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Why Marx's *Capital* remained unfinished? On some old and new arguments.

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ABSTRACT

Many reasons have been advanced why *Capital* remained unfinished. Some of these reasons are investigated and evaluated. Marx's bad health has seriously hampered his research and writing, but this was much more so in the early 1860s, than in the 1870s. Also, after 1872, Marx's other commitments had become much less time-consuming. During the decade and until his death, Marx studied agronomy, geography, geology, ethnology and mathematics, making extensive notes, but his scientific output was relatively small. Other reasons that have been advanced for his *opus magnum* remaining unfinished are allegedly incorrect solutions to theoretical problems that Marx was confronted with, such as the transformation of labor values in prices of production, the secular behavior of the rate of profit, the expanded reproduction of the capitalist economy, or how non-capitalist societies would evolve. Except for his theory of expanded reproduction, in combination with that of economic and financial crisis, that clearly awaited further theoretical and historical elaboration, most of these reasons are unconvincing. However, being a perfectionist, Marx was permanently searching for new material to further substantiate his theory, accumulating notes that he was unable to integrate in his manuscript of Volume 2 and 3 of *Capital*.

After years of reading and editing (and if deemed necessary, re-editing) the manuscripts and notebooks that Marx had left, Friedrich Engels, his *compagnon de route* since 1844, posthumously published the second and third volume of *Capital* in 1885 and 1894 respectively. The editing was an ordeal. Marx's handwriting was almost illegible (and occasionally in a kind of shorthand), so that Engels had first to dictate the manuscript text. Next, he had to make decisions what was relevant for publication, based on his assessment of the contents and the degree of being sufficiently final of each paragraph. Engels had learned with astonishment and dismay that Marx's manuscripts, despite being written in 1863-1865, i.e. well before the publication of Volume 1, had been hardly reworked toward publication. In a letter to August Bebel, some five months after Marx's death, he complained that Marx had left him in the dark about this and that he would have pestered him daily to continue writing and to finish the book, if only he would have known (Letter from Engels to August Bebel, 30 August 1883, MECW, 47, 52-53).² Engels seems to have struggled tremendously with Volume 3, considering the long time that passed before he published it, in spite of his optimistic forecasts, and he had felt obliged to add many footnotes, clarifications and even some new passages. The nine years that lapsed between the publication of Volume 2 and 3 can certainly, at least to some extent, be explained by

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² For our purpose it suffices to refer to the *Marx Engels Collected Works*, London: Lawrence & Wishart, 50 vols. (henceforth MECW) published between 1975 and 2004 (since 2010 also available electronically) and not to the *Marx Engels Gesamtausgabe*, which is only available in German.

Engels's dramatically deteriorating eyesight, but it is hard not to think that even Engels had lost some of his original enthusiasm.

We first investigate the "orthodox" view that the reason for *Capital* having remained unfinished is to be found *outside*, i.e. not related to, the contents of the manuscripts, such as Marx's bad health or his many political and writing obligations. However, it has been being argued increasingly convincingly that the reasons are to be found *within* the manuscripts. Heinz Kurz (2018, 11) recently stated:

"Up until recently, many readers of volumes II and III of *Das Kapital* appear to have wrongly started from the assumption that they were given the final versions of Marx's views on the issues at hand. Alas, there is no such thing as a final version and there is strong reason to presume that Marx was lost in despair given the analytical difficulties he got entangled in."

A number of these "analytical difficulties" are reviewed below and will be assessed as "culprit" for the manuscripts of *Das Kapital* having remained unfinished.

1. Bad health, time-consuming political struggles and other commitments.

The "orthodox" argument advanced for *Capital* having remained unfinished is Marx's bad health condition. David Riazanov voiced this as follows (Riazanov, 1973, 157):

"As much as his shattered health permitted him he continued to labour over his *magnum opus*, the first draft of which Marx had completed in the early sixties. But he did not succeed in making ready for publication even the second volume over which he was then labouring. We know now that the last manuscript which was incorporated in this volume was written in 1878. Any strenuous intellectual work was a menace to his overwrought brain. During these years Marx's family and Engels were in perpetual fear for Marx's life which was always threatened by a sudden stroke. The mighty organism, once capable of superhuman labour, was gradually becoming weaker. (...) After 1878 he was forced to give up all work on *Capital* in the hope that he would be able to return to it at some more auspicious time. This hope was not fulfilled."³

But even before the 1870s, we witness regular interruptions of Marx's work and research due to illness. Rosdolsky (1977, 383) pointed out, for instance, that the very rudimentary treatment of certain topics in the *Grundrisse* are due to illness caused by overwork.

In the years 1858-1866, Marx was chronically ill, what his next of kin attributed to overwork, poor nutrition and a bad life style. He worked during long days and nights, smoked a lot and used bad quality tobacco. Also, the hygienic conditions in the London neighborhoods where the Marxes lived were appalling. Already at a younger age Marx suffered from liver problems that worsened with the years and that he believed to be hereditary. That the long working days and his unhealthy life and living conditions were an important and recurrent health risk is evident from his headaches, insomnia and

³ The "official" Soviet Marx biography almost exclusively mentions Marx's relentless theoretical and practical work for the cause of the working class as at the origin of *Capital* having remained unfinished. Only towards the end of Marx's life bad and worsening health conditions are mentioned, as well as the traumas due to the passing away of his wife and daughter (in December 1881 and January 1883, respectively); see Fedossejew et al. (1975, 774-777). Sperber (2013) is of the same opinion.

high blood pressure that disappeared during his cures in Karlsbad (present-day Karlovy Vary) and Bad Neuenahr in 1874, 1875, 1876 and 1877 (Sperber, 2013, 518). In an interview for the *Chicago Tribune* in December 1878 the correspondent estimated the sixty years old Marx to be “over 70 years of age.” (Account of Karl Marx's Interview with the *Chicago Tribune* Correspondent, MECW, 24, 568).

Marx severely suffered from anthrax and recurrent furuncles and carbuncles. These are caused by a staphylococci infection, going together with bad nutrition, weakened immunity and exposure to cold. Marx called England “the country of carbuncles” and anthrax a proletarian disease (Letter of Marx to Ludwig Kugelmann, 11 January 1868, MECW, 42, 521-522). They were treated with hot compresses. At a later age, also opium and arsenic were prescribed, which worsened his liver problems. In addition, eye infections prevented reading and writing.

His illnesses have lead friend and foe of Marx and Marxism to various interpretations. Otto Rühle (1929, 388-390) suggested that Karl Marx was a neurotic with a minority complex, who became ill by an unconscious mental process when confronted with almost unsurmountable problems. Most other biographers have a milder judgment. It is often stated that Marx was clearly aware of weaknesses in his manuscripts, but that he was lacking strength and willpower due to recurrent illness (Riazanov, 1973, 157; Evans, 1975, 46-47; Kräztko, 2005). Recently, Stedman Jones (2016, 419) even suggested that not Marx's illnesses delayed and hindered his finishing the manuscripts, but the other way around: Marx's theoretical problems were at the origin of his illnesses.

A full medical account of Marx's health problems and their inadequate treatment was given by Félix Regnault (1933, 309-310). More recently, and based on his correspondence, Marx was diagnosed with *hidradenitis suppurativa*, a condition that not only explains the stubbornly recurring and painful boils and carbuncles, but also his joint pains, eye infections, etc. It is a skin disease that was mentioned for the first time in a French medical journal in 1864 and in an English publication only in 1933, and with which only few medical doctors are acquainted (Shuster, 2008).

During the 1870s he still suffered occasionally from carbuncles and bronchitis,⁴ and there is no doubt that his insomnia was serious and was hampering his work; the only thing that seemed to help was to reduce his work rhythm and annual stays for three weeks in a spa.⁵ It seems to us, however, that in the literature a somewhat distorted picture is often created of Marx's health condition in the 1870s, the period that is of relevance for explaining why *Capital* remained unfinished because of health problems, since his living conditions changed considerably from 1870.

It has been argued that also Marx's urgent political and journalistic activities related to the First International (McLellan, 1995, 332, 385) and the Paris Commune contributed a lot to his *opus magnum* remaining unfinished. It is therefore interesting to review briefly what exactly he wrote during the

⁴ The Marx-Engels correspondence of the 1870s mentions carbuncles and furuncles a couple of times. See the letter of Engels to Pyotr Lavrov, 29 November 1871, and to Paul Lafargue, 9 December 1871 (MECW, 44, 276, 279). Also: Marx's letter to Kugelmann, 19 January 1874 and 18 May 1874 (MECW, 45, 3, 17); Marx's letter to Engels, 4 August 1874 and 14 August 1874 (MECW, 45, 28, 34), and Marx's letter to Pyotr Lavrov, 3 December 1875, MECW, 45, 111).

⁵ See Engels's letter to Kugelmann, 1 July 1873 (MECW, 44, 515-516); Marx's letter to Kugelmann, 18 May 1874 (MECW, 45, 17); Marx's letters to Engels, 18 July 1877 and 21 September 1874 (MECW, 45, 24, 37), and to Friedrich Adolph Sorge, 27 September 1877 (MECW, 45, 275-276): “But the damned *insomnia* which has afflicted me this year has made me tremendously remiss about writing, since I have simply had to devote all my more tolerable moments to work.”

1870s and to investigate whether the pattern and output of his writing differed from that in e.g. the 1860s. In fact, based on his output of economic manuscripts, notes, and other writings, it can only be concluded that the period 1860-1866, despite Marx's poor health situation, had been a time of unusual high productivity. The ideological and organizational problems of the First International and the preparation of its Conferences in London (September 1871) and The Hague (September 1872), no doubt, absorbed a lot of the time of Marx and Engels. In a letter to Nikolai Danielson of 28 May 1872 he announced his intention to resign in the following words:

"I am so overworked, and in fact so much interfered with in my theoretical studies, that, after September, I shall *withdraw* from the *commercial concern* which, at this moment, weighs principally upon my own shoulders, and which, as you know, has its ramifications all over the world. *Mais, est modus in rebus*, and I can no longer afford—for some time at least—to combine two sorts of business of so very different a character." (Letter to Nikolai Danielson, 28 May 1872, MECW, 44, 386).⁶

Marx's "slavery" (Letter to César De Paepe, 28 May 1872, MECW, 44, 387) changed with the move of the General Council of the International to New York after The Hague Conference - in turn, Marx's strategic move to keep the Council out of a menacing control by the Blanquists and Bakuninists.

During 1871-72 Marx worked for about eighteen months on the second German edition of *Capital* (McLellan, 1995, 280). In 1871, several small letters from his hand were sent to the editors of some journals (among which *The Times*) about misrepresentations in the press of the Commune and the events in Paris. He also wrote his pamphlet *Civil War in France* and delivered various public speeches (mostly on the Commune). Between mid-January and March 1872, he wrote with Engels the pamphlet *Fictitious Splits in the International*, and another between April and July 1873 on *The Alliance of Socialist Democracy and the International Working Men's Association*. In 1873 he was editing – in fact writing – the French translation of Volume 1 of *Capital* (however, interrupted by the usual health problems), that contained some important revisions. Between April 1874 and January 1875, he drafted notes on Bakunin's book *Statehood and Anarchy*.

We must wait until April-early May 1875 when Marx drafted his *Critique of the Gotha Programme* and then until June 1878 for a couple of small vendetta-like articles against Lothar Bucher in *The Daily News* and the *Frankfurter Zeitung und Handelsblatt*, as well as an article on a history of the First International, and in September 1878 a draft article on the German Anti-Socialist Law. But stating the events in this way would do injustice, because in the years 1876-1878 Marx was also much involved in the genesis of Engels's *Anti-Dühring*, even writing a complete chapter (Riazanov, 1973, 161; McLellan, 1995, 410). After having revised about half of the manuscript of Volume 2 of *Capital* in 1870, he picked it up again in July 1878, but as Stedman Jones (2016, 540) remarked, for reasons that are unclear, he didn't come further than writing seven pages.⁷ In September 1879 Marx wrote with Engels the *Circular Letter to August Bebel, Wilhelm Liebknecht, Wilhelm Bracke and Others* and in October 1879 another draft – both, however, mostly drafted by Engels, followed early May 1880 by Marx's *Introduction to the French Edition of Engels' Socialism: Utopian and Scientific* and his one-page

⁶ The words are cryptic to mislead the Russian police.

⁷ This is not exactly true, since according to Engels (1978, 85-86), a revision was started between October 1877 and July 1878, however only leading to the seventeen quarto pages of manuscript VII, covering the bulk of the first chapter.

Preamble to the Programme of the French Workers' Party. Finally, late February-early March Marx wrote four extensive drafts of his letter to Vera Zasulich (eventually the letter of 8 March 1881 would count only 2 pages).⁸ During 1881 he also wrote critical notes on Adolph Wagner's *Lehrbuch der Politischen Oekonomie*. In comparison to his writing output of the 1860s, that of the 1870s was relatively small. No wonder, Engels who apparently thought otherwise, was astonished, after Marx had passed away, to experience how little the manuscripts had been worked on.

In 1869 Marx had familiarized himself with commercial arithmetic⁹, after which – particularly from 1878 - his mathematical studies became more systematic, leading to his notebooks and to two manuscripts on differential calculus and on theorems of derived functions. His notebooks on geology date from 1878, and his ethnological notebooks from the period 1880-1882. But, in contrast, if Marx's energy to finish *Capital* was lacking due to his bad and worsening health situation in the late 1860s and 1870s, how can the amount of energy be explained that he spent on the First International, the Paris Commune, his study of Russian agriculture and its organization (in Russian), or his study of geology, mathematics, ...? Today, an increasing number of Marx scholars are suggesting that Marx's doubts and changing ideas about crucial parts of his political economy and philosophy, have inhibited their final publication. They have singled out one or more, supposedly, crucial contradictions that *ex hypothesi* either disillusioned Marx or prevented him from finishing Volume 2 and 3 of *Capital*. These opinions are reviewed in the next sections.

2. An insolvable transformation of values in prices of production?

Some authors have advanced as reason for Marx's *magnum opus* remaining unfinished, the theory of prices of production in Volume 3 of *Capital*, as in contradiction with the value theory in Volume 1 (e.g., Wilson, 1940, 298). The Italian economist Achille Loria, who Friedrich Engels ridiculed and showered with sarcasm in his Preface of Volume 3 of *Capital*, indicated in his Karl Marx biography about Marx's procedure of transforming labor values (from *Capital*, Volume 1) in prices of production (from the posthumously published Volume 3):

“Thus, far from effecting the salvation of the threatened doctrine, this alleged solution administers a death-blow, and implies the categorical negation of what it professes to support. For what meaning can there possibly be in this reduction of value to labour, the doctrine dogmatically affirmed in the first volume, to one who already knows that the author is himself calmly prepared to jettison it? *Is there any reason for surprise at Marx's hesitation to publish this so-called defence; need we wonder that his hand trembled, that his spirit quailed, before the inexorable act of destruction?*” (Loria, 1920, 138 - Our italics)

⁸ Ryazanov (1983, 129) attributed the lack of detail in Marx's final reply to Vera Zasulich to “Marx's undermined capacity for work”, for which he also found signs in the drafts.

⁹ It is likely that Marx's studies in commercial arithmetic and his interest in accounting practices in financial reporting at that time, was due to his analysis of the economic crisis of 1867 (as evidenced by his Notebook B 113), that he found caused by speculation and fraud, made possible by increasing entanglement between new industries and the banks, by false or misleading company information and the many newly-emerging limited companies in the financial sector. We come back to this.

However, as Rudolf Hilferding already stressed in 1902, Marx's transformation procedure was written before Volume 1 of *Capital* was published (Hilferding, 1949, 155), and it is therefore hard to believe that it could have induced Marx not to finish Volume 3.

Marx was aware that his solution of the "transformation problem" was not correct, since he expressed *only* outputs and not inputs in prices of production, but he didn't seem to consider this as important (Marx, 1981, 264-265; see also e.g. Sweezy, 1949, xxiv). Moreover, Marx saw his way of dealing with surplus value and profits, and value and prices, as superior to the way the Classical economist dealt with it (Marx, 1981, 268-269).

All this provides good reasons to think that what later became known as the transformation problem cannot be considered as at the origin of *Capital* having remained unfinished. The transformation problem, considered as a serious inconsistency in Volume 3 of *Capital*, received its importance, because of the 1896 essay by von Böhm-Bawerk, *Zum Abschluss des Marxschen Systems* (von Böhm-Bawerk, 1949), after he had already stated in his *Kapital und Kapitalzins*, well before Volume 3 of *Capital* was published, that Marx's transformation problem was insolvable and – more – that Marx knew it (von Böhm-Bawerk, 1890, 389-390). In his zeal to clear Marx from the accusation of plagiarism of Rodbertus, Engels had set the solution on the agenda of Marx researchers by reminding in his Preface of *Capital*, Volume 2, that the "contradiction to the law of value" (Engels, 1978, 101) was known to Ricardo and his followers, as well as to Rodbertus, but (1) that none of them was able to solve it, (2) that Marx had already done so in his *Zur Kritik...*, and (3) that it would be published soon in the forthcoming Volume 3 of *Capital*. Engels (1978, 101-102) wrote:

"... the economists who would like to discover Marx's secret source in Rodbertus, as well as his superior predecessor, have here an opportunity to show what Rodbertus's economics can accomplish. If they show how an average rate of profit can and must come about, not only without violating the law of value, but precisely on the basis of this law, then we shall have to continue our discussion. In the meantime, they had better hurry. The brilliant investigations of this Volume 2, and its entirely new results in areas that up to now have been almost untrodden, are simply premises for the material of Volume 3, in which the final results of Marx's presentation of the process of social reproduction on the capitalist basis are developed. When this Volume 3 appears, little more will be heard of an economist named Rodbertus."

When Engels finally published Volume 3 of *Capital*, not after "some months", but ten years later, he spent many pages critically reviewing the "solutions" that were proposed by a number of authors and found these either wrong, incomplete or inferior to that of Marx in the volume (Engels, 1981, 98-111).¹⁰

3. The impossibility to reconcile the "Asiatic mode of production" or the Russian commune with historical materialism?

In his well-known preface of *Zur Kritik der Politischen Ökonomie (A Contribution to the Critique of Political Economy)*, Marx had stressed the role played in the development of society by the dialectic relationship between the forces of production and the relations of production. Despite more than a century of deterministic interpretations, many Marx scholars have reiterated that Marx's historical materialism is not implying that capitalism must necessarily follow to feudalism, or feudalism to

¹⁰ For a full account of the entries in the "Price Essay Competition" that Engels's 1884 Preface had initiated, see Howard and King (1989, 21-38).

slavery, as was already clearly stated in the *Grundrisse* (Hobsbawm, 1965, 14, 36). The succession of slavery-feudalism-capitalism is a European phenomenon (Basso, 2013, 334; Hobsbawm, 1965, 43; Sayer and Corrigan, 1983, 78-80).¹¹ In Notebook VII of the *Grundrisse*, Marx had emphasized that trade between pre-capitalist societies dissolves the old social relations, but with the degree of disintegration depending on the nature of the communities, such that these in India – or, generally, in the so-called “Asiatic community” - were hardly disturbed (Marx, 1973, 858-859). Nevertheless, capitalism was for non-capitalist modes of production, according to Marx, the “prefiguration” of their future and even justified British colonialism in India (Tomba, 2013, 399).

Stedman Jones (2016, 424-425, 569-570, 583) has argued that through his study of the Russian agricultural commune¹² Marx became aware of logical flaws in his previous theory of the development of society as determined by the development of the forces of production.¹³ The Russian commune survived not only feudalism but coexisted with capitalism, which implied that the extended reproduction of capitalism and its resulting expansion had not lead to the dissolution of this remnant of primitive communist production relations. Similarly, so Stedman Jones argued, Marx felt being confronted by the logical problem that the freeing of the Russian serfs in 1861 did not lead to their massive proletarianisation, in contrast to what largely had happened in England and the rest of Western Europe.

Against these arguments it can be advanced that despite Marx’s apparent determinism in the 1859 preface of *Zur Kritik...* he had struggled, while previously writing his notes on pre-capitalist economic formations in the *Grundrisse*, i.e. well before the 1870s, with the exact mechanisms that he thought had been at work. However, it had not prevented him from publishing the first volume of *Capital*, but had prompted him, in line with what he and Engels had written in *The German Ideology* and with his observations made in the *Grundrisse*, to revise it. His previous seemingly universalistic model of the emergence of capitalism disappeared, as is evidenced for instance by the French translation of 1872-75, in which it is stated in the preface that an industrially more developed country “only shows to those which follow it on the industrial path, the image of its own future” (Marx, 1972, 18 - our translation). And even this is not a general law (Tomba, 2013, 404). He also revised what he wrote previously on “primitive accumulation” (Anderson, 1983). Such revisions are, however, rather clarifications and are not evidence of any radical change in Marx’s thinking about the “laws of capitalist development” (Sayer and Corrigan, 1983; Araujo, 2018).

¹¹ Hobsbawm (1965, 43) points out that Marx’s discussion in the *Grundrisse* implies that European feudalism is unique. Apparently to avoid misunderstanding, Marx rewrote some sections in the 1872-1875 French translation of Volume 1 (Anderson, 1983) and in 1881 he stated in the drafts of his famous letter to Vera Zasulich that already in *Capital* Volume 1, he had limited the so-called “historical inevitability” of the succession of feudalism by capitalism to the “countries of Western Europe”; see “Drafts of the Letter to Vera Zasulich”, MECW, 24, 346, 360, 364.

¹² For this study Marx used original Russian sources that Russian scientists had provided and for which he had acquired knowledge of the language. See White (1996, Ch.5).

¹³ Krätke (2005, 160) has argued along the same lines and indicated that Marx, if he had lived longer, would have rewritten the second and third volumes of *Capital* into more historicized books, focusing on the complexities of the structural changes of capitalism but with much less attempts to fit these into dialectics as he did in the 1860s. Contrary to Stedman Jones, however, Krätke did not suggest that *Capital* remained unfinished because of insoluble inconsistencies.

Thus, Marx had certainly reason to rewrite passages in his manuscripts and, no doubt, his insights in the non-inevitable succession of economic formations changed further while studying the Russian commune. But it seems wrong to claim, as Stedman Jones is doing, that Volume 2 of *Capital* remained *deliberately* unfinished because of a fatal contradiction in Marx's historical materialism. It is true, that while having written about expanded reproduction, Marx became increasingly aware of the immense task that was ahead if he wanted to deal with how historically and factually capitalist development had been proceeding. His research on this has certainly delayed the process of writing his manuscripts of Volume 2 and 3. However, from his rewritings of the manuscripts during the 1870s we can deduce that he didn't really struggle with the issue how expanded reproduction proceeded, as Stedman Jones (2016, 569) suggested, but rather with the economic theory of the reproduction process. For a first Marxist analysis of the "expansion of capitalist relations across the world" we have to wait until Rosa Luxemburg's 1913 volume *Die Akkumulation des Kapitals* (Rosdolsky, 1977, 491n), and for that of how and via which channels capitalism emerged from feudalism until Maurice Dobb (1946) in the 1930s and 1940s.

4. Marx's law of the falling rate of profit.

Another reason that is found in the literature on Marx for *Capital* remaining unfinished, is that he increasingly had serious doubts about his "law" of the falling rate of profit that he had developed in the *Grundrisse* (written between October 1857 and May 1858).

In his authoritative and penetrating study on the genesis of *Capital*, Roman Rosdolsky showed that the concepts of constant and variable capital were developed for the first time in the *Grundrisse* (Rosdolsky, 1977, 358). Also, the difference between surplus value and profits, as well as how the average rate of profit should be defined and how the rate of profit is the result of the redistribution of the surplus value among the spheres of production, is in the *Grundrisse*, although much less developed than in *Capital*. In contrast to *Capital*, the treatment in the *Grundrisse* is based on Hegelian dialectics (Rosdolsky, 1977, 368-372; Mandel, 1971, 103).

Marx wrote in the *Grundrisse* on the fall of the rate of profit, that accompanied and resulted from the capitalist development of productive forces (Marx, 1973, 763), but mentioned factors that delay this fall (Marx, 1973, 750-751). However, his treatment in Volume 3 of *Capital* is different: the list of factors that is discussed there is more extensive than that in the *Grundrisse*, and in the *Grundrisse*, the factors mentioned are considered as slowing the fall of the rate of profit, while in *Capital* they are viewed as counteracting factors (Reuten and Thomas, 2011; Thomas and Reuten, 2013, 315). In Marx's manuscripts of December 1861-January 1862 (Notebook XVI) the "law" of the falling rate of profit is transformed into a *tendency* (Thomas and Reuten, 2013, 318-319). Only in Volume 3 of *Capital* will there be a separate chapter on the various factors that counteract the "law" (Rosdolsky, 1977, 380).

Whereas in the *Grundrisse* it is not the proletariat that overthrows capitalism, but the development of capital itself through the "law" of the falling rate of profit, in Marx's economic writings after the *Grundrisse*, i.e. from 1861 – and not, as Stedman Jones seems to suggest from the 1870s – linking that tendency with the *Zusammenbruch* of capitalism was omitted. It can hardly have been a great concern of Marx, causing his manuscripts to remain in an incomplete and unfinished state. True, he never seems to have been satisfied with his texts and repeatedly reformulated his treatment of the tendentially falling rate of profit. How to analyze the simultaneous impact of the increase in labor productivity on the rate of surplus value and on the value composition of capital? Over and over again,

he returned to his basic formula, further elaborating and often making use of his study of calculus (Sperber, 2013, 439-440). But the fact that Marx reformulated his theory in such a way that after having discussed the “law”, he listed counteracting factors, particularly the cheapening of the elements of constant capital, in our opinion implies that, in spite of his unsuccessfully attempted mathematics to come up with an unambiguous functional relationship between labor productivity-increasing technological change and the rate of profit, he found his theory sufficiently robust.

Heinz Kurz (2018) has recently argued that Marx, through his study of agronomy, realized that his explanation of the secular course of the profit rate might have been wrong, and that David Ricardo’s theory of technological change that counteracts threatening diminishing returns might well, in the end, be correct. Marx had criticized Ricardo’s views for (1) equating the cost of production of agricultural output on the marginal land as being equal to the price and, therefore, for only admitting that differential ground rent existed, and (2) for considering the source of the differential fertility of the soil as almost entirely the result of differences in natural productivity, independent of human beings and their actions to improve it (Marx, 2010, 367, 375, 462).

Kurz (2018) asks:

“Had Ricardo really been wrong with his reference to diminishing returns in agriculture? And would not Marx’s claim that the capitalists’ concern with short-term profit maximisation would necessarily lead to the desertification of land and nature more generally amount to an argument that is the dynamic equivalent of Ricardo’s static reasoning? It should therefore come as no surprise that Marx would study the works of the eminent German pioneer in agricultural and biological chemistry, Justus von Liebig, and especially his theory of the exhaustion of soil.”

It is well-known and well-documented that Marx studied Liebig, and it is true that he sought with Liebig authoritative arguments for the destructive capitalist development in agriculture due to the depletion of the natural fertility of the soil. But his study of Liebig was not so much related to doubts about the tendency of the rate of profit to fall, as to his much more dialectic materialistic analysis and concerns about the changing and disturbed interrelationship between Man and Nature (Marx uses the term *Stoffwechsel*) (Marx, 1981, 949-950; Foster, 2000, 142, 151; Leslie, 2005, 81-82; Burkett, 2006, 183).¹⁴

Most likely, Marx saw in the devastating capitalist impact on agriculture another crucial dialectic contradiction of capitalist development, similar to that related to the tendentially falling rate of profit. In contrast to the vision that capitalism is constantly revolutionizing the productive forces and is therefore progressive, we see here that Marx stressed how it undermines and ultimately destroys Nature and Man. As he indicated, differential rent in agriculture is not related to lower fertility, but to soil improvement. When the soil becomes increasingly exhausted and fertility diminishes, the rent on the cultivated soils increases and (given the real wage rate) the share of profits will fall. This insight evidently brings Malthus and Ricardo back with a vengeance.

It is doubtful, however, that Marx’s apocalyptic views on the destructive ecological nature of capitalism would have led him to change his manuscript on the tendency of the rate of profit to fall. The mechanisms underlying the secular behavior of the rate of profit, particularly the rise in the

¹⁴ The chapter on “Machinery and large-scale industry” in Volume 1 ends in similar wordings (Marx, 1976, 637-638) as the passage of Volume 3.

organic composition of capital, are completely different from these leading to the exhaustion of soil fertility due to the destructive capitalist exploitation of nature. A “Ricardian” theory stating that because of steady soil exhaustion the share of ground rent in total income will rise, would complement, rather than contradict, any tendentially falling rate of profit as leading to increasing problems and crises of the capitalist system. It is much more defensible, as Michael Krätke has argued (Krätke, 2005, 156-158), that Marx’s profound agricultural studies, are relating to the revisions of his theory of absolute ground rent.

5. Theoretical pitfalls of expanded reproduction?

How unfinished *Capital* remained, is clearly illustrated by the state in which the manuscripts of Volume 2 came to Engels. Engels had a lot of difficulties with the various manuscripts of that volume. He indicated in his preface:¹⁵

“The most difficult bit of the first part was worked over afresh in Manuscript V; the remainder of the first part and the whole of the second part presented no significant theoretical difficulties (with the exception of Chapter 17), but *the third part, on the reproduction and circulation of the social capital, seemed to him strongly in need of revision.* (...) This is how Manuscript VIII came into being, a notebook of only seventy quarto pages; but what Marx managed to compress into this space can be seen from Part Three in its published form, subtracting the pieces interposed from Manuscript II.” (Engels, 1978, 86 – our italics)

Chapter 17 (in Part Two) deals with the circulation of surplus value and with Marx’s definition of simple and expanded reproduction, whereas Manuscript VIII is to be found in Chapter 21, the second volume’s very last chapter (Marx, 1978, 565n). In Chapter 17 Marx investigated the role of available money capital in the process of capitalist reproduction – to be more precise: its role as funding the capitalists’ and workers’ purchases of what was produced (including the production of gold) and, therefore, its role in the realization of the surplus value produced. It is a difficult chapter that has confused but also inspired many later researchers, Marxist (from Rosa Luxemburg to Henryk Grossman and Oskar Lange) and non-Marxist alike.¹⁶ The following chapters are dealing with the reproduction and circulation of the social capital, or circulation at the macro-economic level of investigation. At that stage, Marx introduced his innovative reproduction schemes, that he subsequently used as instrument for analyzing the conditions of macro-economic equilibrium. Based on what Engels wrote in his preface about the sources he used for editing these chapters, it can be deduced that Marx struggled with his schemes, but also that they allowed him to describe how the process of circulation of social capital among and within the two large spheres of production of an economy must work to lead to simple or expanded reproduction of the economy. He discovered the importance of maintaining given proportions between the value components in the spheres of

¹⁵ Volume 2 consists of three parts.

¹⁶ See e.g. Cuyvers (2017, Ch.1), where it is indicated that Marx’s reproduction schemes were of much influence during the development in the 1940s and 1950s of post-Keynesian neo-Marxist economic theory. On the use of the schemes in the history of Marxist political economy, see Howard and King (1989, 106 ff.) and Howard and King (1992, 234 ff.).

production for a smooth reproduction process, and therefore the unlikelihood of this under capitalist conditions.

The chapters of Volume 2 have also been blamed of lacking empirical support (see e.g., Stedman Jones, 2016, 538). Hence, “Karl’s failure to find satisfactory solutions to the problems posed by the second volume of *Capital*” (Stedman Jones, 2016, 565). This judgment seems highly unfair. At the time that Marx wrote his manuscript there existed hardly historical or statistical data to illustrate the mechanisms at work, let alone to support the theoretical *exposé* on expanded reproduction. We must wait until the 1930s for detailed macro-economic statistical data that, at least partially, could be used in “an empirical narrative”.¹⁷ Nevertheless, as Marx’s notebooks and correspondence of the 1870s show, he attempted to supplement his analysis of capitalist reproduction with detailed empirical information (see below).

Using his reproduction schemes, Marx explored various routes how the surplus value of the Department I (means of production) could possibly be realized by intersectoral transactions with Department II (consumer goods) and concluded that only the spending by Department II of the depreciation allowances hoarded in the past could lead to a stable solution if there is a balance between the value of the constant capital of Department II that is replaced and the depreciation fund that is hoarded for later use (Marx, 1978, 540). Such a balance, which he called a “law of reproduction”, evidently shows the vulnerability of the reproduction process and how easily it can be interrupted. He therefore mentioned in Volume 3 of *Capital* various factors that will upset that “law of reproduction” and investigated in this respect the role of the credit system (Marx, 1981, 611ff.), speculation (Marx, 1981, 614-615), money hoarding and its impact on prices and the rate of interest (Marx, 1981, 663), the periodic devaluation of existing capital (Marx, 1981, 358), sudden fluctuations of the prices of raw materials and agricultural products (Marx, 1981, 204, 213), etc. Related to the vulnerability of the reproduction process is also the use of such “hoarded” depreciation fund for various speculative purposes, which brings us to Marx’s notes on crises caused by speculation, an important topic which he investigated, but remained insufficiently explored and elaborated (as evidenced by the many excerpts he made).

It is most likely that Marx’s conclusion explains – at least partly – his regularly shown interest in data and recent information on how a cyclical crisis in the major economies evolved.¹⁸ In a letter to Kugelmann, 18 May 1874, Marx indicated that he “worked through a lot of important new material for the second volume” of *Capital*, and as late as 1879, in a letter to Nikolai Danielson, 10 April 1879, he explained why he was happy that Volume 2 and 3¹⁹ of *Capital* was delayed:

¹⁷ As late as 1939, John Maynard Keynes (in his pamphlet *How to Pay for the War?*) had to rely on poor statistics and insufficiently developed concepts of national income and its components (Cuyvers, 1983).

¹⁸ In his letter to Sorge, 4 April 1876, Marx mentioned the issue of landownership and financial volatility as follows: “Could the American *book catalogues* from 1873 up till the present be sent to me from New York (*needless to say at my own expense*)? The point is I want to see for myself (for the second volume of *Capital*) what has appeared that might, perhaps, be of use as regards American agriculture and relations of landownership, ditto as regards credit (panic, money, etc., and anything connected therewith)” (MECW, 45, 115).

¹⁹ In contrast to Marx’s 1857 outline of *Capital*, that of 1866 divides it in four books, corresponding to Volume 1, 2 and 3 of *Capital*, and the *Theories of Surplus Value* (Rosdolsky, 1977, 13). It is important to stress here that what Marx calls in German “zweiten Band” in the letters that we quote, consists of what we know today as Volume 2 and 3 of *Capital*. See Marx’s Preface to the First Edition of Volume 1 of *Capital* (Marx, 1976, 93).

“*Firstly*: I should under no circumstances have published the second volume before the present English industrial crisis had reached its climax. The phenomena are this time singular, in many respects different from what they were in the past, and this—quite apart from other modifying circumstances—is easily accounted for by the fact that never before the *English crisis was preceded* by tremendous and now already 5 years lasting crisis in *the Unites States, South America, Germany, Austria, etc.* (...) However the course of this crisis may develop itself—although most important to observe in its details for the student of capitalistic production and the professional *théoricien*—it will pass over, like its predecessors, and initiate a new 'industrial cycle' with all its diversified phases of prosperity, etc. But under the cover of this 'apparently' solid English society, there lurks another crisis— *the agricultural* one which will work great and serious changes in its social structure. I shall recur to this subject on another occasion. It would lead me too far at present. *Secondly*: The bulk of materials I have received not only from *Russia*, but from the *United States, etc.*, make it pleasant for me to have a 'pretext' of continuing my studies, instead of winding them up finally for the public. *Thirdly*: My medical adviser has warned me to shorten considerably my 'working-day' if I were not desirous to relapse into the state of 1874 and the following years where I got giddy and unable to proceed after a few hours of serious application.” (MECW, 45, 354-356).

The inevitable conclusion is, we think, that during the 1870s Marx was, if not continuously, at least regularly, reading various materials on how in the real world the capitalist reproduction process is proceeding and is regularly interrupted by unbalanced and disproportionate expansion of the major spheres of production, but also by monetary and financial disturbances and crisis. This conclusion brings us to Marx's Notebook B 113, of which unfortunately no trace is found in Volume 2 or 3 of *Capital*, but from which it clearly appears that he considered the 1866 economic crisis as being caused by speculation and financial fraud. It has been convincingly argued by De Paula, et al. (2011) that Notebook B 113 contains a coherent set of notes out of five related sources that are relevant for Marx's handling of that crisis. The relationship between these notes and Marx's comments in *Capital* on general economic downturns and financial crises is obvious, but at the same time, the notes also show how unfinished Marx's analysis was, since they don't offer more than rudimentary insights into his method and his interest in the theme, and definitely not a detailed or coherent vision of the issue of financial and monetary instability and its role at the onset of an economic crisis (Cuyvers, 2017, 244-245).

This also brings us to the much later use of Marx's reproduction schemes and the insights these allowed into the factors inhibiting an uninterrupted reproduction process, in e.g., Oskar Lange's pioneering mathematical studies of the reproduction cycle in the 1950s (Lange, 1971, Ch. III and IV)²⁰, as well as to Joan Robinson's often misinterpreted *Accumulation of Capital* (Robinson, 1956). Almost eighty years before these (and other) studies, Marx was obviously badly equipped to fully work out a theory of reproduction and accumulation cycles. Even his mathematical studies did not prepare him sufficiently. It is likely that he wanted to supplement his views on the impossibility of balanced normal reproduction under capitalism, with an analysis of real-world developments of such cyclical instability, taking the UK, the United States and/or Russia as case studies. He also realized that such inherent economic instability of the capitalist economies becomes even more daunting if the

²⁰ It is well known that already in 1858 Marx linked the length of the industrial cycle with the reproduction length of fixed capital, as he indicated in his letter to Engels, 2 March 1858 (MECW, 40, 278).

potentials of financial instability and its interactions with the reproduction process and the reproduction cycle are considered.

As we know today from the pioneering studies by von Neumann, Morishima and many others, the analysis of stable long-run expansion in an input-output type model, based on reproduction schemes, requires the use of mathematical tools such as matrix algebra and calculus. Knowing that Marx's attempted solution in his imagery examples of expanded reproduction is not a solution at all (Morishima, 1973), it seems obvious that he made further attempts. Is there a link with the mathematical notes that he left behind?

Already in the notebooks in preparation of *Zur Kritik ...* from April-June 1858 do we find algebraic elaborations of series and logarithms. Marx started his study of differential and integral calculus in 1863. In the early 1870s he became increasingly convinced of the need to apply mathematics in political economy. From 1878 onwards, his mathematical studies were becoming more systematical (Yanovskaya, 1983, VIII-X) and there is reason to believe that his interest in the theoretical and philosophical foundation of calculus must be found in a broader scientific program in which political economy figured prominently (Matthews, 2002, 7-8). There can be little doubt that it was Marx's intention, apart from the application and deepening of the dialectic materialist method and the study of dialectic development processes using mathematics, "to determine mathematically the principal laws governing crises" (Marx's letter to Engels, 31 May 1873, MECW, 44, 504).²¹ From 1863, Marx's interest turned increasingly to infinitesimal calculus, not only as a mathematical technique, but also to its underlying philosophy (Smith, 1983, 256). Why Marx studied it has remained unclear, but it has been suggested that his studies went together with the continuation and deepening of his theoretical economic studies (Fahey et al., 2009, 264).²² Some have even argued that Marx formulated various theorems of *Capital* in terms of partial differential equations (Boiarskii, 1957, 12). In fact, without being allowed to go into detail, the importance of differential and integral calculus for the mathematical modelling of economic cycles, based on Marx's "laws of motion" of capitalism was pioneered in the 1940s and 1950s by the Polish Marxist Oskar Lange (1971, 151-171) and the early post-Keynesians Michał Kalecki (1944, 61 ff.) and Josef Steindl (1952, 192 ff.). However, for many other applications, Marx needed other mathematical instruments with which he was not acquainted (e.g. Boolean algebra) or that were just invented (such as matrix algebra) (Smolinski, 1973, 1199).

6. Marx's character traits.

From the foregoing it can be concluded that except the status of his theory of simple and expanded reproduction and its relation to economic crisis, not much of real substance in Marx's manuscripts is a sufficiently convincing reason to explain why *Capital* remained unfinished. Of course, he continued to struggle with some important theoretical problems, but if these prevented him from preparing his

²¹ In his letter to Engels, May 31, 1873, Marx also stated: "I have variously attempted to analyse crises by calculating these UPS AND DOWNS as irregular curves and I believed (and still believe it would be possible if the material were sufficiently studied) that I might be able to determine mathematically the principal laws governing crises." (MECW, 44, 504)

²² Sperber (2013, 460) refers to a Russian academic who was a regular visitor of Marx's and indicated that Marx was taking up the study of calculus again to answer William S. Jevons, one of the founding fathers of the marginalist theory of value in economics.

work for publication, how can it be explained that he asked his daughter Eleanor, shortly before his death, to request Engels to "make something" (Engels, 1978, 86-87) of his manuscripts, thus implicitly stating that he stood behind the ideas in the manuscripts, not that he had serious doubts about them. How, then, is it possible that a book that was going to figure so prominently in the history of economic thought and influenced so many people, remained unfinished during the writer's life, despite everything (or almost everything) being there and written down? Is Marx's personality and some of his character traits also to be held responsible?

It seems plausible that Marx's illnesses and the development of his thinking, combined with his desire for perfection, brought him into a situation where he thought it impossible to finalize what he had written in the first half of the 1860s. In the preface to Volume 2 of *Capital* Engels (1985, 84) wrote:

"It is sufficient to enumerate the manuscript material that Marx left for Volume 2 to show the incomparable conscientiousness and severe self-criticism with which he strove to bring his great economic discoveries to the utmost degree of perfection before publishing them. This self-criticism seldom allowed him to adapt his presentation, either in content or in form, to his mental horizon, which was constantly expanding as the result of new studies."

Already Arnold Ruge, Marx's co-publisher of the *Deutsch-Fransösische Jahrbücher* in 1844, had described Marx from that first journalistic period, as follows:

"... he finishes nothing, breaks off everything and plunges himself ever afresh into an endless sea of books" (McLellan, 1981, 8),

and Marx's son-in-law Paul Lafargue (1890) wrote about Marx's craving for perfection:

"Marx was never satisfied with his work – he was always making some improvements and he always found his rendering inferior to the idea he wished to convey ..."

Or, as Alex Callinicos (1996, 26-27) has put it more recently:

"Marx left behind him the manuscripts of two of the three volumes of *Capital* for Engels to edit. One reason for this tardiness was that Marx was a perfectionist, constantly rewriting and expanding his drafts, and reading more books and articles till his researches seemed endless. Another reason was the need to analyse and comment on current developments."

Marx must have felt standing in front of a Mount Everest of future work with the other volumes. How was he to deal, next, with the rest of his manuscripts? In addition, by publishing Volume 1 of *Capital*, he had set the scientific (and literary) standard against which the other volumes would be judged by friend and foe, including his political adversaries, whom he had attacked so fiercely.

At first sight, our argument that Marx's perfectionism, in combination with some remaining theoretical problems and the flood of new information on economic developments in major economies that reached him, prevented him to complete the manuscript of Volume 2 and 3 of *Capital* during the 1870s, seems shaky, in the light of his clearly unfinished 1859 *Zur Kritik der Politischen Ökonomie*, "a strange book lacking a last chapter and without a conclusion." (Stedman Jones, 2016, 407) The reason is simple: in contrast to the first volume of *Capital* Marx wanted this "first result" of his studies of political economy, as Engels (2010, 471) called the book, to be published in an urgent

attempt to demolish Proudhonist socialism “to its very foundations”, hoping “to win a scientific victory for our party.” (Marx’s letter to Weydemeyer, 1 February 1859, MECW, 40, 377).

It is also possible that Marx, disillusioned by a rather lukewarm reception of Volume 1 of *Capital* (Sperber, 2013, 457-458; Wheen, 2006, 82-92; McLellan, 1995, 324), but feeling the need to adapt, revise or expand his 1864-1865 manuscript of the other volumes, had, in fact, abandoned its completion for publication. The French and Russian translations of Volume 1 promised, however, to be successful, and Marx, prey of his passion for perfection, devoted a great deal of time to their revision. At the same time, given the state of the manuscripts, his perfectionism, combined with the fear of compromising Volume 1 in the eyes of his readers due to imperfections of certain parts in the coming volumes, may have led him to largely postpone his work on Volume 2 and 3, and to read and study more of various subjects of relevance, such as American and Russian agriculture and landownership, the economic crisis in major countries, speculative and monetary developments, etc., as is evidenced by his letter to Sorge, 4 April 1876, and to Nikolai Danielson, 10 April 1879 (see above).

Marx’s perfectionism, combined with a wide and seemingly erratic interest in knowledge, which also explains his studies in the 1870s of Russian, mathematics, geology, ethnography... – most likely contributed much to *Capital* being left unfinished. David Riazanov remarked in this respect:

“Why did he waste so much time on this systematic, fundamental summary, or expend so much labor as he spent as late as the year 1881, on one basic book on geology, summarizing it chapter by chapter. In the 63rd year of his life -- that is inexcusable pedantry. Here is another example: he received, in 1878, a copy of Morgan's work. On 98 pages of his very miniscule handwriting (you should know that a single page of his is the equivalent of a minimum of 2.2 pages of print) he makes a detailed summary of Morgan. In such manner does the old Marx work.” (quoted in Dunayevskaya, 1982, 177-178)

Many of Marx’s notes were clearly directly or indirectly relevant for his work on *Capital*. His interest in agronomy goes back to the 1850s and lasted until his death in 1883. He read Liebig, Hofmann, Kekulé... and made extensive notes. His study was prompted by the role of technological improvements in agriculture that had been of great importance in the transition from manufacturing to industrial production, as well as relevant for his theory of ground rent (Leslie, 2005, 81-82; Colman, 1937, 233-234).²³ However, his notebooks of 1878 on geology, mineralogy and chemistry relating to agriculture (published for the first time in 2011 in the *Marx Engels Gesamtausgabe* - MEGA² and comprising nearly 657 printed pages) contain a lot of drawings by hand, such as the depiction of geological profiles and of fossils that are characteristic of individual geological periods, but scarcely any own remarks. Obviously, Marx's interest in these natural sciences was not purely functional, that is, as information for his political economy. Behind his interest was lying the need to understand nature, so that he could, at a later stage, integrate the acquired insights into a total vision of the world.

Marx’s ethnological notebooks (Krader, 1974) are from the three last years of his life and contain excerpts and critical remarks in his reading of the works of Lewis Henry Morgan, John Budd Phear, Henry Summer Maine and others. His interest evidently concerned the development of economy and

²³ For the reader’s information: Colman and Kol’man, the Soviet mathematician to whom was referred before in this paper, are one and the same person. We have used the spelling of the surname following the English translation of the 1931 conference papers.

society among primitive peoples and relate to his thinking and writings of 1841-1846. Also, some relevant passages for what he wrote in the *Grundrisse* can be found. Krader, who published Marx's ethnological notes, remarked in this regard:

“The problems dealt with in 1841-1846 remained substantially the same during the period 1857-1867, when the *Grundrisse* and the volumes of *Capital* were composed; these problems continued into the period of his more systematic ethnological researches, 1879-1882. The method became increasingly concrete: it was concerned with the evolution of civil society, with the interests of economic classes and their opposition, the evolution of peasant collective institutions, the relations of the family and civilized society, the State and society, the division of social labor in relation to its nonspecialization. In the *Grundrisse* and in *Capital*, primitive man is taken up as a category, the abstraction of the primitive condition as a means and in opposition to the concretion of the capitalist economy, without reference to particular primitive peoples. India, China, Greece, Rome, and countries of modern Europe and America were specified therein; the further concretion of the particular primitive peoples in terms of the identified social institutions was then developed by Marx in the notebooks of the period 1879-1882.” (Krader, 1974, 5)

It will be remembered that, analogously to his notes on geology, mineralogy, geography, ethnography, and the like, Marx's notes on mathematics²⁴, although containing excerpts and digs which might be useful for his economic writings, must have had a much broader purpose. He seems to have thought that he could use the acquired insights and knowledge for integration in his dialectical materialism.

7. An attempt to tie loose ends together.

Why did *Capital* remain unfinished? The manuscripts were written in 1863-1865, and after Volume 1 had appeared in 1867, the publication of the other volumes was awaited with impatience. Marx's close friends and correspondents were kept informed occasionally that “Band 2” was on its way, and on other occasions that new relevant information was going to be integrated. Consequently, all had high expectations of what was to come. Of course, Marx suffered from ulcers, liver problems and insomnia, and during the 1870s went several times on a health spa cure in present-day Slovakia and Germany. However, since the early 1880s it must have become clear, at least to his closest friends, that he was increasingly lacking the energy, after a couple of severe blows in his personal life, to finish the book. By then, Marx had requested his daughter Eleanor to ask his friend and ally since 1844, Friedrich Engels, to “make something” of the manuscripts.

When Marx passed away, Engels discovered to his dismay that the largest part of the manuscripts were a *brouillon*, as he complained to Bebel a couple of months later: “Quotations from sources in no kind of order, piles of them jumbled together, collected simply with a view to future selection.” (Letter from Engels to August Bebel, 30 August 1883, MECW, 47, 53) Since 1870 Engels had been living in London and had visited Marx almost daily. If someone was to know the unfinished state of the

²⁴ According to Marx's son-in-law Paul Lafargue, Marx's study of mathematics was intellectually relaxing, and he wrote his most important notes when his wife was seriously ill, and he wanted to escape the tensions of her suffering (McLellan, 1981, 70; McLellan, 1995, 299).

manuscripts it was he, but he didn't. In the preface to the first German edition of Volume 2, Engels wrote about the manuscript:

"The bulk of the material was not finally polished, in point of language, although in substance it was for the greater part fully worked out. The language was that in which Marx used to make his excerpts: careless style full of colloquialisms, often containing coarsely humorous expressions and phrases, interspersed with English and French technical terms or with whole sentences and even pages of English. Thoughts were jotted down in the form in which they developed in the brain of the author. Some parts of the argument would be treated in detail, others of equal importance only indicated. Factual material for illustration would be collected, but barely arranged, much less worked out." (Engels, 1978, 83)

It took Engels only until January 1885, despite having been ill for some time, to have Volume 2 ready for the publisher. However, the interested world had to wait until 1894 to see Volume 3 to become available.

We do not pretend that we have shed enough light on the riddle why *Capital* remained unfinished. As far as the 1870s are concerned, when Marx could have worked on his manuscripts with full dedication, recurring painful boils and liver problems have undoubtedly delayed his work. But, given the many other tasks he performed during that period, how could they have prevented him from finishing it, if on top of his priorities list?

How about the substantive problems of the manuscripts? First, how could these have led Marx to reconsider his earlier manuscript, if he thought that Engels would be able to "make something" of them? Almost every problem that has remained unsolved in *Capital*, has also been cited by Marx scholars as a reason why the book remained unfinished. However, as we have argued, some of these old and new reasons are far from convincing. Against the reasoning that, over the years, Marx had to reconsider his former deterministic historical materialism, which was evident from his Preface of *Zur Kritik...*, it can be argued that he indicated in the period 1861-1867 that he disagreed with it. And about the so-called transformation problem of labor values in prices of production or the law of the tendency of the falling rate of profit, it can be said that despite that Marx continued to wrestle with both issues, the solutions he outlined, though imperfect, are not providing sufficient reason for these imperfections to be seen as at the basis of the unfinished nature of his manuscripts.

A more serious candidate is Marx's failure to reconcile expanded reproduction and the "laws of motion" of capitalism, with steady economic expansion as analysed using his reproduction schemes. We have mentioned that at least part of Marx's notes on calculus and differential equations were related to this problem. However, the algebra of non-negative matrices that he needed to solve it, did not exist yet. In fact, we have to wait until von Neumann's work in the 1930s with his model of an expanding economy, and that of Oskar Lange in the 1950s, before there is prospect of an acceptable solution. But all substantive problems that Marx had encountered while writing his manuscripts in the first half of the 1860s, taken together, and his attempts to give them a solution, combined with Marx's perfectionism and his insatiable appetite for knowledge, which repeatedly led him to the latest scientific findings in a large number of fields, must have formed a deadly cocktail, that prevented the finishing of the manuscripts. This is probably most clearly evidenced by Marx reading frantically about the newest developments in the major capitalist countries in fields ranging from agriculture to financial panics. Many of these notes were used by Engels while editing the manuscripts, but certainly

not all, as if he wanted to make the statement that his friend should better have put an end to his reading and rather should have finished his *magnum opus* himself.

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