Chapter 8
The Marxist Legacy

Abstract This chapter is in search of the evolutionary leap from animal existence to human being. First, the Marxist legacy is visited; the roots of Marxism in German Romanticist philosophy, British Political Economy, and French radical politics are recapitulated. Next the Classical Anthropogenesis from Democritus to Jean-Jacques Rousseau is described with its defining Robinson features. Then it is shown how Friedrich Engels' essay, "The Part Played by Labour in the Transition from Ape to Man," is just an upgraded version of this classical story. Finally, it is concluded that nowhere in this historical corpus of Enlightenment thought is a leap into difference in kind identified.

Almost Right

Alexei N Leontiev agreed that consciousness is a unique human feature and described it this way:

"The transition to consciousness is the beginning of a new, higher stage in the evolution of the psyche. In contrast to the psychic reflection peculiar to animals, conscious reflection is reflection of material reality in its separateness from the subject's actual attitudes to it, i.e. reflection that distinguishes its objective stable properties… The distinguishing of the reality reflected in man's consciousness as objective has as another aspect the distinguishing of the world of inner experiences and the possibility of developing self-observation on that basis."[1]

In other words, human consciousness is a split in the subject–object unity, which allows each pole to step forward on its own, as *the objective* and *the subjective*, respectively, neither of which exists in isolation in the animal mind.

This could hardly be said any better; human consciousness is precisely such a fileting that makes us cognizant of the world, as it is, and aware of ourselves, as we are—and able to say it. It was in recognition of this extraordinary acumen that Carl Linnaeus in *Systema naturae* 1758 said, "*Know Thyself*," and named us *Homo sapiens*, savvy man; and also why Aristotle long before had defined us as a *Zoon logon echon*, an animal with language and reason.

[1]Leontiev (1981a, b, p. 181).

N. Engelsted, *Catching Up With Aristotle*,
SpringerBriefs in Theoretical Advances in Psychology,
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Leontiev further explained how this unique—and eerie—quality had come about: "The cause underlying the humanising of man's animal-like ancestors is the emergence of labour and the formation of human society on its basis. 'Labour,' Engels wrote, 'created man himself'. Labour also created man's consciousness."[2]

The quote is from the opening line of Friedrich Engels' essay, *The part played by labour in the transition from ape to man.* The essay belongs in the obligatory Marxist canon, and not to cite it would have been out of the question for a Soviet scholar at the time. Still there is no reason to think that Leontiev did so unwillingly, as it could not have been said any shorter, nor any better. *Labour did create the human being, the human society, and the human consciousness*. Leontiev and his Marxist forebears had got it perfectly right.

Or they almost had. The italicized statement above allows more than one solution. Judging from what Marx and Engels were working on in their final years, they would have arrived at the right one had they lived longer, only they did not. They had all the vital pieces to the puzzle, labor, society, consciousness, but still not the perfect fit, and therefore missed the deep secret of the human being. If we want to uncover that secret, their story will be helpful, however.

The Historical Heritage

As everybody else, Marx and Engels were made *and bounded* by history. The historical sources that made and bounded them were three: German romanticist philosophy, British political economy, and French radical politics.

As Enlightenment cousins, British political economy and French radical politics both subscribed to *the classical anthropogenesis*, the materialist story that first launched by Democritus, and retold at every Enlightenment event, explained how wits and individual effort, Pico-wise, and step by step, had raised the human individual from a near animal state to society and civilization.

Proceeding from that narrative, John Locke begins British political economy by explaining that the fruit of a man's labor is his *private property* and inalienable natural right.[3] William Petty—his brilliant and corrupt friend from the Oxford group of savants that included the Atomist Robert Boyle and eventually morphed into Royal Society—subsequently added that the value of that fruit was determined by the amount of work put into it, the so-called *labour theory of value*. Based on the same narrative, Bernard de Mandeville's ideas on the unintended benefits of greed and depravity next led David Hume's Edinburgh friend, Adam Smith, to *the invisible hand* of the market and *the division of labour* to bring the science of economics to full flower with his seminal *Wealth of Nations* from 1776.

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[2]Leontiev, ibid.

[3]Locke had been co-writing the constitution of the slave-owning American colony Carolina and wisely included as a man's private property the work of the man's employees.

With less success against their blue bloods, the French branch of the Enlightenment family had less reason to be smug and took a dimmer view of property. "The first man who, having fenced in a piece of land, said 'This is mine,' and found people naïve enough to believe him, that man was the true founder of civil society. From how many crimes, wars, and murders, from how many horrors and misfortunes might not any one have saved mankind, by pulling up the stakes," wrote Jean-Jacques Rousseau, Lamarck's botany-mentor, in his famous version of the classical anthropogenesis.[4] Declaring—like the social reformer and anarchist Pierre-Joseph Proudhon—property to be theft,[5] pulling up the stakes became the aim of French radical politics.

German romanticist philosophy was born when Kant's German Enlightenment faltered and can at best be seen as a bastard member of the family. The hopes of the French Revolution had made expectant German citizens wear tricolore cocardes and plant freedom trees, but when the dreams were quenched, and feudal Junker rule confirmed, the creative energies turned, as already told, from the outer political scene to the inner spiritual life. As the student activist, Johann Gottlieb Fichte intoned in one of his rousing speeches to the German Nation, the armed struggle was temporarily over, and now the battle would be on the field of character and ideas.

So said, so done. Kant had made a blunder, it seemed; the master had made *cause* both an a priori concept of the mind *and* the influence from the unknown outside activating it, bottle and fill both; thus—in contemporaneous lingo—making *ego* and *non-ego* the same, which qualifies as a contradiction. Fichte, however, grabbed this contradiction, and turned it into grand philosophy. The object is of the subject's own making, he declared. The subject posits the object, and confronts it as its own limitation; in the confrontation, the subject gets to know itself, and it is with this self-consciousness, the subject becomes a conscious being. In short: "The character of Reason consists in this, that the acting and the object of the acting are one and the same; and this description completely exhausts the sphere of Reason."[6]

If it sounds weird and convoluted, it is because it is. Bertrand Russell in his *History of Western Philosophy* thought Fichte insane. If so, there was a method to his madness. Suffice to say that the identity in polarity of subject and object did make sense when we talked about the organism and its food as a natural unit; the food is obviously only 'food' by virtue of the wanting and searching organism. But besides being an object for the subject, the food material is something on its own also, a material *Gegenstand* confronting and resisting the organism, but if Fichte in his idealistic quest conflated the ideal object and the material Gegenstand, his general idea was not daft at all; it was (S → O), if (S → O) gone into orbit. What is more, it was Fichte's weird determination of human consciousness that lay, if not directly, the ground for Leontiev's definition above.

[4]Rousseau (1754).

[5]La propriété, c'est le vol! A slogan coined by Proudhon in his 1840 book What is Property? Or, an Inquiry into the Principle of Right and of Government.

[6]Fichte (1869, p. 9).

Friedrich W. J. Schelling, the next horse in the Troika of German romanticist philosophy, chose another way to conflate mind and matter. Marrying his mentor Fichte's ideas on the rise of self-consciousness to Baruch Spinoza's old Pantheism (Nature = God), he declared that Nature was the World Spirit becoming conscious of itself. Dead asleep in the mountains, slowly waking up in the plants, coming to its senses in the animals, the World Spirit finally gains self-consciousness with the human beings and knows itself for the first time. It smacks of cosmogenesis and evolution, but no, the evolution proposed by Lamarck made the Germans cross themselves. Still, Schelling's philosophy of nature gave natural science a real boost by creating great interest in nature studies and opening fields that were beyond the customary realm of mechanical physics; it gave suffering psychology a new lease on life too, as already told.

Schelling had brazenly declared that there was no excuse for not being a genius; the third charger on the Troika, his former university roommate, Georg W. F. Hegel, certainly was. Hegel took the idea of the World Spirit's rise to self-consciousness to new heights by including the whole compass of human history, philosophy, science, politics, religion, and art. Political economy was included too, as Hegel quite ingeniously used Adam Smith's division of labor, where you must part with your product, as a prime example of how Fichte's subject gets separated from its object, and how this self-estrangement leads to self-consciousness. A huge tapestry weaved by contradictions and negations, portraying human history as a cascade of dialectical leaps, Hegel's work was a virtual piece of art, and so masterful, erudite, and full of surprising insights, that for good reasons, it beguiled a whole generation of German intellectuals, Karl Marx, and Friedrich Engels among them.[7]

Hegel held that the Kingdom of Prussia marked the completion of the World Spirit's historical quest, which grandly suited the traditional Prussian elite. It did not suit the liberal Young Hegelians, however. The radical students did not think that the authoritarian Prussian state was the high point of freedom and reason and with their protestations started *German Enlightenment 2.0.* In the first wave, Ludwig Feuerbach and friends denied that the human being and human society were projections of the World Spirit; rather, they insisted, creating great furore, it was God and the divine realm that were projections, manmade fantasies. Marx agreed; his Ph.D. dissertation about the Atomists Democritus and Epicurus rejected theology in favor of philosophy, and when the conservative professors in Berlin turned it down, had to be resubmitted to the more liberal University of Jena. But in the second wave, Marx insisted that the mere unmasking of religion was not enough, to end the estrangement you also had to disclose what "cleavages and self-contradictions" within society gave rise to these chimeras in the clouds.[8]

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[7]Even clever students, who wanted to depart from the master, merely became converse Hegelians. The self-confessed 'Anti-Hegelian' Soeren Kierkegaard, for instance, who had followed Hegel's lectures in Berlin, remained a Hegelian, only he insisted that the individual could not leave it up to the World Spirit or God, but had to take the leap himself, the fateful leap out on the 70.000 fathoms, which became the basic tenet of Existentialism.

[8]Marx (1845, 4).

The authorities did not like this any better; suspect and blacklisted from civil service, the young law graduate had to take employment as newspaper editor in Rhineland, Prussia's most liberal province. It was here Marx first met Engels. On his way to his family's textile factory in Manchester, the young Engels had stopped by the offices of the *Rheinische Zeitung* to offer a cross and non-committal chief editor articles on the economic revolution in industrializing England, which was how Marx was first instructed in these matters. He was instructed in French radical politics when his co-worker Moses Hess ran a number of articles on the French Communists. Unfortunately, the articles also attracted the attention of the Prussian censors. When the newspaper was banned, Marx had to go into exile with his family in Paris, where again he met and teamed up with Engels, who had just written a shocking book of *The* [deplorable] *Condition of the Working Class in England,* based on British government reports and his own observations. When Engels convinced Marx that the working class was next in line to be emancipated, *German Enlightenment* 3.0 began. Its founding text would be the *Communist Manifesto*, which Marx—expelled from Paris on the insistence of Prussia—wrote in Brussels together with Engels in 1848 on assignment from the Communist League, but the following 1844-synthesis of Hegelian philosophy, political economy, and radical criticism was certainly a stepping stone, an important exhibit in our inquiry, too:

"The worker puts his life into the object; but now his life no longer belongs to him but to the object. Hence, the greater this activity, the more the worker lacks objects. Whatever the product of his labour is, he is not. Therefore, the greater this product, the less is he himself. The alienation of the worker in his product means not only that his labour becomes an object, an external existence, but that it exists outside him, independently, as something alien to him, and that it becomes a power on its own confronting him."[9]

When overtaken by the bloody 1848-revolution, a Europe-wide mix of bourgeois and socialist insurgency, Marx and his family had to flee again. Their final residence was a humble abode in London where, financially supported by Engels, Marx spent his day in the library of the British Museum studying and working on his mature economic theory.[10]

Co-opting Darwin

To the three components, German philosophy, French socialism, and British political economy, Engels now wanted to add yet another: *Modern science*. Taking great pride in reading up on the newest science, Engels had bought one of the first 1250 copies of *Origin of the Species*, and immediately realized Darwin's importance (Marx did not and had to be lectured by his friend). Later, when Marx had

[9]Marx (1844).

[10]'If you don't like Marxism, blame British Museum,' Mihail Gorbachev is said to have quipped.

died, Engels compared the two in his eulogy at the graveside in Highgate, saying that "just as Darwin discovered the law of development of organic nature, so Marx discovered the law of development of human history."[11]

Obviously, a link between the two great discoveries had to be made. Important in itself, but so much the more urgent, since no sooner had the initial shock following *Origin's* publication been absorbed, before many in the educated classes embraced Darwinism as the answer to society and history. History was simply the seamless continuation of natural history; survival of the fittest explained why native peoples had to go down before British colonists; natural selection explained why England's upper classes were upper, its lower classes lower; and—for good measure—Darwinism also explained why women were less developed and had to defer to men.[12] Darwin's cousin, Francis Galton, himself an IQ-genius, wrote *Hereditary Genius*, which explained that the reason England had been ruled by a small number of eminent families through ages was the higher intelligence these people had inherited.[13] Anxious that the English race should slip from its top position among nations, Galton also advocated *eugenics*, the culling of the lesser breeds that Plato in *The Republic* had recommended to improve the state. Preparing this venture, practical and versatile Galton invented most of the ingenious methods and procedures adopted by psychology to measure human traits and capacities, for which reason the prodigious Englishman should also be counted among the founders of scientific psychology.

Fearing that Darwinism would supplant Marxism, it did among many of his socialist comrades, Engels wanted to explain why both discoveries were necessary, and in the process correct the obvious class bias of *Social Darwinism*, as it has been named. It was with this in mind, he in 1876 began to write the essay *The part played by labour in the transition from ape to man* from which Leontiev quoted.

The Classical Anthropogenesis

As it should be, Marxism being the latest leg of the Enlightenment cascade, Engels' essay is another species of the classical anthropogenesis. First developed by Democritus,[14] beautifully retold—now dressed as myth—by his student Protagoras,[15] greatly expanded by Epicurus (and lost), retrieved by the Roman poet Lucretius (and lost), retrieved by an Italian book finder 1000 years later to fire the

[11]Engels (1888).

[12]Under the brand names 'Sociobiology' and 'Evolutionary Psychology,' Darwinism is still seen by many as the sole answer to the secrets of human society and human psychology.

[13]Galton (1869).

[14]Diodorus of Sicily (90 BC–30BC): Universal History http://penelope.uchicago.edu/Thayer/E/Roman/Texts/Diodorus_Siculus/1A*.html, book 1, Chap. 1, p. 17.

[15]Plato, 350 BC, Protagoras http://classics.mit.edu/Plato/protagoras.html.

luminaries of the Italian renaissance, subsequently informing Erasmus, Hobbes, Locke, Mandeville, and Smith, and grandly laid out by Jean-Jacques Rousseau,[16] the plot of the classical anthropogenesis has been unwavering the same. If you have yet to read Protagoras' and Rousseau's wonderful accounts, and you should, you will be familiar with the scheme from Daniel Defoe's 1719 novel *Robinson Crusoe*. The story about the marooned sailor, who, alone and exposed, used his wits and hands to make tools and provide himself with clothes and shelter, and then, at last, met and teamed up with another human being, became immensely popular—it ran through four editions in the first year alone—because it spelled out the three-step scheme of the classical anthropogenesis, which perfectly expressed the ideology of the aspiring burghers. The steps are as follows:

- First, *brains*. Weak, alone, and without the natural means by which the other animals excelled, the first human individuals had the intelligence to learn from circumstance and improve.
- Second, *tools* and *handiwork*. Using their wits and hands, the struggling individuals began to manufacture the—better and better—artificial implements and means by which they managed to survive and thrive.
- Third, *social cooperation*. Hesitantly at first, the individuals eventually began to dare trust their fellows and live and work together, which step by step led to families and communities, followed by division of labor, exchange and barter, property, and, finally, civil society with classes and all.

True to the Enlightenment tradition, Engels' version is about these three universal components. It is also an evolutionary account, by now a must. Rejecting the supernatural intervention cavalierly invoked by the mythologies, the classical anthropogenesis authors had for ages been unable to explain from where the smart humans had come in the first place. Lamarck had ended that embarrassment by pointing to our descent from a race of monkeys, which had left the trees. And if the vilified Frenchman was to have little following,[17] Darwin told the same story 60 years later in *Descent of Man*.

Engels' essay is basically a faithful compendium of *Descent of Man,* only it wants to correct a bias, the class bias exemplified by Galton. Since antiquity "all merit for the swift advance of civilization was ascribed to the mind, to the development and activity of the brain," Engels writes, and this "idealistic world outlook" still dominates "to such a degree that even the most materialistic natural scientists of the Darwinian school are still unable to form any clear idea of the origin of man, because under this ideological influence they do not recognize the part that has been played therein by labour."[18]

[16]Rousseau (1754).

[17]Except in Enlightenment Scotland where in Edinburgh young Darwin learned about it from a teacher and rejected it.

[18]Engels (1876).

In the *German Ideology* in 1846 Engels and Marx had written: "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."[19] In his *Outline of the Critique of Political Economy* from 1857 Marx later wrote: "No production possible without an instrument of production, even if this instrument is only the hand."[20] Engels therefore concluded: "Labour begins with the making of tools."[21] In other words, man is a tool-making animal, as the American Enlightenment icon Benjamin Franklin had said. And tool-making became possible when the apes left the trees and upright posture freed the hands, "the organ of labour." "This was the decisive step in the transition from ape to man," Engels writes.[22]

Reversing the traditional sequence and placing the hand first, Engels now has the mind benefit from the freed hand: "Mastery over nature began with the development of the hand, with labour, and widened man's horizon at every new advance. He was continually discovering new, hitherto unknown properties in natural objects."

Next followed—in the classical order—social cooperation, as "the development of labour necessarily helped to bring the members of society closer together by increasing cases of mutual support and joint activity, and by making clear the advantage of this joint activity to each individual."

Next language, as "men in the making arrived at the point where they had something to say to each other. Necessity created the organ; the undeveloped larynx of the ape was slowly but surely transformed by modulation to produce constantly more developed modulation, and the organs of the mouth gradually learned to pronounce one articulate sound after another."

Next accelerated synergies, as "[t]he reaction on labour and speech of the development of the brain and its attendant senses, of the increasing clarity of consciousness, power of abstraction and of conclusion, gave both labour and speech an ever-renewed impulse to further development."

And, finally, the "new element which came into play with the appearance of fully-fledged man, namely, society."

Except for the initial reversal, Engels' essay is a vintage classical anthropogenesis, but who was right? Did the working hand and not the brain take the lead in human evolution, as Engels claimed? What did the fossils show? What did the paleoanthropologists say?

When they eventually arrived, the paleoanthropologists sided with the brain. To the Oxford people leading the field, a fossil combining a modern human brain with primitive ape-features discovered in a quarry in Piltdown in England in 1912 proved irrevocably that the brain had led evolution, as Galton and the Social

[19]Marx and Engels (1845, Part 1A).

[20]Marx (1857, Introduction, part one).

[21]Engels (1876).

[22]Engels (1876).

Darwinists claimed. A fossil combining a small ape brain with nearly perfect human posture, discovered in 1924 in South Africa, and named Australopithecus, was therefore dismissed as an aberration, if not an outright fraud. Then, 30 years later, the Piltdown fossil was exposed as a forgery, and a surprisingly clumsy one at that; only ideological bias explains how it could possibly have been accepted in the first place. With the Piltdown fossil a hoax, the Australopithecus was now our ancestor, which confirmed that the hand and its handiwork had preceded the expansion of the brain. Engels had been proven right.

As in time more and more fossils were unearthed and studiously described by the paleoanthropologists, the growing bulk of evidence confirmed Engels' essay. The scheme he presented—the Darwinianly evolutionized classical anthropogenesis, corrected and updated—is today's universally accepted mainstream understanding of human evolution. It allows for a plethora of minor variations, and thus the hefty theoretical disputes any scientific field thrives on, but the basic scheme is the same and presented in every textbook.

Engel's ape-and-hand narrative is also precisely the story told, for long stretches ad verbatim, by Leontiev 60 years later in *Problems in the development of mind*,[23] which adds further relevance to it and justifies our interest. And the more so since the story is also wrong!

Where the Difference? Where the Leap?

How could it possibly be wrong? It is evidence-based, practically self-telling,[24] and underwritten by Darwinism? Yes, well, but if it is not wrong, it is certainly not right either. To line up the human traits that characterize us and explain that they have evolved through natural history adds nothing new but merely repeats what we already knew from the outset. That a theory is evidence-based merely means that it got the pieces right, not—as Ptolemy showed—that it got the puzzle right. And Darwinism is hardly a magical potion you can sprinkle to make things happen; though conventionally applied as an all-purpose explanation, natural selection cannot explain novelty in evolution, and Darwin, in fact, denied that there was any.

This denial violates our premise that presumes difference in kind, but one should think that Engels, torn between Hegel's dialectics that demands leaps and Darwin's Uniformitarianism that denies them, would have had a problem also. He and Marx agreed with the tradition of the classical anthropogenesis and saw brains, tool-use, and productive work—labor—as the uniquely human features, but Darwin denied

[23]Leontiev (1981a, b).

[24]Humans are characterized by the attributes *x*, *y*, *z*; if these are not of divine origin, they must have come about in a natural way; suggest therefore a credible route this development could have taken starting from scratch. Add to this formula your own familiarity with men and society, your own experience of learning, and the documented facts of historical progress from savagery to civilization, and the story pretty much tells itself.

that any traits were uniquely human; you would always find a precursor among the animals, if in a lesser degree.

Aware of this, Marx writes: "Admittedly animals also produce. They build themselves nests, dwellings, like the bees, beavers, ants, etc."[25] But "[w]e are not now dealing with those primitive instinctive forms of labour that remind us of the mere animal. We presuppose labour in a form that stamps it as exclusively human." So what is that exclusive stamp? Marx explains: "[W]hat distinguishes the worst architect from the best of bees is this, that the architect raises his structure in imagination before he erects it in reality. At the end of every labour-process, we get a result that already existed in the imagination of the labourer at its commencement."[26] In other words, what the animals only achieves by instinct, the human being realizes by conscious design. Engels, however, was not so sure and wrote: "It goes without saying that it would not occur to us to dispute the ability of animals to act in a planned, premeditated fashion." On the contrary, among mammals "the capacity for conscious, planned action…attains quite a high level." An avid fox-hunter, Engels could draw from his own experience: "While fox-hunting in England, one can daily observe how unerringly the fox knows how to make use of its excellent knowledge of the locality in order to elude its pursuers, and how well it knows and turns to account all favorable features of the ground that cause the scent to be lost."[27]

But what about sociality then? Now it seems a little unclear to me whether Marx and Engels saw Robinson Crusoe—"a favourite theme with political economists"[28]—as an ideological chimera or a favorable example, but if the latter, the lone entrepreneur, *Homo economicus*, certainly had to be socialized, and they never tired of insisting that labor was inherently social. So could not sociality be the human mark? Alas no, "our simian ancestors were gregarious," Engels notes, and "it is obviously impossible to seek the derivation of man, the most social of all animals, from non-gregarious immediate ancestors."[29]

So there are defining human traits, labor and human consciousness, only this difference in kind grew out of difference in degree, gradually—"hundreds of thousands of years certainly elapsed"[30]— without any demarcation line separating us from our animal forebears; no vast gulf (Huxley) to be cleared at one bound (Lyell); nature did not take a leap; Darwin would have been very pleased.

It should be mentioned that Hegel had made available a trick that would turn difference in degree into difference in kind if only there were enough degrees, namely the dialectical law of the transformation of quantity into quality. Hegel's own example was the boiling of water. When heated, water upon reaching 100 °C

[25]Marx (1844), first manuscript, estranged labour.
[26]Marx (1867, III, Sect. 1).
[27]Engels (1876).
[28]Marx (1867, I, Sect. 4).
[29]Engels (1876).
[30]Ibid.

passes into a different state, not "gradually, on the contrary, [the] new state appears as a leap, suddenly interrupting and checking the gradual succession of temperature change."[31]

Sir Arthur Keith, the leading British paleoanthropologist, who had vouched for the Piltdown fossil and led the attack against Australopithecus, apparently took up this idea when he claimed that the ape turned into Homo when it reached a cranial volume of 750 cc, (100 cc more than tepid Australopithecus). Even if the notion of non-linearity in nature today is uncontroversial, 'Keith's Cerebral Rubicon,' as it was named, is, of course, pure voodoo. If it is to qualify as an explanation that adds to our understanding, you need to show what concretely happens when the symmetry is broken; the transition of water is not magical, and neither should be the transition of the ape into man. Engels was well aware of that. His formula was "not to foist the dialectical principles on nature, but to find them in it," Vygotsky writes.[32]

This would explain why Engels did not make mention of this law in his essay where—discounting the leaving of the trees—no concrete leap is identified; and this, in turn, may be the reason why Engels vacillated. He never finished the ape-essay. Broken off in mid-sentence, it was left in the drawer for twenty years until upon Engels' death it was found by his literary executors and published in the Social Democratic newspaper *Neue Zeit*. Seen as a prime example of dialectics in nature presumably, the Russians 30 years later included the essay in a collation of Engels' scientific writings titled *Dialectics in Nature.* From here Leontiev inherited the project. And the problem of the leap-less leap.

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[31]Hegel, G.W.F, 1812–1816, *Science of Logic*, § 775.

[32]Vygotsky (1927, p. 330).

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