Marx and Engels on Nature: Through Darwin, against Malthus

References to nature and the natural world are frequently made throughout Marx and Engel's body of work, however, it is seldom analyzed or commented on by readers of the history of philosophy. Furthermore, the most popular works that do treat this facet of the two theorists often glance over their theoretical engagement with Charles Darwin. Commentators such as Edward Aveling, Terrence Ball, and Ralph Colp Jr. have all proposed that the three thinkers simply exchanged a few pleasantries through a small number of letters and are only mistakenly and artificially posited to have taken philosophical ideas from each other. I argue that whilst it is true that Darwin had little to no interest in the two communists, that Marx and Engels both took substantial material from the evolutionist when it comes to their understanding of nature and the role that it plays within the large of their system. When reading through the first volume of Das Kapital, Darwin's impact is obvious, and when reading Engel's later works such as The Dialectic of Nature it becomes glaring and impossible to dismiss. In short, I draw out how the mature Marx and Engels understood nature through a Darwin stripped of his Malthusian assumptions.

Charles Darwin drew heavily from Thomas Malthus's economics to develop his theory of evolution. However, what is

to happen to Darwinian evolution and, more importantly, the conception of nature, when foundational Malthusian assumptions about scarcity, production, and subsistence are discarded and rejected? Economics, primarily through the works of Ricardo, Say, Mill, and Marshall, quickly rejected Malthus's population theory, as it asserted that production is entirely bound by factor inputs, without accounting for exogenous technological advancements—such as fertilizers and pesticides. In plainer language, Malthus's notion that population growth and economic well-being depend on competition over a fixed food supply was plain wrong. However, competition over scarce and fixed resources is one of the three pillars of Darwin's theory, but does this make evolution an untenable position? Marx and Engels were amongst the first to spot this failure in Darwinian logic, but rather than dismissing the entire system, they surprisingly crucially relied on it to understand nature. Their conception of nature shifted after the publication of *On the Origin of Species,* which had important implications for their critique of political economy and their defense of dialectics. I argue that the later Marx and Engels understood nature through Darwinian evolution, but against Malthusian population theory, and that this partly shaped their philosophically revolutionary analysis of socio-economic relations. I contrast Marx's understanding of nature, pre-Darwin, to how it appears post-Darwin in *Capital* and other later works, and finally to how this understanding is presented in Engels's later dialecticalization of nature. Parallels will also be drawn in passing between some of the three thinkers'

shared positions against essentialism and on the historicity of change.

In *The Origin,* Darwin builds what he found to be three necessary conditions for evolution to take place in nature, which, for him, explains the existing multiplicity and origin of species without appealing to special creation—the view that species are well defined and independently created by God. Firstly the condition of **variation**, that is, difference in physiological traits between common species members and between parents and offspring, which is an evident empirical fact, both in domestic and wild organisms. Importantly, as well, variances in domestically bred organisms only occur spontaneously, rather than breeders producing them themselves, and thus, variance can be attributed solely to blind natural processes[1]. Second, **inheritability:** Darwin makes the case for inheritability by first showing that the inheritance of traits is true of human breeding. He uses different breeds of domesticated pigeons as an example and gives an overview of the many types of breeds and how certain characteristics, such as colour, beak form and shape, esophagus size, and others[2], are all passed on generationally, whether it be the English carriers elongated eyelids, the runt pigeon's size and large feet, the barb's short and wide beak, the

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[1] Darwin, *On The Origin of Species*, p.44.

[2] Ibid. pp. 24-25.

list goes on.[3] Darwin argues that the facts that pigeon breeds are interfertile (different breeds can procreate between themselves and produce healthy fertile offspring), share basic bone structure, and exhibit signs of reversion to a common form when interbred, all point to the plausibility that all breeds are descended from a common ancestor, namely the rock pigeon (*Columba livia*).[4] This leads to the final Darwinian requirement for the evolution of species, **natural selection**. The role of natural selection in the theory is to explain why certain variable traits are kept and passed down, rather than discarded in the next generation. In other words, there must be an operative mechanism in nature which mimics the human breeder's manual [conscious] selection for Darwin to complete his analogy that there is a process of evolution in nature. This is where Malthus's theory of population comes in.

Malthus understood the economy and agricultural resources as being limited and fixed and geometric in their growth. This led him to be an advocate for tariffs, to keep exports above imports,[5] and to the abolition of the "poor laws", which he thought bettered the poor's conditions and thus increased childbearing without an equivalent increase in the food supply

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[3] Ibid. p. 24.

[4] Ibid. pp. 30-31.

[5] Thomas Malthus, *The grounds of an opinion on the policy restricting the importation of foreign corn.* p. 42.

which hurts everyone in the long run.[6] Malthus, like most of his 19th-century academic peers, wanted to uncover the laws that govern events, and in his view, the laws that dictate the population and thus the conditions of humankind. He postulated two principal notions: 1) The "passion between the sexes[7] will never change, hence childbirth will continue to grow exponentially, since two people can have more than two children[8] and 2) Food supply can only grow linearly,[9] since only roughly the same amount of agricultural produce can be yielded from each additional acre of farmland.[10] This led to Malthus's best-known and arguably most important tenet: if a population is left unchecked, it will outgrow its means of subsistence, and there will necessarily be a surplus population [relative to food levels] which will perish and/or struggle immensely.[11] The latter is what Darwin appropriated into his system as the operative mechanism to explain how particular trait variances are preserved in the evolutionary process of species. More explicitly, in the necessary competition between organisms for limited amounts of subsistence goods (the struggle for existence),

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[6] Thomas Malthus, *An Essay on the Principle of Population*. p. 26.

[7] Ibid. p. 4.

[8] Ibid.

[9] Ibid. p. 8.

[10] Ibid. p. 7.

[11] Ibid. chap. 18.

features will be naturally selected and passed on based on the advantage that they grant the organism in the competitive struggle for existence.[12]

As Darwin admits in *The Origin*, his conception of competition in nature "is the doctrine of Malthus applied with manifold force to the whole animal and vegetable kingdoms".13

A few important notes must first be made in passing about Darwin's resulting ideas on nature before jumping over to Marx and Engels. An important ontological move in Darwin[14] was the rejection of essentialism,[15] which is the notion that species have unchanging and determined essences. The dominant scientific discourse in Darwin's time understood species as being specially created, that is species-types do not change and are rather created whole and are preserved as such throughout time.[16] That is not to say that special creationists denied that particular organisms change whatsoever. Rather, they asserted that species

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[12] Darwin, *On The Origin of Species*, chap. III.

[13] Ibid. p. 79.

[14] Whilst Darwin cannot be said to have toppled bio-essentialism completely and definitively on his own, he certainly had an important historical role in it. Refer for example to Ernst Mayr's 1982 *The Growth of Biological Thought: Diversity, Evolution, and Inheritance*, chap. 9.

[15] The term "essentialism" and its variations was developed in the 20th century but has been frequently retroactively read into past philosophy. Refer to Mary Winsor's 2006 *The Creation of the Essentialism Story: An Exercise in Metahistory*, amongst other works.

[16] Refer to figures such as Richard Owens, Adam Sedgwick, and Georges Cuvier.

are fixed categories, and thus particular species-type cannot change to another specie type, no matter the timeframe. Darwin made the crucial move to dislodge species from having a fixed ontological identity and rather to posit that they are fluid and changing gradually over time, whilst never being completely fixed as a type. He even went so far as to claim that their semantic referring to as distinct "species" is not scientifically grounded:

> From these remarks it will be seen that I look at **the term species as one arbitrarily given**, for the sake of convenience, to a set of individuals closely resembling each other, and that it **does not essentially differ** from the term variety, which is given to less distinct and more fluctuating forms.[17]

Another important facet in Darwin, which will be important to Marx and Engels, is the importance of the historicity of change. Darwin injected into the scientific method the contingency of history and how an organism's particular material position on the historical plane shapes its development by a unitary process. This, again, was against the prominent scientific ideology of the era, which took development as being teleological; things, both animate and inanimate, change not because of their immediate conditions and afflictions, but

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[17] Darwin, *On The Origin of Species*, p.66.

because they are progressing towards an endpoint.[18] The above is what Marx and Engels will principally draw on in their engagement with Darwin and nature.

The Darwinian line that cuts across Engels and Marx is often implied to simply be a co inhabitancy in the 19th-century academic scene, and that there was no serious theoretical engagement with each other, rather only a few exchanged pleasantries through written addresses.[19] Whilst Darwin indeed had no philosophical interest in Marx and Engels's works,[20] as written earlier, this essay holds that a closer literary examination of Marx and Engels shows that Darwin did certainly influence their position on nature, even if it isn't always explicitly stated. The same is true of Engels; however, his connection to Darwin is more explicit in his posthumous work *Dialectics of Nature*. For the sake of historical context, Marx and Engels started publishing and developing their ideas in the mid-1840s and started working on the first volume of *Capital* in the early 1860s, and Darwin

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[18] Refer to thinkers such as William Payley and Robert Chambers, who helped develop notions which led to the view that the physical universe is a contrivance that is teleologically oriented towards a higher formal organization. Particularly Payley's 1802 *Natural Theology*, and Chambers's 1844 *Vestiges of the Natural History of Creation*.

[19] See for example Terence Ball's 1979 *Marx and Darwin: A Reconsideration*, Edward Aveling's 1897, *Charles Darwin and Karl Marx: A Comparison*, and Ralph Colp Jr.'s 1974, *The Contacts Between Karl Marx and Charles Darwin*.

[20] See Darwin's only letter to Marx, written October 1st, 1873, after receiving a copy of the first volume of *Capital*.

published his major work *On the Origins of Species* in 1859. Engels reads *The Origin* shortly after its publication and writes to Marx: "Darwin, by the way, whom I'm reading just now, is absolutely splendid. There was one aspect of teleology that had yet to be demolished, and that has now been done".[21] Marx, within the same year, writes to Lasalle, "Darwin's book is very important and serves me as a basis in natural science for the class struggle in history".[22][23] These latter letters were amongst the first of 38 [known] letters written by either Marx or Engels that mention Darwin.[24] Common themes found in many of these letters are 1) they appreciate and take Darwin's rejection of teleological progress in nature, 2) they like Darwin but reject his adoption of Malthusian notions of population and competition (since they understood competition of this sort to belong to capital rather than nature), and 3) natural development and economic modalities parallel each other in their being historically contingent. The rest of this essay will thus dig out and explain the above themes in various Marxian works that came before *The*

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[21] Pitskhelauri., M. (Ed.). (2010). *Marx-Engels Collected Works* (Vol. 40). Lawrence & Wishart. p. 550.

[22] Rudenko, N., Vladimirova, A. (Ed.). (2010). *Marx-Engels Collected Works* (Vol. 41). Lawrence & Wishart. p. 245.

[23] Marx makes very similar remarks on Darwin in multiple letters. A second appearance of that sentence appears both in a letter to Lasalle and in another to Engels.

[24] Bergman, Jerry, *Friedrich Engels Introduced Darwin to Karl Marx and Changed the World*, p. 463.

Origin and in works that came after, to show through contrast how Darwin did have a concrete influence on Marx and Engels's understanding of nature.

A consistent conception of nature is found in earlier Marx works, which differs from his and Engels' later texts (post-*Origin*). In the first manuscript of the *Economic and Philosophic Manuscripts of 1844*, Marx treats nature and science extensively and materialistically; "Nature is man's inorganic body – nature, that is, insofar as it is not itself human body".[25] Here, Marx draws a sharp line between "nature" and human. Nature, at this point, for Marx, is a stable, homogenous background over which human activity and production dances. (Incidentally, Engels held a very similar position in his early texts, such as in his 1845 *The Condition of the Working Class in England*.) That is not to say that humans and their bodies fall outside of nature; human is of course, completely encompassed and situated by/in nature, but what makes humankind such a distinctive species is precisely the fact that she can intake any organic material into her sphere of activity, a concept Marx calls universality.[26] In simpler terms, animals, as opposed to humans, can only interact with nature in an immediate instinctual way, whereas for humans, everything they encounter in nature can be coerced into their domain through labor, whether it be science, art, or anything else

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[25] Marx, *Economic and Philosophic Manuscripts of 1844*, manuscript 1, p. 31.

[26] Ibid. p. 31.

conscious. Furthermore, a few pages later, Marx writes that "through production, nature appears as [humans'] work and his reality. The object of labour is, therefore, the objectification of man's *species-life*: for he *duplicates himself* not only, as in consciousness, intellectually, but also actively, in reality, and therefore he sees himself in a world that he has created".[27] (An important underlying notion here, that will not be discussed explicitly as it falls outside the scope of this essay, is of course that human consciousness is materially engaged and generated through a dialectical interplay).[28] The meat of Marx's early conception of nature can thus be summed as follows: 1) Nature in the human sphere is praxiological and anthropocentric, that is, it serves only as the stage for human activity whilst not being active itself, and 2) Human, as an organism, is a species-type, who's essence is defined by it's "free [and] conscious activity",[29] i.e., labor.[30]

Marx continues to mention nature in various works after the 1844 manuscripts but before the publication of *The Origin*.

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[27] Ibid. p. 32.

[28] Human is thrown into the sensuous, which then is redoubled onto and into nature (through consciousness) which quilts Nature. Refer to ibid, p.48.

[29] Ibid. p. 31.

[30] Note: It is clear here what alienation, even in the early Marx, refers to; The inhibiting of the material expression of labor and/or the restriction of freedom and/or consciousness in production.

During this "middle" period, Marx did admittedly rework the above ideas, presumably due to his [even] further distancing from Feuerbach and Hegel during this time. For example, just a few years later in *The German Ideology*, he overturns his previous essentialist conception of humankind:

> Men can be distinguished from animals by consciousness, by religion or anything else you like. They themselves begin to distinguish themselves from animals as soon as they begin to produce their means of subsistence, a step which is conditioned by their physical organisation. […] *The nature of individuals thus depends on the material conditions determining their production*.[31]

Essence is thus annulled and instead of Human being a species-type, its subjective structuring is instead crafted as being the relation between the individual and its historically contingent production mode. However, whilst the big of the notion changed, it did not change nature itself in Marx; it is still presented as being a static resource plane.

The major change in Marx's conception of nature itself comes only after Darwin's major publication, principally in the first volume of *Capital*. In a well-known footnote of the fifteenth chapter of the book, Marx writes:

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[31] Marx, 1846, *The German Ideology*, section I, p.3.

> *Darwin has interested us in the history of Nature's Technology*, i.e., in the formation of the organs of plants and animals, which organs serve as instruments of production for sustaining life. Does not the history of the productive organs of man, of organs that are the material basis of all social organisation, deserve equal attention? […] *Technology discloses man's mode of dealing with Nature*, the process of production by which he sustains his life, and thereby also lays bare the mode of formation of his social relations, and of the mental conceptions that flow from them. […] *The weak points in the abstract materialism of natural science, a materialism that excludes history and its process, are at once evident from the abstract and ideological conceptions of its spokesmen.*[32]

This unassuming footnote can be treated as a summary of the whole of Marx's[33] latest conception of nature. It explains how it relates to Darwin, how it goes against Malthus, and what space it occupies in his larger system. As the footnote shows, there are now three distinct onto-logical spaces in the world for Marx; the

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[32] Marx, 1867, *Capital* vol. I, chapter 15, footnote 4.

[33] And presumably Engel's at the time. However, due to the homogeneity of their writings and contributions in *Capital*, it becomes often impossible to make claims about clear differences in their positions at the time.

first being, of course, purely human social activity, the second is purely natural change, and the third is where the two spheres are united through production. As Alfred Schmidt puts it, "natural and human history together constitute for Marx a differentiated unity. [..] human history is not merged in pure natural history; natural history is not merged in human history".[34] This is a complete turning away from the Marx in the 1844 manuscripts, where nature was inorganic and only turned active through human praxis. Darwin thus clearly influenced Marx to incorporate an account of nature and natural processes which falls completely outside of human engagement, a massive ontological reconfiguring in the large of the theory.

Marx and Engels's vehement rejection of Malthus is also of importance in this new understanding of the natural world. They dedicated hundreds of pages throughout their works to dismantling Malthus on an economic basis, and they subsequently heavily criticized both Darwin himself and other related thinkers[35] for making the Malthusian move of reading competition into nature. In an 1862 letter to Engels (in the early stages of writing *Capital*), Marx writes:

> Darwin rediscovers, among the beasts and plants, the society of England with its division of labour, competition,

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[34] Schmidt, *The concept of Nature in Marx*, p. 45.

[35] E.g. Herbert Spencer, Thomas Huxley, and William Sumner, amongst others.

> opening up of new markets, 'inventions 'and Malthusian 'struggle for existence'. It is Hobbes '*bellum omnium contra omnes* and is reminiscent of Hegel's *Phenomenology*, in which civil society figures as an 'intellectual animal kingdom', whereas, in Darwin, the animal kingdom figures as civil society.[36]

Marx here rebukes Darwin's assertion of the struggle for existence, as formulated by Malthus, as being universal natural law since he deems it to be a particular feature of capitalist logic. However, Marx did still admit that there does seem to be a population law in action in the natural world, since, as shown above, he now places "pure" nature as also having its own logical space; "in fact every particular historical mode of production has its own special laws of population, which are historically valid within that particular sphere. An abstract law of population exists only for plants and animals".[37] In other words, Marx took up Darwin's theory to fuel his conception of nature, but he does so by first rejecting the Malthusian elements in the theory, which leaves him with the understanding of nature that was fleshed out earlier in this paragraph. Nature, for the mature Marx, thus did operate and develop non-teleologically, nonessentially, and

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[36] Rudenko, N., Vladimirova, A. (Ed.). (2010). *Marx-Engels Collected Works* (Vol. 41). Lawrence & Wishart. p. 380.

[37] Marx, *Capital volume I*, (penguin translation), p. 784.

independently from human consciousness, as in Darwin. However, contrary to Darwin, nature's own internal laws and operations did not transfer over to where it touched the social (production and labor), due to humankind's rupturing from pure nature through its dialectical redoubling[38] (i.e. economic activity).

Engels was more engaged with Darwinian theory than Marx, both as it appeared in biology and social analysis ("social Darwinism"). He put considerable effort later in his career, post-*Capital*, to crafting his own scientific account of nature, which in the end distanced him from the conception of nature found in his joint works with Marx. He did this mainly in two steps, first in *Anti-Dühring* (1878) and finally in *Dialectic of Nature* (written in the 1880s). Both of these latter works draw from Darwin heavily and even provide interpretations and defenses of his thought.[39] But Engels did not completely abandon Marx and his earlier ideas; he rather stepped off of their previous notions to end up with a conception of World as being totally dialectical, rather

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[38] Dialectical redoubling is contemporarily understood as the negation of negation, by which an object's identity is constituted retroactively through an Other. For Marx here, nature as undefined and indetermined gives rise to humans, who then through their own doings end up defining and determining what Nature is through material activity. However, Marx seems to miss that nature as held in human practices is what retroactively generates the seeming possibility of a primary "pure" nature. See Žižek's *Less Than Nothing* for more.

[39] E.g. *Anti-Dühring*, p. 48, and part I, chap. 7, respectively.

than being dialectical only in economic and social activity. In a fragmentary note from *Dialectic of Nature* he writes:

> Dialectics, so-called *objective* dialectics, prevails throughout nature, and so-called subjective dialectics, dialectical thought, is only the reflection of the motion through opposites which asserts itself everywhere in nature, and which by the continual conflict of the opposites and their final passage into one another, or into higher forms, determines the life of nature.[40]

In short, Engels wanted to provide a dialectical framework for the natural sciences in opposition to the prevailing mechanistic basis. In *The Dialectic of Nature* Engels lays out what he deems to be three principal operative dialectical mechanisms in [pure] nature:[41] 1) "The law of the transformation of quantity into quality and vice versa", 2) "The law of the interpenetration of opposites" and 3) "The law of the negation of the negation".[42] He comes to these conclusions by interpreting[43] various findings

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[40] Engels, *Dialectics of Nature*, p. 211.

[41] These were also developed in *Anti-Dühring* but appeared more explicitly in *Dialectic of Nature.*

[42] Engels, *Dialectic of Nature*, p. 19.

[43] Often in questionable ways, it is quite obvious in these "scientific" works that Engels was still primarily a social thinker. E.g. from *Dialectic of Nature* p. 86: "This

from the fields of biology, chemistry, and physics. The actual contents of these postulates are of no importance to this essay. However, what is important is the conceptual move made here by Engels. By this point in his thought, Engels has completely inverted his and Marx's earliest conceptualizations of nature; Rather than nature being an inorganic unidimensional plane that is only turned active through human consciousness (i.e. produced through a redoubled negation) between the inorganic and the social situation,[44] Nature and human activity now share the same ontological space whose coordinates are actually determined by nature itself. Furthermore, it was actually Darwin's evolution which paved the way for Engels's final understanding of the world (nature and human) as structurally sharing the same dialectical development. As Engels put it:

"predatory economy" of animals plays an important part in the gradual transformation of species by forcing them to adapt themselves to other than the usual food, *thanks to which their blood acquires a different chemical composition* and the whole physical constitution gradually alters".

[44] Marx and Engels early understanding of nature can fairly be described as appearing through sublation [*aufhebung*] between the inorganic and subjective activity, even though they didn't use this Hegelian term explicitly in this context. E.g. "Through this production, nature appears as his work and his reality. The object of labor is, therefore, the objectification of man's species life: for he **duplicates** himself not only, as in consciousness, intellectually, but also actively, in reality, and therefore he sees himself in a world that he has created". 1844 manuscripts, manuscript I, p. 32.

> Nature is the proof of dialectics, […] Nature works dialectically and not metaphysically; […] she does not move in the eternal oneness of a perpetually recurring circle, but goes through a real historical evolution. In this connection, Darwin must be named before all others. He dealt the metaphysical conception of Nature the heaviest blow by his proof that all organic beings, plants, animals, and man himself, are the products of a process of evolution going on through millions of years.[45]

This conception of nature in the final stretch of Engels's academic career was at the foreground of much of his last works. He went further than Marx ever did when it came to the application of their dialectical materialism and believed that nature's own dialectical development was a primary condition for humankind's own historical development, a position clearly instigated by Darwin.

All in all, there is substantial evidence for proposing that Marx and Engels were both influenced by Darwin's theory of evolution. When tracing their respective ideas and conceptions of nature, it becomes clear that Darwin is what allowed both thinkers to understand nature as they did in their mature works. *On The Origin of Species* gave Marx the foundation for positing an

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[45] Engels, 1880, *Socialism Utopian and Scientific*, p. 56.

active and developing nature outside of human activity, and for Engels to place human wholly inside of nature. As the case was made in this essay, the two thinkers thus had a real and important philosophical engagement with Darwinian thought, rather than a simple symbolic mutual respect for him as it has been popularly presented. However, they also did not appropriate the whole of the theory into their own, since they still placed scarcity and competition as being part of a bourgeois logic; they thus understood nature largely through Darwin, and against Malthus.

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