), p 52; also see G. K Chesterton, *Orthodoxy*, chapter 3.

13 I am here using materialism, naturalism and physicalism interchangeably. Doing so because in truth they historically speaking what we might call successor terms. For instance, materialism became naturalism only because according to physics matter was no longer simply inert, so the materialists had to change their name in a desparate bid to save their secularism.

other words, you put your coat on or eat ultimately in order to be able to breed. This approach to reality has potentially enormous consequences.

With regard to formal thought, for instance, Nagel makes the point well, when he says, "*If we came to believe that our capacities for objective theory were the product of Natural Selection that would warrant serious scepticism about its results*" (NAGEL, 1986:79). Darwin already worried about this very possibility:

With 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 anyone trust the convictions of a monkey's mind if there are any convictions in such a mind? (Darwin, 1959:285).<sup>14</sup>

Thus it seems Jerry Fodor is correct when he says, "*Darwinism of all things, undermines the scientific enterprise. Talk about biting the hand that feeds you*" (FODOR, 1998:190).

Why? Because, as Fodor tell us, "*There is...no Darwinian reason for thinking that we're true believers*" (idem: 201).<sup>15</sup> In other words, in light of Natural Selection belief is no longer incorrigible. C. S. Lewis makes the same point: "*The assumption that things which have been conjoined in the past will always be conjoined in the future is the guiding principle not of rational but of animal behaviour*" (LEWIS, 2002:30). In addition, "*The relation between response and stimulus is utterly different from that between knowledge and the truth*" (idem: 28). Hence we cannot explain why or how we can see that an inference follows. William Provine sates that "*in order to accept both Christian faith and Darwinian biology, you need to check your brains at the church-house door*". But in truth, for ultra-Darwinism, you need to check your mind at the door. According to Richard Dawkins, "*Although atheism might have been logically tenable before Darwin, Darwin made it possible to be an intellectually fulfilled atheist*" (DAWKINS, 1986: 1). The problem with this logic is that it retains a strong notion of *belief*, one that is just not available to the ultra-Darwinist, because atheism is to theism

---

14 Letter to W. Graham, July 1881, *The life and Letters of Charles Darwin*, ed., Francis Darwin (New York: Basic Books, 1959), p. 285. Chesterton echoes this concern: 'Why should not good logic be as misleading as bad logic? They are both movements in the brain of a bewildered ape', *Orthodoxy*, p. 33.

15 Also see also Alvin Plantinga, *Warrant and Proper Function* (New York , Oxford University Press, 1993), chapter 12.

nothing more than the other side of the same coin (at least in this particular sense). For this very reason Nagel appears to think that the human intellect is an exception to the Darwinian view that Natural Selection explains everything (what is known as the “*adaptationist programme*”) (NAGEL, 1976: 79); in other words, biological phenomena - and by extension, social phenomena - are examined under the presumption that they are adaptations, that is, they have arisen as a response to selection pressures presented by the natural environment. In this way, Darwinian analysis moves from the identification of homologous physical traits shared by different species, to the identification of homologous psychological traits.<sup>16</sup>

So, our intellectual and social activities become subject to evolutionary analysis. Not to worry, argues Michael Ruse. For biological fitness, he tells us, “...is a function of reproductive advantage rather than of philosophical insight. Thus if we benefit biologically by being deluded about the true nature of formal thought, then so be it. A tendency to objectify is the price of reproductive success” (RUSE, 1986: 188).

What must be realized is that such an interpretation arises from the strict dualism of *replicators* and *vehicles*. Very briefly, replicators are the genotypes, because they can actually replicate themselves - mammals can't of course, because due to *meiosis*, we can only ever get half our genetic material across the generational barrier. This division is based on the work of August Weismann,<sup>17</sup> who divided genetic material into the germ plasm and the *soma*: the former is immortal, and the latter, which is the body as such, perishes (this of course repeats the Orphic notion that the body is a prison for the soul: *soma-sema*). Consequently, phenotypes - bodies - are never repeated again; our bodies as they are, are completely and utterly unique. Thus Socrates' nose only walked this earth once (I will return to noses later, doing so to illustrate a real irreducible relation). Weismann's barrier, as it is called, also grounds what is known as the “central dogma” of molecular, genetic biology:

16 Though one must ask, if in the latter, the difference between an analogous trait and a homologous one can be discerned - the former can as it is physically grounded in common ancestry, but can the same be said for psychology? In other words, can we really separate homology and analogy when it comes to the mind, at least without begging the question?

17 August Weismann's views were made available to the English speaking world with the translation of his work, as *Essays Upon Heredity and Kindred Biological Problems* (1889). Yet his argument was disseminated much wider when he published an article in *Contemporary Review* entitled ‘*The All-Sufficiency of Natural Selection: A Reply to Herbert Spencer*’ (1893).

information flows from DNA to proteins, but never from proteins to DNA.<sup>18</sup> If organisms aren't replicators, then they are vehicles; and from the Dawkinsian point of view, replicators build the vehicles. The unfortunate thing for us is that they built vehicles that *woke up* - that is, we attribute to our consciousness an ultimate validity, when really it is only of proximate interest. Yes, we can write poetry, form religions, be altruistic, but in the end these are mere behavioural froth on the substantial sea of genotypes; and if they are not wholly froth, they are certainly epiphenomenal, as they are, then, oblique roots to evolutionary fitness. It is for this reason that Wilson tells us that "*Theology is not likely to survive as an independent intellectual discipline*" (WILSON, 1978: 192).

Due, then, to the explanatory reach of Evolutionary Psychology,  $E=mc^2$  is a roundabout way of getting someone to breed with you. As Fodor says, "*Have you heard the joke about the lawyer who is offered sex by a beautiful woman?*" "*Well, I guess so*", he replies, "*but what's in it for me?*" (FODOR, 1998: 212). All our thoughts, then, cast a shadow, so to speak, over our would-be intentions, our conscious lives are shadowed by their evolutionary past - their formative years. There, just out of sight, at the peripheral of thought lies the dull meat of sheer animality (though we will see below, that for Aquinas, "pure animality" is a vicious abstraction). In contrast to the casualness of someone like Ruse, Emmanuel Levinas says, "*Everyone will readily agree that it is of the highest importance to know whether we are duped by morality*" (LEVINAS, 1961: 21). Here is an answer from Ruse and Wilson: "*Ethics is an illusion fobbed off on us by our own genes to get us to co-operate, thus morality ultimately seems to be about self-interest*" (RUSE; WILSON, 1993: 310). Indeed, "*Humans function better [that is, function better as vehicles for genes] if they are deceived by their genes into thinking there is a disinterested objective morality, binding upon them, which we should obey*" (idem: 179). Like the man who has an affair, saying he is doing so because he "loves" the woman, yet six months later the affair has broken down. But when asked why he abandoned fidelity, he still responds, "*Well, I thought I loved her*". The point being that such activity works better if we can successfully lie to ourselves. Societies and communities are products of this

18 Here is how Francis Crick defines it: 'this states that once "information" has passed into protein it cannot get out again. In more detail, the transfer of information from nucleic acid to nucleic acid, or from nucleic acid to protein may be possible, but transfer from protein to protein, or from protein to nucleic acid is impossible', Francis Crick, 'On Protein Synthesis', quoted in *Genes in Development*, eds Eva Neumann-Held and C. Rehmann-Sutter (Durham and London: Duke University Press, 2006), p. 79. It should be noted that Weismann's own stance is not actually equivalent to what is perpetrated in his name.

co-operation, co-operation being proximate, biological survival being ultimate. Ruse and Wilson continue: *"It is easy to conceive of an alien intelligence species evolving rules its members consider highly moral but repugnant to human beings, such as cannibalism, incest, the love of darkness and decay, parricide and the eating of faeces"* (ibid: 186). Proximately such counterfactual sojourns may appear as philosophical argumentation, but ultimately they are more than a bit silly. First, the above modes of behaviour, repugnant to "humans", are behaviours actually practiced by some humans, hence they are actually able to pick them out; so, these "aliens" probably live next door to both Wilson and Ruse. Second, and more importantly, they speak of cannibalism as being one of these repugnant behaviours, but as Peter Koslowski says, *"before the categorical imperative of gene survival, all other imperatives become hypothetical imperatives. To be consistent this would lead to the justification of cannibalism"* (KOSLOWSKI, 1998: 307). Thus, Wilson's repugnant practices are not only already in human society, they are actually advocated by his own theory. But crucially this Darwinian theory finds it extremely hard to even pick out any such behaviour, at least when using its own terms, which means that they must borrow the sense of the terms used from other discourses, doing so without any justification. As O' Hear says, *"From a Darwinism point of view, we may indeed wonder what is so wrong with rape"* (O' HEAR, 2002: 140).

### **About Materialism and Naturalism**

This is so for two reasons. First, the apparently epiphenomenal status of actions - at least according to ultra-Darwinian inspired materialists - undermines any notion of *mens ra*, 1<sup>st</sup> person language having being eliminated. Second, there is a lack of robust identity attributable to humans in light of materialism, because identity seems somewhat arbitrary, as does individuation, if it is indeed true that all is matter, and that matter is construed as being prohibitive because it is inert (an understanding shared by creationists and materialists). All that can now be accommodated are arrangements and agitations of some fundamental "stuff", whether it is Thales' water, Descartes' *res extensa*, or Dawkins' highly contrived understanding of DNA. Moreover, materialism loses matter, or its prime 'stuff'. As John Peterson puts it, *"If matter is the ultimate substrate and is identified with some actual thing, then all differences within matter must come from something besides matter"* (PETERSON,

1999: 430). Consequently, the materialist must admit that their description is metaphysical, and in being so invokes something that transcends what is basic at the level of immanence, or the merely physical. The only other option is to deny all change, just as they must, it seems, deny objects. As Peter van Inwagen says: “*One of the tasks that confronts the materialists is this: they have to find a home for the referents of the terms of ordinary speech within a world that is entirely material—or else deny the existence of those referents altogether*” (INWAGEN, 2001:160).

Or more simply, in light of Darwinism, Chesterton tells us, “*there is no such thing as a thing*” (CHESTERTON: s. d.: 59). And this includes persons, for as David Chalmers says, “*you can’t have your materialist cake and eat your consciousness too*” (CHALMERS, 1996: 168). But of course, Hegel had already pointed to the vacuous nature of materialism, arguing that the word “matter” remains an ideal unless you pick out something material - but as we now know, materialism appears to preclude identity. And this becomes clearer when we realize that ontological naturalism cannot on its own terms identify what are called *persistence conditions* for an object - that which an object requires to be what it is.<sup>19</sup> Naturalism, then, remains forever barred from such discernment because such conditions are necessary truths, and so are normative in a manner that resides outside naturalism's remit because its ontology, not to mention its methodology, cannot cope with such non-empirical concepts. Furthermore, it is arguable that naturalism cannot identify nature itself, for that would require real intentions, and these are not available (CATALANO, 2000). Indeed, and more paradoxically, Michael Rea argues that naturalism is forced to adopt constructivism, for the simple reason that it cannot locate intrinsic modal or sortal properties;<sup>20</sup> again, these are normative. Consequently, objects must be made rather than discovered. But this means that it must abandon materialism. Why? Because according to materialism, a mind is a material object or event, but naturalism cannot identify objects, except in terms of constructivism. Yet this means that a mind as an object cannot exist unless some non-physical mind has thought it - hence materialism is refuted (REA, 2002). More importantly, it seems materialism, naturalism or

19 See Michael Rea, *World Without Design* (Oxford: Clarendon Press, 2002)—this is a brilliant refutation of ontological naturalism; also see Charles Taliaferro and Stewart Goetz, *Naturalism (Interventions)* (Grand Rapids: Wm. B Eerdmans, 2007), this is an excellent analysis of all the pertinent debates surrounding naturalism.

20 The notion of a sortal term was first coined by John Locke.

physicalism (I am here using them interchangeably, for they are in truth mere “successor terms”) is simply a default argument, that is, it is wholly vacuous, and question-begging, as David Mellor and Tim Crane argue (MELLOR; CRANE, 1995) Consequently, they continue, support for physicalism owes more to emotion than to argument, (idem) a bit like saying one believes in world peace (STROUD, 2004) Moreover, Barry Stroud makes the crucial point that the one thing that has not been naturalized is naturalism itself, hence it remains dogmatic, yet empty of real content, (idem) a mere promissory materialism (POPPER; ECCLES, 1977) This being the case it is something of an intellectual cop-out. And any veracity physicalism does manage to maintain amounts to a merely negative, regulative judgment, namely, “no theology”.

The dubious status of materialism comes even more to the fore with Dawkins’ interpretation of Darwinism, for there, the ontological fragility of all identity is reinforced by the merely accidental character of phenotypes, being themselves mere cross-sections of History, as already mentioned. Consequently, phylogeny is in the ascendancy over ontogeny. But this means that any notion of functionality, for the Darwinian, is purely diachronic. This being so, there is a problem, as Fodor points out: “*My intuition...is that my heart’s function has less to do with its evolutionary origins than with the current truth of such counterfactuals as that if it were to stop pumping my blood, I’d die*” (FODOR, 2001: 85). This brings to the fore the static nature of evolutionary theory; for instance, the common ancestor acts as the new essence, in other words, everything is essentially its static past (HAUGHT, 2006) For what is evolutionary psychology’s veneration of the Pleistocene period but an anti-evolutionary move? (MALIK, 2001) And where’s the Darwinism in that? Consequently, the monophyletic origins of life refuse to let anything crawl out of its inanimate swamp. As Hans Jonas says, “*If mere assurance of permanence were the point that mattered, life should not have started out in the first place. It is essentially precarious and corruptible being, an adventure in mortality*” (JONAS, 2001:106).<sup>21</sup> But crucially for Dawkins, this election of the gene<sup>22</sup> as the sole unit of natural selection is a stance reinforced by his notion of the meme, which is itself homologous

21 Likewise, as Peter Koslowski says, ‘If the survival of genes is the purpose and this survival programme directs the actuality of what of what is alive, then the actuality perceptible by us, is in great measure of non-functional....it would be more economical for the genes, to swim eternally in a primeval soup and to keep their data content in a state of potentiality without ever transforming this data into actuality with form---materialization of the DNA information is ontologically superfluous’, in ‘Sociobiology as Bioeconomics’, in *Sociobiology and Bioeconomics*, ed. P. Koslowski (Berlin-Heidelberg-New York: Springer, 1998), p.310

to the gene,<sup>23</sup> which generates three important consequences. First, organisms become merely epiphenomenal, as they are but aggregates of genes, bearing an identity on par with a cloud. Interestingly, Dawkins tells us that “*the human psyche has two great sicknesses: the urge to carry vendetta across generations, and the tendency to fasten group labels on people rather than see them as individuals*” (DAWKINS, 2003:160). He then goes on to attribute these great sicknesses to Abrahamic religion, but arguably, the above quote is an apposite characterization of the adaptationist programme, one entailed by a gene-centered view of evolution. Because organisms are denied their individuality, and the “selfish gene” conducts its own vendettas across generations. Second, again the scientific project comes under the threat of scepticism. And it does so because we really cannot be sure if our “promissory materialism” is real; in other words, we cannot know if materialism itself, like world-peace, is just an ideal, a meme, a strategy for the survival of atheism. Third, quite simply, genes do not exist in the manner that would allow anyone (anyone of intelligence that is) to adopt an Ultra-Darwinian, or adaptationist position - and this on both biological and philosophical grounds. Indeed the Ultra-Darwinian notion of the gene is guilty of what Alfred North Whitehead called the “*fallacy of misplaced concreteness*” (WHITEHEAD, 1967: 64). We must then, to use Dawkins’ own words, however ironically, “*cut the gene down to size*” (DAWKINS, 2006: 323). Or again, “*we must begin by throwing out the gene as the sole basis of our idea of evolution*” (idem: 191). But as we shall see, Dawkins needs to make this move because his own gene-centered version of evolution undermines Darwinism. Yet this move only compounds the problem. We shall come back to this below.

Before doing so, it is worth noting that the now problematic nature of individuation, or in truth the lack of a complex nature, is compounded by the pervasiveness of extensional logic

22 The term ‘gene’ was coined by the Danish botanist Wilhelm Johannsen; it was a derivative of Hugo de Vries called ‘pangenes’, which was itself a play on Darwin’s notion of ‘pangenesis’.

23 The word meme is meant to be a combination of ‘gene’ and ‘memory’. The idea stems from the work of Donald T Campbell, who back in the 1960’s spoke of a ‘mnemone’, which was equivalent to a ‘cultorgen’; see Donald T Campbell, “A General ‘Selection Theory’ as Implemented in biological Evolution and in Social Belief-Transmission-with-modification in Science”, *Biology and Philosophy* 3 (1998): pp. 413-63; also see Charles J Lumsden and Edward O Wilson, *Genes, Mind, and Culture: The Coevolutionary Process* (Cambridge, MA: Harvard University Press, 1081). A meme is a ‘unit of cultural transmission, or a unit of imitation.... Examples of memes are tunes, ideas, catch-phrases, clothes fashions, ways of making pots or of building arches. Just as genes propagate themselves in the gene pool by leaping from body to body via sperms or eggs, so memes propagate themselves in the meme pool by leaping from brain to brain via a process which, in the broad sense, can be called imitation’, Susan Blackmore, *The Meme Machine* (New York: OUP., 2000), p. 192.



(QUINE, 1985). We should recall that an extensional logic stipulates that a class is the collection of all its elements only, and that there is no idea behind a class that is satisfied by all the elements. Thus, it struck Quine back in the 1930's that anti-Semitism did not make sense because there was no idea behind the concept *Jew* that could pick out Jews - it was, for lack of a better word, nominal. But one surely starts to witness water, baby, and bath disappearing over the fence. Subsequently, and certainly under the influence of Quine, Nelson Goodman tells us, "*Any two things have exactly as many properties in common as any other two*" (GOODMAN, 1970:26). This seems to be somewhat counter-intuitive, to say the least. But in the Continental tradition, Alain Badiou says much the same: "*There are as many differences, say, between a Chinese peasant and a young Norwegian professional as between my self and anybody at all, including myself*" (BADIOU, 2001:26). Now the absurdity of Badiou's and Goodman's position is that, given a universe consisting only of two identical Zebras (clones) and a Cockroach, only a philosopher would claim that any two objects have as exactly as many properties in common as any other two of them (STAMOS, 2003). It is little wonder, then, that Michel Henry tells us "*there is no person in science*" (idem: 262). Dawkins makes the bizarre claim that "*the universe presented by organised religions is a poky little medieval universe and extremely limited*" (DAWKINS, 1996). But surely it is fairer to argue that under the light of scientism, and under the cosh of the Supernaturalistic fallacy, we are made to inhabit a "poky little universe". As Whitehead says, on the result of reductionism, "*Nature becomes a dull affair, soundless, senseless, colorless; merely the hurrying of matter endlessly meaningless*" (WHITEHEAD, 1967:54). To me this certainly sounds like a more limited universe than the medieval cosmos.

If there is no person in Dawkins puddle of genes, there may well be persons in ours, and indeed in Darwin's. And what is interesting about the notion of a person is that it begins to signal a way past the ontological reductionism of ultra-Darwinism, the Modernity of logical positivism and its progeny, scientism, not to mention Post-modernity. Nagel, in a seminal essay, asks what it would like to be a bat, (NAGEL, 1979) the point of which is to bring to our attention the irreducibility of a point of view—not an opinion as such, but a perspective. Thus, a perspective is an ontologically rich notion, and cannot be discounted; in other words, for him, consciousness is discernable as an irreducible event when we realise *there is*

*something it is like to be this or that being.* Consequently, as E. J. Lowe tells us, “*Thought can no more be (or be constituted by) a brain-process than a chair can be (or be constituted by) a set of prime numbers*” (LOWE, 1996: 44). For thoughts must be owned; they must belong. (idem) A variant of this argument is sometimes called the “knowledge argument”. Very briefly, there’s a girl called Mary, who is confined to a black-and-white room. There, she learns everything there is to know about the physical world. But upon finally leaving the room, Mary sees a red rose, something she of course had never encountered before (JACKSON, 2004). The point is that if physicalism is true, she knows everything about the world already, because the world is purely physical, but then if Mary in seeing the rose, learns something new, then the world is not only physical, thus physicalism is refuted. Another way of putting this is to say that our lives consist in a psychological world and a phenomenal one, and if this is the case then consciousness does not logically supervene on the physical. For example, do we think there is a difference between “me” and a “zombie-me”, who of course lacks a phenomenal world? In other words, if the subjective is reducible to the objective - such as my pain and a C-Fiber firing - then no difference can obtain between the two. Sometimes philosophers point to the logical possibility of an inverted spectrum to illustrate this point; there, we imagine two physically identical beings that have nonetheless inverted conscious experiences, thus the physical cannot dictate the phenomenal (CHALMERS, 1996).<sup>24</sup> To some degree this is not all that controversial, for we see that the reaction of many is to agree, but then simply embrace the opposite side of the proposition; in other words, they accept that our world is epiphenomenal, a mere folk-tale, and so consequently there is no person (here again we witness the Supernaturalistic fallacy).

Now, if brain processes do not constitute thoughts, we must also realise that perception does not equal sensation, for there is always more - qualitatively and irreducibly more - in the former than the latter. Take the example of the *Gestalt* figure of the duck/rabbit; sensation cannot explain the aspectual switch between the two aspects - duck or rabbit. Indeed this leads us to what is called *multiple realisation*, something that no doubt disturbs the dream of

---

<sup>24</sup> Chalmers has done us all a great service in challenging the orthodoxy of materialism in the philosophy of mind, nonetheless, there is still a worrying sense of epiphenomenalism with regard to mental causation in his solution.

reductionism, at least in biology.<sup>25</sup> Put simply, there are many ways to say the same thing (JONES, 2000). Consequently, the one-to-one relation required by reductionism is not present. Instead there is a one-to-many relation: one thing can be caused or be generated by many different, say, physical constituents - leaving aside the question of bridge laws, as proposed by Nagel, that connect higher-level phenomena with their lower base, for what we need is an explanation of the bridge laws themselves. In other words, the bridge laws ought to be the explananda. (KIM, 2006) So, due to lack of a one-to-one relation, a macroscopic feature to a large degree does not have an isomorphic relation with a microstructural base: again, divergent base conditions are capable of giving rise to identical higher-state phenomena (JONES, 2000). But more radical still, the higher-level phenomena are in some sense set free, that is, they are strongly emergent.<sup>26</sup> The same mental phenomena may well be realizable in physical systems other than those with human neurophysiology or perhaps even in systems with no biological level at all. The higher-level events do not tell us *anything* about the underlying neural or other mechanisms, and accounts of the latter in no way constrain accounts of the former. As Lowe says,

... the most we can really say is that there seems to be an empirical correlation between mental states activity and brain function...but the capacity for perception and agency does not of its nature reside in any sort of cerebral condition. Indeed there is nothing whatever unintelligible about supposing the existence of a capacity for perception and agency in a being lacking a brain (LOWE, 1996: 42-44).<sup>27</sup>

Consequently, biological systems, including the brain, are not even necessary conditions for higher-level phenomena. But let us take such analysis beyond the dizzy heights of higher-level mental phenomena, and instead focus on colours and noses. For there, too, we see

---

25 It is certainly true that multiple realisation can itself be consistent with reductionism in physics. For instance, temperature is realised in different ways in different states of matter.

26 In other words, such phenomena are neither reducible to nor determined by lower levels, this being the case, they possess genuinely new causal powers. See Lowe, *Subjects of experience*, p.80.

27 Jones says something similar; 'We may be an evolved, complex form of animal life ceasing at death, or there may be more levels of reality working in us, some of which will survive death in some way---the scientific study of the body...or the correlation of physical and mental states will never prove either possibility', Jones, *Reductionism*, p.351.

multiple realizations, and of a kind that suggests the possibility of a world composed of irreducible real relations - in this case the real biological relation of similarity.

Now, for someone like William of Ockham relations are all or nothing. Hence for him relations are analogous to things. But such a position lands Ockham having to defend the view that, in terms of real similarity, one shade of blue is no more similar to another shade of blue than it is to a completely different colour - here we are back with our zebras and cockroach. (STAMOS, 2003/2006) Instead, we would say that the two shades share a degree of similarity with each other that they do not share with another colour. Likewise, phenotypic similarity is arguably a real relation, because it cannot be reduced to genotypic similarity, on the one hand, yet it cannot be reduced to empirical observation, on the other. The first case is true because of the supervenience of amino acids on codons - a codon being a triplet of the four-letter genetic code (*Ibid.*). This simply means that different triplets (a subvenient base) can code for the same amino acid, which in turn gives rise to the phenotypic property - consequently a nose, for example, does not have a genetic base, in reductionist terms. As Jonathan Marks puts it, “*we map genes for the body’s breakdown...we don’t map genes for noses*” (MARKS, 2002: 105).

Indeed, because the genetic code is not the only one possible, any particular phenotypic trait we care to notice will supervene on an indefinite disjunctive molecular base (STAMOS, 2003/2006). In other words, many genes are polyphenic, and most characteristics are polygenic; in other words, the relation between genotype and phenotype is utterly heterogeneous.<sup>28</sup> Turning to the second case: Surely, a nose is more similar to another nose than an ear. But to repeat, we cannot anchor similarity empirically, for the simple reason that

---

28 We could also mention two immediate objections to the veneration of the gene to the unit of selection, namely, the ‘directness objection’, and the context dependence objection’. The former simply argues that natural selection simply cannot see genes; whilst the latter argues in turn that no gene has a fixed selective value, so how could it then be selected for? On this see Eliot Sober, *The Nature of Selection* (Chicago and London: University of Chicago Press, 1984), p. 227.

no two noses are the same, yet there is real similarity.<sup>29</sup> Consequently, relations must be real, generally, and the relation of similarity, specifically.<sup>30</sup>

Returning to the Supernaturalistic fallacy, Nobel Prize winner François Jacob tells us that “Biology no longer studies life” (JACOB, 1973: 299). And Michel Henry says we should take him at his word: quite literally, there is no life in Biology. Indeed, a cadaver is exactly the person reduced to their exteriority, but conversely there is no death either, because materialism dissolves any chance of picking out any such referent (HENRY, 2003). As Sigmund Freud warned us, “*We may be astonished to find out how little agreement there is among biologists on the subject of natural death and in fact that the whole concept of death melts away under their hands*” (FREUD, 1989:617).<sup>31</sup> Now, there seems to be a strange combination of Cartesian dualism and Platonism at work here. We can better discern this if we begin to realise that the notion of mere matter, or that some thing is nothing but an aggregation of the Darwinian “swamp” of pure becoming (our ever-contemporary origin, as it were) is itself a product of a Cartesian presumption, namely, the dualism of *res extensa/res cogitans*; the latter only being there to accommodate the conceptual possibility, and articulation of the former (JONAS, 2001; RAHNER, 1965; BRAINE, 1993). And do we not see Dawkins et al. reproduce this “Cartesianism” in their strict division between genotype (*res extensa*) and phenotype (*res cogitans*) (SPAEMANN, 2006). So, the materialist, so-called,

---

29 As G. K Chesterton says, ‘...the mere repetition of things made the things to me appear rather more weird than more rational. It was as if, having seen a curiously shaped nose in the street and dismissed it as accident, I had then seen six other noses of the same astonishing shape. I should have fancied for a moment that it must be some local secret society. So one elephant having a trunk was odd; but all elephants having trunks looked like a plot’, *Orthodoxy*, p.36.

30 Here, we might beneficially appeal to Bertrand Russell’s dichotomy of internal and external relations. A relation is internal if a change in the relation entails an intrinsic change in at least one of its relata, whilst an external does not affect its relata, intrinsically. Similarity would in this case qualify as an internal relation; see Stamos, *The Species Problem*, pp. 289-291.

31 Sigmund Freud, ‘Beyond the Pleasure Principle’, in *The Freud Reader*, ed. P. Gray (New York and London: W. W. Norton & Company, 1989), p. 617. Lynn Rothschild makes much the same point: ‘it is impossible unambiguously to determine death in a reductionist way’, ‘The Role of Emergence in Biology’ in *The Re-Emergence of Emergence*, p. 159; and Wilford Spradlin and Patricia Porterfield seemingly concur, though doing so rather happily: ‘With the dissolution of absolutes, we may speculate that old concepts like God and man died into each other or dissolved into each other to form a uniform continuum. From this point of view, the merger of God and man is a conquest of death, which moved from a definitive event or entity to a fluid process in which life and death are relative organizational patterns’; W. Spradlin, W., and P. Porterfield, *The Search for Certainty* (New York-Berlin-Heidelberg-Tokyo: Springer, 1984), p.236.

appears to operate in Cartesian terms, terms that generate a homunculus fundamentalism, so to speak, which will be discussed below.

For the moment, it is important to realise that pure matter, that is, mere matter, is articulated within the constitutive shadow of pure mind. Indeed, it is this Cartesian notion of pure mind that allows for what Jonas calls the “*Cartesian treatment of the remainder*” (idem: 57). The smirk of the Ultra-Darwinist or the eliminative materialist is fuelled and held captive by the picture of a mind inside the brain, or a soul inside or outside the body. They keep pulling up our skirts, raising the curtains so as to reveal an absence - the missing homunculus. But then, if we take a closer look, we might notice that there is something decidedly old-fashioned about this approach. Jonas makes the point that because of evolution common-sense is restored: “*If man was the relative of animals, then animals were the relatives of man and in degrees bearer of that inwardness of which man, the most advanced of their kin, is conscious in himself.*” (JONAS, 2001: 57). Gone, then, is the Cartesian treatment of animals, wherein even pain is denied of them (as it is now denied of us), because they lack pure mind (as now do we) being merely *res extensa*. And what is the upshot of this? In precise terms, we cannot, on pain of crass dualism, or matter-hating Gnosticism, locate mere matter. In other words, the swamp cannot be found, at least not innocently. We cannot find mere matter because to do so is to presume its opposite. For as God asks in Genesis: “*who told you that you were naked?*” (Genesis, 3:11).<sup>32</sup> Or, we can translate the question: “*who told you that you were merely matter? - or that matter was mere?*” (BENNETT, 2001: 64).<sup>33</sup> Thus to argue that because man is continuous with animals, and so is merely animal, is to employ a logic that presumes mind to be *res cogitans*; indeed to approach matter or animality in this way is strictly pre-Darwinian. What logic governs such a reading? Returning to the question of colour may help us answer. What is interpreted as secondary, or as being epiphenomenal, can be

32 I would like to thank Aaron Riches, Peter Candler, and Ira Brent Driggers for helpful discussion on this notion of nakedness.

33 Jane Bennett rightly points out a problem with such a negative reading of materiality: ‘The problem of meaninglessness arises only if “matter” is conceived as inert, only as long as science deploys materialism whose physics is basically Newtonian...[But] matter has a liveliness, resilience, unpredictability, or recalcitrance that is itself a source of wonder for us’, *The Enchantment of Modern Life: Attachments, Crossings and Ethics* (Princeton: Princeton University Press, 2001), p. 64.

so only if a falsifiable account of what it would take for it to be otherwise and still be itself, is forthcoming. To find colour you do not look for the colour of colour, and so on.<sup>34</sup>

Merleau-Ponty argues that what is proper to colour is to be the “*the surface of an inexhaustible depth*” (MERLEAU-PONTY, 1970:138). And for this reason he compares colour to the Eucharist:

Just as the sacrament not only symbolizes in sensible species, an operation of Grace, but is also the real presence of God, which it causes to occupy a fragment of space and communicates to those who eat of the consecrated bread...in the same way the sensible...is nothing other than a certain way of being in the world suggested to us from some point in space, and seized and acted upon by our body...so that sensation is literally a form of communion (idem, 1962:212).

But the metaphysics, if not ideology governing the election of physicalism in a sense demands that the bread and wine of the *Eucharist* sprout arms so that the notion of *real presence* can be empirically verified, but then these arms would also have to sprout arms, and so on, *ad infinitum*. Maybe in this way, liturgy, and the sacraments exemplify in an eminent fashion the very form of life itself, for they bid us to remain at the level of reception: “this is my body”. And when such activity is viewed sceptically, or as something odd, maybe we have missed the point, for common sense does not in truth stray from this event. Indeed it is arguable that it is the ordinariness of the Mass that is extraordinary - and it is arguable that colour, time, consciousness, etc., all exhibit similar logic; just as we say “this is my pain”, that is, “this is my phenomenal life”. But ultra-Darwinism and eliminative materialism, etc., are despisers, for their logic belies a hatred of matter; indeed hating nature to the point of its abolition, as they propagate a homunculus fundamentalism; they do, because for them, for colour to be colour, for life to be lived, for there actually to be creation, it must be on the literalist model of the seven days of the book of Genesis; and there must only be perfection, indeed the book of nature must be inerrant. This is why we find someone like Dawkins

34 Barry Stroud make sthe crucial point that ‘it is only because we can make intelligible nondispositional ascriptions of colors to objects that we can acknowledge and identify perceptions as perceptions of this or that color. But if that is so, it requires our accepting the fact that objects in the world are colored, and this is what the restrictive naturalist who denies the reality or the objectivity of color cannot do’, *Naturalism in Question*, p. 30.

employing what we might call the “imperfection argument”. Very briefly, this argues that for any property P, if it were designed by God it would be perfect; but it is not perfect, so it was not designed by God. But how much better should it be, just a little better? Indeed, the only non-arbitrary degree of goodness of design is perfection. But is that even possible, or coherent? (SHANAHAN, s.d.). In this way, the ultra-Darwinist resembles the fundamentalist who goes to Bible College, only to discover that Moses may not indeed have been the author of Exodus (which should not come as that much of a shock, since it contains an account of his death!), and subsequently loses faith. But they remain a fundamentalist by default in so far as they have not thought to question the original model of truth that governs their approach to existence. For example, because they cannot find people in a pure, objectified mode, they presume - as a behaviourist would, a merely symbolic reality (think of Walter Gilbert’s comments about being able to carry a person on a CD in his back pocket) (GILBERT, 1992). In other words, the person, or the person’s reality, is not real; instead when we witness consciousness, pain, etc., there is no real presence as such-this, then is their Zwinglian metaphysics.

In contrast, theology does not limit truth, for it does not operate by way of a dualism. In keeping with the relation between Cartesianism and materialism, John McDowell refers to human infants as “*mere animals, distinctive only in their potential*” (MCDOWELL, 1994: 123). But for someone like Aquinas “mere animal” is an abstraction; as John O’Callaghan says, it is a vicious abstraction “if it is then projected back on to reality” (O’CALLAGHAN, 2003: 296). O’Callaghan continues, “*McDowell’s mere animal is unique in reality, a living animality that is a member of no species, who yet stands waiting to be granted admittance by the members of one particular kind of animal*” (idem: 296). According to Aquinas,

Something is one simple thing only through one form through which it has being; since it is from the same principles that a thing is a being and is one thing. And so things that are described by diverse forms are not one simple thing...If, therefore, a man were to live on account of one form (the vegetative soul), and to be an animal on account of another form (the sensitive soul), and to be a man on account of still another form (the rational soul), it would follow that he would not be one simple [substantial] thing (AQUINAS, I, 76.3).



Consequently, the intellect is not discontinuous with the sensitive and the vegetative, thus there is no mere animality. Man shares a common ancestry with all life, yes, and this, rather than being an ontological slight, is instead all the more amazing, central to the mystery of man. But there is no doubt an important lesson to be learned from this discovery. And that is to accept creation as a gift. As St. Paul writes in his epistle to the Philippians: “*Though he was in the form of God, he did not deem equality with God something to be grasped at; rather, he emptied himself and took the form of a slave, being born in the likeness of man*” (2: 6-7). And in light of the Incarnation, man, in terms of the Darwinian notion of common ancestry, reflects this divine truth.<sup>35</sup> And it is those who endeavour to grasp man’s importance, in terms of an essence, pure and simple who display their Luciferian link with Gnosticism. This then is our ontological temptation.

The kenotic, emergent nature of man is captured well by Dobzhansky:

The biological evolution has transcended itself in the human “revolution”. A new level or dimension has been reached...The transcendence does not mean that a new force or energy has arrived from nowhere...no component of the *humanum* can any longer be denied to animals, although the human constellation of these components certainly can (DOBZHANSKY, 1967:58).

Accordingly Dieter Wandschneider says, “man is the crown and the cross of creation (WANDSCHNEIDER, 2005: 206); and he means this in evolutionary terms; moreover, in being the product of natural selection, man is the “*end of Natural selection*” (WANDSCHNEIDER).<sup>36</sup> And we can realise how important this is when we read Peter Godfrey-Smith admit that “[*Natural*] Selection is seen as a critically important part of a larger intellectual enterprise, the enterprise of developing and defending a secular worldview” (GODFREY-SMITH, 2001: 350). But even Dawkins is forced into a rather precarious position: “*A cultural trait may have evolved in the way that it has, simply because it is advantageous to itself*” (DAWKINS). But this is an extraordinary concession (MARGOLIS, 2003). And in light of

35 Similarly, the Church in being a perpetual participation in the body of Christ imitates the form of creation *ex nihilo*, for it retains nature’s integrity or indeed culture’s—call it secondary causality, if you will, just as God gifts difference to creation.

36 *Ibid.*, p.204.

such a concession, we can see why the anthropologist Helmut Plessner called man an “ex-centric being”, thus he is “unhinged” (*ausgehängt*) (PLESSNER, 1970; HERDER, 1887). Similarly, Herder refers to man as “*Nature’s liberated captive*” (HERDER, 1887). In other words, man has freed himself from his central adjustment to his animal environment, doing so because man is a symbolic species (DEACON, 2006). Consequently, this means that biology is a semiotic science; a science where significance and representation are essential elements. Thus, evolutionary biology stands at the border between physical and semiotic science (*idem*), just as man does. In this way, somatic culture, especially the emergent phenomenon of language, both reveals and in some sense ends evolution by natural selection. Now, in a manner similar to Jonas, Aquinas argues that “[*t*]he human soul is a kind of horizon, and a boundary, as it were, between the corporeal world and the incorporeal world” (In II Sent. Pro.). Likewise, the soul “*exists on the horizon of eternity and time*” (Scg, II, c. 86, n. 12). Accordingly, the human is for Aquinas a little world (*minor mundus*); and importantly, the human is not just a horizon, but also a frontier (*horizon et continuum*). But again, any such horizon cannot be grasped.

## Conclusions

So, we must ask, what about Darwin? Well, it seems we must save him from the ultra-Darwinists, who dismantle his theory, doing so by ontologising it, thus ushering in the destruction wrought by ontological reductionism. Surely Vittorio Hösle is correct when he tells us that, “*We honour (Darwinism) better if we recognize its limited ontological relevance and do not make a first philosophy out of it*” (HÖSLE, 2005:218). Otherwise, we end up not believing Darwin, as indeed one of his disciples, E. O. Wilson, admits: “*The epic story of evolution is as much mythology as the laws of evolution are...a mater of faith*” (WILSON, 1978, 201). So how do we stop mythologizing Darwinism? Quite simply, by abandoning reductionism, which is, in the end, nothing but a security blanket (NOBLE, 2006). How do we do this? First, by resisting the temptation to universalize a biological theory; because if we do not resist, biology literally eats itself, as it becomes like a racing driver, who to avoid friction chooses tyres that are so smooth they offer no resistance. But then the driver will remain at a standstill, unable to move. Likewise, if Darwinism dissolves other discourses it comes to a standstill itself. As Stroud says: “*There is an embarrassing absurdity in [ontological*

*naturalism] that is revealed as soon as the naturalist reflects and acknowledges that he believes his naturalistic theory of the world...I mean he cannot say it and consistently regard what he says as true.” (STROUD, 2004: 28)*

And this also applies to universalized Darwinism (*idem*). Thus, ultra-Darwinism is like the proverbial drunk man on a moving train who appears to walk straighter than his fellow passengers. So, as said, if we are not to fall into myth, we must abandon the reductionist image.

But by way of conclusion, let us return to ultra-Darwinism, one last time. Thus far, it has been suggested that this reading of Darwinism leave us in a pokey universe. In addition, it is anti-evolutionary as it is predicated on a static picture of the natural world. Moreover, it espouses a view of the gene that is simply fictitious. Let us unpack this a little, so as to show the wholly arbitrary and anti-Darwinian nature of this pernicious ideology. First, we must realise that the ultra-Darwinian construal of genes is an historical selection, that is, it is contrived, and thus we can quite freely employ another one from the domain of possible selections (WEBSTER, 2006). And in so doing maybe we will save the phenomena, including Darwinism. There are no reasons (except maybe ideological ones) why we cannot advocate a more expansionist project, and this is just what many biologists do. The whole movement of developmental biology, for instance, begins its analyses by means other than a gene-centric perspective. Quite right too, for if there is one governing meme that dominates biological reductionism it is the ‘gene’; for there is little doubt that the gene required by such reductionism just simply does not exist.

Let us imagine this ultra-Darwinian selfish gene as a castle. There it is, a discrete entity, hidden away from the vicissitudes of the phenotype, safe behind Weismann’s barrier, its role protected by the central dogma; all it must do is wait for nature to select it. And in that eventuality its bid for immortality, so-called, will be closer to being realized. Such a notion is itself based on the already mentioned dichotomy of replicators and vehicles. But this is again arbitrary, and in being so does Darwinism a disservice; it does because any such account is wholly circular, and so question-begging.

First, as we know, Darwin did not know about genetics, so if that had not been forthcoming, and a notion of blending was all that pertained, his theory would not have collapsed. In other words, the replicator/vehicle divide is not essential, but merely historical (GOULD, 2002). Consequently, all that is needed is parent-offspring resemblance. Indeed, inheritance is itself a loose concept, in that it does not matter how inheritance occurs-behavioural, genetic, cultural, and so on (OKASHA, 2006). In addition, the highly-evolved notion of replication, in terms of fidelity, would not of course always be the case, so again we cannot pick out a phenomenon that turned up late in the game, as if it were the norm, at least without forcing the issue. And crucially, replication is itself thrown into a “black box”, for the simple reason that no reasons at all are given for the very development of replication as a process (GRIESEMER, 2006). As Griesemer says,

... replication is treated as the paradigm case of a causal process of reproduction which operates at the level of DNA. But the particular mechanisms by which reproduction in any species occurs are themselves products of evolution, so an analysis of the replication process that relies on features of biologically contingent mechanisms cannot provide necessary conditions for the process as such (idem, 2005: 96).

Put differently, if evolution depends necessarily on DNA, then the DNA mechanism cannot have evolved.

Second, apparently, basal concepts such as individuality are highly derivative, that is, they are evolved (BUSS, 1987). So selection is itself derivative, for the simple reason that selection cannot occur until there are entities to select. This means, then, that we must also take into consideration evolutionary transitions, and Dawkins et al. do not do this. In this way, “Darwinian individuals” are not nearly the whole story, and for the sake of evolution, we must not pretend they are. Indeed some argue that they are not part of the story at all, or at the very most are but a subset of, say, “inheritors” (GRIESEMER, 2006: 218-219) Again, any generalized theory of evolution must be able to account for the emergence of such individuals, for at a lower level, they weren’t individuals at all. So Dawkins is being wholly anachronistic, and in being so, dramatically curtails the explanatory power of Darwinism.

Now, we mentioned earlier that ultra-Darwinism subjects the natural world to diachronic analyses. This is true, but it's only half the story. This situation is itself a by-product of a previous endeavour, namely, to offer a purely synchronic account of replicators and vehicles - in other words, a wholly abstract, functionalist one (idem, 2005). Replicators and vehicles are defined in purely functional terms, a consequence of which is that nearly everything else is ignored, and thus cast into the diachronic sea of phylogeny. But this is itself highly contentious, for any such account rests on level-specific hierarchies that are then extrapolated to the general concept of replicator. Dawkins makes inferences from the notion of hierarchy, that is, he relies on a hierarchical picture that allows genes to be king, but at the same time, the abstract nature of his generalization cannot explain hierarchy. So, replicators are in truth particular, only one animal in the zoo, so to speak, and not the whole zoo. Moreover, the selfishness tag is highly problematic, and not for the usual reasons, namely, the imputation of intentional language. Much more importantly, it is completely arbitrary, Gnostic even. It is because we could just as easily replace the word "selfish" with "self", or individual. And this helps bring to the fore the circular nature of his generalization; in effect, to avoid "selfishness" Dawkins requires that there simply not be a self. Now, an evolutionary transition is one in which that which could live on its own, freely, as it were, subsequently cannot; it now forms a new individual (DAWKINS, 2006). And this can only be accomplished when mechanisms of conflict suppression evolve - think of a transplanted organ that may or may not be rejected. Cooperation is now exported from a lower level to a higher one (MICHOD, 1997). The important point for us is the almost Levinasian or Derridian nature of Dawkins' understanding of identity. For him we would have to be otherwise than being, if selfishness were to be avoided, thus all gifts are impossible. But this is all a bit of nonsense.

Let us take an analogy, E. O. Wilson once famously said that genes hold culture on a leash. Maybe, but the converse is also true. If we go back in time, we can understand that genes themselves, among many other natural entities stabilized the chaos of the Precambrian world, that is from the apeirontic depth arose individuals, and this became a cumulative effect, as lower levels gave way to new individuals, the selfishness of which is only another name for individuation. Indeed, natural selection itself only evolved, or emerged in the wake of this, and this is one reason why natural selection is itself not the cause of evolution but an

effect (REID, 2007); indeed, it may even prevent evolution because it retards novelty, due to its highly conservative activity. And now, just as genes kept a leash on “chaos”, so to speak, so the nested hierarchies kept a further leash on bare simplicity - the very thing reductionism is endeavouring to return us to - culture keeps a leash on genes, exporting cooperation to ever higher levels. And if it is true that with the advent of language new forms of causality emerge, then we can see that nature has selected something it cannot control. Thus, evolutionary psychology’s dichotomy of proximate and ultimate causes can now be reversed. The proximate is our evolutionary past, the ultimate is what the new level dictates, and would this not explain a great deal of human activity, doing so in a much more enlightening manner. So just as biological levels involve crucial transitions, the Darwinian paradigm is subjected to innovation of an ultimate nature. Even Dawkins admits as much. In relation to evolution: *“Darwin may have been triumphant at the end of the twentieth-century, but we must acknowledge the possibility that new facts may come to light which will force our successors of the twenty-first century to abandon Darwinism or modify it beyond recognition”* (DAWKINS, 2003: 81).

Earlier we characterized Dawkins’ gene-centric view as a castle. Well, Noble makes the point that we must realise that the DNA code for a gene is nonsense until it is interpreted functionally, *“first by the cell/protein machinery that initiates and controls transcription and post-transcriptional modifications, and then by the systems level interaction between proteins that generate higher-level function”* (NOBLE, 2006: 21). So, the gene’s castle loses its floor, because it fails to control the lower levels upon which it relies, namely, the requisite chemical conditions for its environment; for instance, there are no genes for the properties of water, or for the fatty lipids that form cell membranes. And then it loses its roof, as it is what lies above it that provides any shelter, so to speak, as it is the systems-level that accommodates every biological articulation. Thus, a gene can only be functionally defined in a specific developmental context (GRAY, 1992). Consequently, as Neumann-Held says, *“there are no component particles (domains, regions, regulatory sequences) on the DNA apart from some developmental context”* (NEUMANN-HELD, 1998:130). And then the castle loses its walls, for again it is that which lies around it that provides the last vestiges of structure - for there are no genes for interaction - thus the “semantics” come from elsewhere. To make matters

worse, the claim to hereditary, or ownership of the castle's deeds is under threat, for inheritance does not just pass through genes, for we also inherit the egg cell from our mother with all its machinery, including mitochondria, ribosomes, and other cytoplasmic components, such as the proteins that enter the nucleus to initiate DNA transcription, and lastly we inherit the environment - or better, the world - with its chemical and physical laws, not to mention cultural laws (NOBLE, 2006). Moreover, hereditary mechanisms must already be in place; thus, they are highly evolved, so natural selection cannot explain them, but is instead explained (NISSEN, 1997). With regard to Dawkins' notion of the gene, as Carlson says: "*It is important that geneticists recognize the many levels at which genes can be perceived, but it is not helpful to select one of these levels and arbitrarily designate that as the universal definition of the gene*". (CARLSON, 1991: 475).

And Portin makes the even stronger claim that "*it is arguable that the old term gene...is no longer useful*" (the work of Lenny Moss is crucial here) (PORTIN, 1993: 208).<sup>37</sup> So this castle is certainly one built on sand; that of ideology, or at best convenience. For such a castle even loses its architectural plans - the very "syntax" for its construction. The genotype/phenotype, for instance, is a derivative condition, and so is it not primitive, as it were (MÜLLER; NEWMAN, 2003). Likewise, as we know, the vehicle/replicator dichotomy is ultimately misleading. For yes, it is true that no (token) body survives death, it cannot replicate, but in the same way neither can the genotype, for any replication there, is at the level of type, because no token DNA chemicals survive. But if that is the case, then we can say that phenotypes also survive - doing so as types - are these not what we call species? It seems true to say that, for instance, the dragonfly has been around for quite some time.

Lastly, instead of reductionism, with its love of randomness, we should it seems, concentrate on the evident inherency in nature; for example, the phenomenon of convergence or homoplasy. Here we must ask (following Müller and Newman): Why do similar morphological design solutions arise repeatedly in phylogenetically independent lineages that do not share

37 The brilliant work of Lenny Moss should also be mentioned here. He has argued that the model we have of the gene today is based on the conflation of two types, namely, Genes-D (developmental resource), and Gene-P (preformationist). The latter is defined with respect to the phenotype but indeterminate with respect to DNA, whilst the former is defined with respect to DNA sequence but indeterminate with respect to the phenotype. Only by forgetting this difference can the gene of what he calls 'vulgar Darwinism' be conjured up; see *What Genes Can't Do* (Massachusetts: MIT Press, 2004)

the same molecular mechanisms and developmental systems? Or why did the basic body plans of nearly all metazoans arise within a relatively short time span, soon after the origin of multicellularity? And again, why do building elements fixate into body plans that remain largely unchanged within a given phylogenetic lineage? (MÜLLER; NEWMAN, 2003). Moreover, chemistry cannot pick out any difference between inanimate and animate entities, and DNA is just ordinary chemicals, thus without appeal to structure, or, better, form life is a non-starter; as Deacon says, “form matters” (DEACON, 2006: 128). A crucial example of the importance of form is that of the organism. But alas, the ultra-Darwinism advocated by, say, Dennett, is substrate neutral. Yet as Mario Bunge points out: “*such a formalist and immaterialist conception of biology seems attractive to some, sparing them the task of learning anything about biology*” - again nature is lost (BUNGE; MAHNER, 1997:362). Consequently, there is not any biology without form, but as we know ultra-Darwinism has no theory of the generative; (MÜLLER; NEWMAN, 2003) just as reductionism cannot speak of form, thus it cannot speak of nature, and indeed it cannot speak.

Against the reductionist image, then, Nagel seems to be correct:

The recognition of logical arguments as independently valid is a precondition of the acceptability of an evolutionary story about the source of that recognition. This means that the evolutionary hypothesis is acceptable only if reason does not need its support...the basic methods of reasoning we employ are not merely human but belong to a more general category of mind. Human minds now exemplify it (NAGEL, 2003: 136).

At least now, we can maybe begin to believe Darwin, for we no longer relegate his theory - along with nature, death, intentional-life, and all ratiocination - to the realm of myth, mystery, and superstition.

## **Bibliography**

BADIOU, A. 2001 *Ethics*, London and New York, Verso.

BAKER, L. R. 1987 *Saving Belief: a Critique of Physicalism*, Princeton, Princeton University Press, chapter 7.



- BENNETT, J. 2001 *The Enchantment of Modern Life: Attachments, Crossings and Ethics*, Princeton, Princeton University Press.
- BLACKMORE, S. 2000 *The Meme Machine*, New York, OUP.
- BRAINE, D. 1993 *The Human Person: Animal and Spirit*, London, Gerald Duckworth.
- BUNGE, M.; MAHNER, M. 1997 *Foundations of Biophilosophy*, Berlin and Hedielsberg, Springer.
- BUSS, L. 1987 *The Evolution of Individuality*, Princeton, Princeton University Press.
- CARLSON, E. A. 1991 "Defining the Gene: an Evolving Concept", *American Journal of Human Genetics*, s.l., n. 49, (s.d.): 475.
- CATALANO, J. 2000 *Thinking Matter*, London and New York, Routledge.
- CHALMERS, D. 1996 *The Conscious Mind*, Oxford, OUP.
- CHESTERTON, G. K. s.d. *Orthodoxy*, s.l., s.e, chapter 3.
- CHURCHLAND. 1988 *Matter and Consciousness*, Cambridge, MIT Press, revised edition.
- CRICK, F. 2006 "On Protein Synthesis", quoted in NEUMANN, E.; REHMANN-SUTTER, C. (eds.), *Genes in Development*, Durham and London, Duke University Press.
- \_\_\_\_\_. 1994 *The Astonishing Hypothesis: The Scientific Search for the Soul*, New York, Charels Scribner's Sons.
- CONWAY-MORRIS, S. 2003 *Life's Solution*, Cambridge, CUP.
- CUNNINGHAM, C. 2002 *Genealogy of Nihilism*, London and New York, Routledge.
- DARWIN, C. 2003 *On the Origin of Species, and other Texts*, Ontario, ed. Joseph Carroll, Broadview Texts.
- \_\_\_\_\_. 1959 *The life and Letters of Charles Darwin*, New York, Basic Books, ed. Francis Darwin.
- DAWKINS, R. 2006 *The Selfish Gene*, New York: O.U.P, 30<sup>th</sup> anniversary edition.
- \_\_\_\_\_. 2003 *A Devil's Chaplin. Selected Essays by Richard Dawkins*, London, Weidenfield and Nicholson.
- \_\_\_\_\_. 1996 'A Survival Machine', in BROCKMAN, J., *The Third Culture*, New York, Simon & Schuster, pp. 75-95.
- \_\_\_\_\_. 1986 *The Blind Watchmaker*, New York, W.W. Norton.
- DEACON, T. 2006 "Emergence: The Hole at the wheel's Hub", in CLAYTON, P.; DAVIES, P., *The Re-emergence of Emergence*, Oxford, OUP, pp.149.

- DENNETT, D. 1995 *Darwin's Dangerous Idea: Evolution and the Meanings of Life*, New York, Simon and Schuster.
- DEPEW, D.; WEBER, B. 1995 *Darwinism Evolving: Systems Dynamics and the Genealogy of Natural Selection*, Cambridge Massachusetts, A Bradford Book, MIT Press.
- DEWEY, J. 1970 'The Influence of Darwin on Philosophy', in APPLEMAN, P., *Darwin*, Norton Critical Edition, New York, W. W. Norton, pp. 393.
- \_\_\_\_\_. 1910 *The Influence of Darwin on Philosophy and Other Essays*, New York, H. Holt and Co.
- DOBZHANSKY, T. 1967 *The Biology of Ultimate Concern*, New York, New American Library.
- FODOR, J. 2001 *The Mind Doesn't Work That Way*, Cambridge Massachusetts, MIT Press.
- \_\_\_\_\_. 1998 *In Critical Condition*, Cambridge Massachusetts, MIT Press.
- FREUD, S. 1989 "Beyond the Pleasure Principle", in GRAY, P. (ed.), *The Freud Reader*, New York and London, W. W. Norton & Company, p. 617.
- GILBERT, W. 1992 "A Vision of the Grail", in KELVES, D.; HOOD, L. (eds.) *The Code of Codes*, Cambridge, Harvard University Press, pp. 96.
- GODFREY-SMITH, P. 2001 'Three Kinds of Adaptationism', in ORZACK, S.; SOBER, E., *Adaptationism and Optimality*, Cambridge, CUP, pp. 350.
- GOODMAN, N. 1970 "Seven Strictures on Similarity", in FOSTER, L.; GOODMAN, J. (eds.), *Experience and Theory*, Amherst, University of Massachusetts, pp.19-29.
- GOULD, S. J. 2002 *The Structure of Evolutionary Theory*, Cambridge, Harvard University Press.
- GRAY, R. 1992 "Death of the Gene: Developmental Systems Strike Back", in GRIFFITHS, P. (ed.), *Trees of Life*, Dordrecht, Boston and London, Kluwer, p. 176.
- GRIESEMER, J. 2006 "Genetics from an Evolutionary Process Perspective", in NEUMANN, E.; REHMANN-SUTTER, C. (eds.), *Genes in Development*, Durham and London, Duke University Press, pp. 218.
- \_\_\_\_\_. 2005 "The Informational Gene and the Substantial Body", JONES, M.; CARTWRIGHT, N. (eds.), *Idealization XII*, Amsterdam/New York, Rodopi, pp. 96.
- HAUGHT, J. 2006 *Is Nature Enough*, Cambridge, CUP.
- HENRY, M. 2003 *I am The Truth: Toward a Philosophy of Christianity*, Stanford, Stanford University Press.

- HERDER, J. G. von. 1887 "Reflections on the Philosophy of the History of Mankind 1", *Sämtliche Werke*, Berlin, no. xiii, pp. 146.
- HOSLE, V. 2005 "Objective Idealism and Darwinism", in HÖSLE, V.; ILLIES, C. (eds.), *Darwinism and Philosophy*, Notre Dame, University of Notre Dame Press, pp. 218.
- INWAGEN, P. van. 2001 *Ontology, Identity, and Modality*, Cambridge, CUP.
- JACKSON, F. 2004 "What Mary Didn't Know", *Journal of Philosophy*, Massachusetts, n. 83, pp.291-295.
- \_\_\_\_\_. 2004 *There's Something About Mary*, Cambridge, Massachusetts, MIT Press.
- JACOB, F. 1973 *The Logic of Life: A History of Heredity*, New York, Pantheon.
- JONAS, H. 2001 *The Phenomenon of Life: Toward a Philosophical Biology*, Evanston, Illinois, Northwestern University Press.
- JONES, R. 2000 *Reductionism*, Lewisberg and London, Bucknell University Press.
- KIM, J. 2006 "Being Realistic about Emergence", in CLAYTON, P.; DAVIES, P. (eds.), *The Re-emergence of Emergence*, Oxford, OUP, pp. 195.
- KOSLOWSKI, P. 1998 "Sociobiology as Bioeconomics", in KOSLOWSKI, P. (ed.), *Sociobiology and Bioeconomics*, Berlin-Heidelberg-New York, Springer, pp. 301-328.
- LEWONTIN, R. 1997 "Billions and Billions of Demons", *New York Review of Books*, New York, no. 44 (January 9th,): 31.
- LEVINAS, E. 1961 *Totalité et infini: Essai sur l'extériorité*, the Hague, Martinus Nijhoff.
- LEWIS, C.S. 2002 *Miracles*, London, Harper Collins.
- LIVANT, W. s.d. "Bill Livant's Cure for Baldness", *Science and Society*, s.l., n. 62, s.d.: 471-474.
- LOWE, E. J. 1998 *The Possibility of Metaphysics*, Oxford, OUP.
- \_\_\_\_\_. 1996 *Subjects of Experience*, Cambridge, CUP.
- MALIK, K. 2001 *Man, Beast and Zombie*, London, Phoenix Press.
- MARGOLIS, J. 2003 *The Unravelling of Scientism*, Ithaca and London, Cornell University Press.
- MARKS, J. 2002 *What it Means to be 98% Chimpanzee*, Berkeley, University of California Press.
- MCDOWELL, J. 1994 *Mind and World*, Cambridge, CUP.

- MELLOR, D.; CRANE, T. 1995 "There is no Question of Physicalism", in MOSER, P.; TROUT, J. D., *Contemporary Materialism: A Reader*, London and New York, Routledge, p.65.
- MERLEAU-PONTY, M. 1970 *Themes From the Lectures*, Evanston, Northwestern University Press.
- \_\_\_\_\_. 1962 *Phenomenology of Perception*, London, Routledge and Keegan Paul.
- MICHOD, R. E. 1997 "Cooperation and Conflict in the Evolution of Individuality", *American Naturalist*, s.l. n.149, s.d.: 607-645.
- MOSS, L. 2004 *What Genes Can't Do*, Massachusetts, MIT Press.
- MULLER, G.; NEWMAN, S. 2003 *Origination of Organismal Form*, Cambridge, Massachusetts, MIT Press.
- NAGEL, T. 2003 *The Last Word*, Oxford, OUP.
- \_\_\_\_\_. 1986 *The View From Nowhere*, Oxford, OUP.
- \_\_\_\_\_. 1979 'What is it Like to be a Bat?', in *Mortal Questions*, Cambridge, CUP, pp.165-180.
- NEUMANN-HELD, E. 1998 "Conceptualizing Genes in the Constructionist Way", in KOSLOWSKI, P. (ed.), *Sociobiology and Bioeconomics*, Berlin-Heidelberg-New York, Springer, p. 130.
- NISSEN, L. 1997 *Teleological Language in the Life Sciences*, Lanham, New York, Boulder and Oxford, Rowman and Littlefield.
- NOBLE, D. 2006 *The Music of Life*, Oxford, OUP.
- O'CALLAGHAN, J. 2003 *Thomist Realism and the Linguistic Turn*, Notre Dame, Indiana, University of Notre Dame Press.
- O' HEAR, A. 2002 *Beyond Evolution*, Oxford, OUP.
- PETERSON, J. 1999 "The Dilemma of Materialism", *International Philosophical Quarterly*, s.l., vol. XXXIX, nº4 Issue nº156, (December.): 429-437.
- OKASHA, S. 2006 *Evolution and the Levels of Selection*, Oxford, Clarendon Press.
- PLANTINGA, A. 1993 *Warrant and Proper Function*, New York, Oxford University Press, chapter 12.

- PLESSNER, H. 1970 *Laughing and crying; a study of the limits of human behavior*, Evanston, Illinois, Northwestern University Press.
- POPPER, K.; ECCLES, J. 1977 *The Self and its Brain*, Berlin, Springer.
- PORTIN, P. 1993 "The Concept of the Gene: Short History and Present Status", *The Quarterly Review of Biology*, s.l., n.68, s.d.: 208.
- QUINE, W. V. O. 1985 *The Time of My Life*, Cambridge Massachusetts, MIT Press.
- \_\_\_\_\_. O. 1949 "Designation and Existence", in FRIEGL, T.; SELLARS, W., (eds.) *Readings in Philosophical Analysis*, New York, Appleton-Century-Crofts, p. 46.
- RAHNER, K. 1965 *Hominisation: The Evolutionary Origin of Man as a Theological Problem*, New York, Herder and Herder.
- REA, M. 2002 *World Without Design*, Oxford, Clarendon Press.
- REID, R. 2007 *Biological Emergences: Evolution by Natural Experiment*, Cambridge, MIT Press.
- RIEPPPEL, O. 1986 "Species as Individuals: A Review and Critique of the Argument", *Evolutionary Biology*, New York, s.n., s.d.: 283-317.
- \_\_\_\_\_; WILSON, E. O. 1993 'The Evolution of Ethics', in HUCHINGON, J. (ed.), *Religion and the Natural Sciences: The Range of Engagement*, San Diego, Harcourt Brace, p. 310.
- \_\_\_\_\_. 1986 *Taking Darwin Seriously: a Naturalistic Approach to Philosophy*, Oxford, Blackwell.
- \_\_\_\_\_; WILSON, E. O. 1986 "Moral Philosophy as Applied Science", *Philosophy*, s.l., no. 61, s.d.: 173-192.
- SELLARS, W. 1963 "Philosophy and the Scientific Image of Man", in *Science, Perception and Reality*, London, Routledge and Keegan Paul.
- SHANAHAN, T. 2004 *The Evolution of Darwinism: Selection, Adaptation, and Progress*, in *Evolutionary Biology*, Cambridge, C.U.P.
- \_\_\_\_\_. "Darwinian Naturalism, Theism and Biological Design", *Perspectives on Science and Christian Faith*, s.l., s.n., s.d.: 173-174.
- SOBER, E. 1984 *The Nature of Selection*, Chicago and London, University of Chicago Press.
- SOMMERS, T.; ROSENBERG, A. 2003 "Darwin's nihilistic idea: evolution and the meaninglessness of life", *Biology and Philosophy*, s.l., no. 18, s.d.: 653-668.

- SPRADLIN, W.W.; PORTERFIELD, P. 1984 *The Search for Certainty*, New York-Berlin-Heidelberg-Tokyo, Springer.
- SPAEMANN, R. 2006 *malgré lui; Persons*, Oxford, OUP.
- STAMOS, D. 2003 *The Species Problem*, Langham, New York, and Oxford, Lexington Books.
- STROUD, B. 2004 "The Charm of Naturalism", in DE CARO, M.; MACARTHUR, D. (eds.), *Naturalism in Question*, Cambridge Massachusetts, Harvard University Press, p.22.
- TALIAFERRO, C.; GOETZ, S. 2007 *Naturalism (Interventions)*, Grand Rapids, Wm. B Eerdmans.
- WANDSCHNEIDER, D. 2005 "On the Problem of Direction and Goal in Biological Evolution", in HÖLE, V.; ILLIES, C. (eds.), *Darwinism and Philosophy*, Indiana, University of Notre Dame Press, p. 206.
- WEBSTER/G., G. and B. 2006 "The Origin of Species: a Structuralist Approach", in NEUMANN-HELD, E.; REHMANN-SUTTER, C. (eds.), *Genes in Development*, Durham and London, Duke University Press, p. 130.
- WHITEHEAD, A. N. 1967 *Science and the Modern World*, New York, Free Press.
- WILSON, E. O. 1978 *On Human Nature*, Cambridge Massachusetts, Harvard University Press.
- YEATS, W. B. 1962 *Explorations*, New York, Macmillan.

**Recebido: 05/07/2007**

**Aceite final: 14/08/2007**