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The discovery of surplus value: Karl Marx and Senior's 'last hour'

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Abstract

This essay claims to discover the point at which Marx worked out his theory of surplus value sometime during the 10-year period between 1857 and the publication of *Capital* Vol. I in 1867. This, it is claimed, was due to his reading of a well-known pamphlet by an English Oxford University professor of political economy, Nassau W. Senior. Senior had claimed that capitalist manufacturers made all of their profit during the last hour of the then normal 12-hour working day. Marx knew that this was incorrect since, if Senior was right, the capitalists might just as well employ their workers for this 1 hour alone and not bother with the other 11 hours of the working day. The workers must then have been doing something else which was of value to the capitalists over and above merely producing their profit. This something else Marx realised was nothing less than the renewal of the worn out fabric of the capitalist enterprise and hence, along with this, the recreation year after year of the capitalists claims to be the legitimate owners of the enterprise. This essay then also claims to have identified two letters by Marx written just 11 months apart which might help to further date the discovery of surplus value, in the first of which, written in 1862, Marx gives Senior's incorrect view of surplus value as profit and in the second of which, written in 1863, he gives his mature view of surplus value as profit plus the recreation of the capitalist mode of production itself. Having made this theoretical breakthrough by 1863, Marx finally stopped making notebooks and threw himself into the writing of *Capital* Vol. I in 1864, the year in which by chance Nassau Senior died.

Keywords

Capitalism, length of the working day, Marx, Nassau W. Senior, profit, surplus value

Have you ever wondered why Marx named one of the sections of *Capital* Vol. I after the English political economist and Oxford University professor Nassau W. Senior (1790–1864), the only section named after an actual person in the whole of *Capital* Vol. I, and hence, the only such section published during Marx's life time?¹ Unlike David Ricardo, for whom Marx seems to have had a great deal of respect, or even Adam Smith (so so), Marx did not respect Senior at all, and in fact speaks of him with considerable contempt in the section of *Capital* in question (Senior's 'Last Hour', Ch. IX, Section 3, 1974: 215–219). By 1867, when *Capital* Vol. I was first published, Senior had only recently died and, what is more, everyone already knew by then that his 1837 theory – that the capitalists make all of their profit during the last hour of the working day – had been disproved by a series of Factory Acts between 1837 and 1865, which had already reduced the length of the normal working day from 12 to 10 hours, but without any of the dire consequences for the development of capitalism that Senior had predicted. Why then mention Senior at all in *Capital* if this was only to ridicule his already discredited ideas? Why not just consign him to the dustbin of history?

The answer to this question I think is that there had to be something *more* to Senior's theory, at least as far as Marx was concerned, than appears to have been the case. Marx must have had some other very good reason indeed for including this section on Senior in *Capital* Vol. I than merely to discredit and ridicule Senior. In this essay, I will argue that the other reason was that Marx himself had discovered the secret of surplus value – and hence, the very *essence* of what we call Marxism today – while reading Senior's mistaken views on the question of the length of the working day, and then, in his usual way, Marx developed his own theory in opposition to that of Senior. In short, Senior is mentioned by name, and the section on his mistaken beliefs included in *Capital* Vol. I (Ch. IX, Section 3) *not* because what he had to say in 1837 was important but because what he said was very important indeed to Marx in helping to develop his own theory of surplus value.

Senior's 'last hour' (*Capital* Vol. I, Ch. IX, Section 3).

Let us begin by looking at what Marx has to say on the subject of Senior's thesis in Section 3 of *Capital* Vol. I, Ch. IX, and which, it is worth noting here, is one part of the chapter in which Marx explains his views on the subject of 'The Rate of Surplus Value'. In what follows, I quote Marx (1974) from *Capital* Vol. I in full on this point:

Section 3. Senior's 'Last Hour' (Ch. IX, Section 3, *Capital* Vol. I, 1974: 215–220).

One fine morning, in the year 1836, Nassau W. Senior, who may be called the *bel-esprit* of English economists, well known, alike for his economic 'science' and for his beautiful style, was summoned from Oxford to Manchester, to learn in the latter place, the Political Economy that he taught at the former. The manufacturers elected him their champion, not only against the newly passed Factory Act,² but against the still more menacing Ten-hours' agitation. With their usual practical acuteness, they had found out that the learned Professor 'wanted a good deal of finishing'; it was this discovery that caused them to write to him. On his side the Professor has embodied the lecture he received from the Manchester manufacturers, in a pamphlet entitled: 'letters on the Factory Act, as it affects the cotton manufacturer'. London, 1837. Here we find, amongst others, the following edifying passage:

Under the present law, no mill in which persons under the 18 years of age are employed, ... can be worked more than 11 ½ hours a day, that is 12 hours for 5 days in the week, and nine on Saturdays. 'Now the following analysis (!) will show that in a mill so worked, the whole net profit is derived *from the last hour*. I will suppose a manufacturer to invest £100,000: – £80,000 in his mill and machinery and £20,000 in raw material and wages. The annual return of that mill, supposing the capital to be turned once a year, and gross profits to be 15 per cent, ought to be goods worth £115,000 ... Of this £115,000 each of the twenty-three half-hours of work produces 5–115ths or one twenty-third. Of these 23–23rds (constituting the whole £115,000) twenty, that is to say £100,000 out of the £115,000, simply replace the capital; one twenty-third (or £5,000 out of the £115,000) makes up for the deterioration of the mill and machinery. The remaining 2–23rds, that is, the last two of the twenty three half hours of every day, produce the net profit of 10 per cent. If, therefore (prices remaining the same), the factory could be kept at work thirteen hours instead of eleven and a half, with an addition of about £2,600 to the circulating capital, the net profit would be more than doubled. On the other hand, if the hours of working were reduced by one hour per day (prices remaining the same) the *net* profit would be destroyed – if they were reduced by one hour and a half, even the gross profit would be destroyed'

(pp. 215–216)

And Marx comments on this passage: 'And the Professor calls this an "analysis"!'.

Marx goes on to explain that Senior's 'analysis' is absurd. According to Senior, the labourers in the factory are doing nothing much for the capitalist during the vast majority of the working day other than 'simply' replacing the entire worn out capital of the enterprise! But this considerable service counts for nothing as far as Senior and the Manchester manufacturers are concerned since it seems to them – and, as a matter of fact, this is the case – that this labour of 'reproduction' does not contribute anything at all to the *profit* produced by the enterprise. Marx points out however that, though contributing nothing to the profit of the enterprise, this labour – the labour performed by all the people who work in the factory for 12 hours per day and, in the case of adults over the age of 21, 15 hours per day – is far from negligible as far as the capitalist is concerned, since it is this labour that renews the capitalist's worn out fixed capital and hence, along with this, the capitalist continue to claim to be the owner of the enterprise (Smith, 2013: 184–186). As Marx (1974) says on this point in a footnote to the passage quoted above,

We let pass such extraordinary notions as are of no importance for our purpose; for instance the assertion that manufacturers reckon as part of their profit, gross or net, the amount required to make good wear and tear of machinery, or, in other words, to replace a part of the capital.

(p. 216; fn. 1)

The capitalist counts *as a loss to himself* the cost of replacing the raw materials and the worn out machinery on which the process of production depends, and even the cost of repairing and maintaining the factory itself, and this is in fact *correct* as far as the profit of the enterprise is concerned: These costs are indeed a deduction from the profit that the capitalist might otherwise take if he or she did not renew the enterprise from one year to the next. But then in this case – in order to take this 'super' profit as it were – the capitalist would have to liquidate the entire enterprise and then would cease to be a manufacturer. It is therefore incorrect to say that the labourer does nothing for the capitalist for most of the working day since it is precisely this labour which reproduces the capitalists who claim to be the owner of a capitalist enterprise from one day to the next, a claim which would otherwise wear out along with the fixed capital of the enterprise. The *proof* of this claim is that if the labourers really were doing *nothing* for the capitalist for most of the working day, as Senior claimed, then the capitalist might just as well employ the labourers for the last hour only and still make their profit, and clearly this is *not* the case. On the contrary, it is precisely the difference between profit and surplus value that is being described here. Profit is the visible surplus of the enterprise and the reproduction of the enterprise itself – actually the replacement of this anew on a more or less daily basis – is the invisible or hidden surplus. Taken together, these two parts of the surplus are what Marx calls collectively 'surplus value'.

When does Marx first mention Senior in his writing?

Marx first mentions Senior in the notebooks he wrote between 1857 and 1858 in preparation for writing *Capital*, now known in English as the *Grundrisse* (in English 'Outline') (Figure 1). However, although he quotes Senior extensively here, and in almost in exactly the same terms as those which he later cited in *Capital* Vol. I, he does not appear to attach very much importance to what Senior has to say at this time. Rather, Senior appears to be just another academic economist among many others who Marx was reading as part of his research at that time. There are then several further references to Senior in the *Grundrisse* (1973: 189, 235–237, 273, 285, 612, 808, 824–826), but most of these are not of any real interest to us here, except perhaps for Marx's (1973) observations on Senior's views (pp. 235–237) on the question of the capitalist's 'abstinence' from consumption and which Senior claims is an important part of capitalist accumulation (i.e. the fact that if he did not accumulate, he might otherwise consume his surplus product). But Marx points out in his notes on this point that, looked at logically, *everything* is 'abstinence' from something else. 'Activity' is 'abstinence' from inactivity, consumption is 'abstinence' from thrift, pleasure is abstinence from pain and so on. Marx then goes on page 273 of the *Grundrisse* to comment on Senior's views on the question of productive and unproductive labour, which he describes as 'horse-piss', while on page 285 Marx is back to Senior's views on 'abstinence'. On page 612, however, Marx has this to say:

Labour regarded merely as a sacrifice, and hence value-positing, as a *price* paid for things and hence giving them a price depending on whether they cost more or less labour, is a purely *negative* characterization. This is why Mr Senior, for example, was able to make capital into a source of production in the same sense as labour, a source *sui generis* of the production of value, because the capitalist too brings a *sacrifice*, the sacrifice of *abstinence*, in that he grows wealthy instead of eating up his product directly. Something that is merely negative creates nothing. If the worker should, e.g., enjoy his work – as the miser certainly enjoys Senior's *abstinence* – then the product does not lose any of its value. Labour *alone* produces; it is the only *substance* of products as *values*.*

And Marx then adds a footnote to this comment as follows here:

*Proudhon's lack of understanding of this matter is evident from his axiom that every labour leaves a surplus. What he denies for capital he transforms into a natural property for labour. [However] the point is rather that the labour time necessary to meet absolute needs leaves *free* time (different at the different stages of the development of the productive forces) and that therefore a surplus product can be created if *surplus labour* is worked. The aim is to suspend the relation itself, so that the surplus product itself appears as necessary. Ultimately, material production leaves everyone surplus time for other activity. There is no longer anything mystical in this. Originally, the free gifts of nature abundant, or at least merely to be appropriated. From the outset, naturally arisen association (family) and the division of labour and co-operation corresponding to it. For needs are themselves scant at the beginning. They too develop only with the forces of production.

Date	Author	Title	English Edition
1857-8	Marx	<i>Grundrisse</i>	Progress Press
1859	Marx	<i>A Contribution to the Critique of Political Economy</i>	Lawrence & Wishart 1971
1852-61	Marx &	Articles in the <i>New York Daily Tribune</i>	Progress Press and Engels <i>Tribune</i>
		Pelican Marx Library	
1861	Marx	Article in <i>Die Presse</i> on the Civil War in the United States	Progress Press and War in
		Pelican Marx Library	
1861-3 and Vol.3	Marx	<i>Theories of Surplus Value</i>	Lawrence & Wishart Vol.1, Vol.2
		1967, 1970 and 1972	
1863	Marx	<i>Proclamation on Poland</i>	Progress Press
1864	Marx	<i>Inaugural Address to the International Men's Association</i>	Progress Press and <i>Working</i>
		Pelican Marx Library	
1864	Marx	<i>Provisional Rules of the International Association</i>	Progress Press and <i>Working Men's</i>
		Pelican Marx Library	

1865	Engels	Prussian Military Question and Pelican Marx Library	Progress Press and	the German Workers
1865	Marx	Wages, Prices and Profit Selected Works Vol. II	Marx and Engels	
1866	Engels	<i>What have the Working Class Poland?</i> Pelican Marx Library	Progress Press and	<i>to Do With</i>
1867	Marx	<i>Capital</i> , Vol.1 Wishart	Progress Press and	Lawrence &

Figure 1. Chronology of the works of Marx and Engels (detail) *Grundrisse* (1973: 896–898).

We see here then that Marx appears to have been very much in danger in the first paragraph I have quoted above of presenting labour as value *creating* in much the same way as the apologists for capitalism like Senior sometimes present capital as value creating. However, as the footnote to this paragraph makes clear, this view is in fact mistaken. It is not labour but nature that is the source of all value, as Marx explained again some 20 years later in *The Critique of the Gotha Programme* (1875), and all the other claims for the source of value that have been put forward by political economy (agricultural labour, capital, labour itself [the labour theory of value] or the scarcity or rarity of certain desirable things) are ultimately dependent, according to Marx, upon this bounty of nature. Surplus value, as Marx explains here, is not value that is *added* to commodities by labour but rather this surplus is made up of that part of the working day (which Marx calls ‘surplus labour’) which the labourer does not require in order to reproduce himself or herself as a labourer (called ‘necessary labour’) and bring him or her back to work for another day. The capitalist then takes this surplus – the difference between what the labourer needs to reproduce himself or herself and what he or she does actually produce during the working day – from the labourers free and gratis and use this to ‘reproduce’ – but actually to replace – the worn out fixed capital of the enterprise. The capitalists pay the labourers for their necessary labour but not for their surplus labour.

On page 808 of the *Grundrisse*, Marx mentions Senior again where he discusses his ‘Three Lectures on the Cost of Obtaining Money’, but once again has nothing very much to say about this matter here. And this then just leaves pp. 824–826 in the *Grundrisse* where Marx (1973) reproduces once again in full the passage that he later went on to cite in *Capital* Vol. I but this time with the following very important addition:

The gross and net profit is = to the material which is worked up for the *capitalist free of charge*, and then of course one hour is = 100% more, if the surplus labour, as Mr Shit [Senior?] falsely presupposes, is only =1/12 day or only 2/23, as Senior says. ‘On the other side, if the daily hours of work were reduced by 1 hour per day (prices remaining the same), *net* profits would be destroyed; if reduced by 1 ½ hours, gross profits [would be destroyed] as well. The circulating capital would be replaced, *but there would be no fund to compensate [for] the progressive deterioration of the fixed capital*’. (12,13).

(p. 824, Emphasis added)

And then crucially – critically – Marx (1973) adds the following comment to his note taking on this point:

(As false as Mr Senior’s data [are], so important his illustration for our own theory).

(p. 825, Emphasis added)

We see here then that Marx appears to have recognised at this point – sometime around late 1858 as it would seem – the very great importance of Senior’s mistaken view of this question to his own theory of surplus value. For all his mistaken views on the question of the length of the working day and so on, the passage quoted from Senior by Marx in *Capital* does contain the all-important point that it is not only profit that is important to a viable and successful capitalist enterprise (£15,000 as Senior has this) but something else in addition to this must be set aside – the other £100,000 – in order *to replace the worn out fixed capital*. It is only what Marx here calls the *net* profit (or what he would more usually just call ‘profit’) that is destroyed when the length of the working day is shortened while the surplus value (which Marx here calls the *gross* profit) – the net profit *plus* the renewal of the worn out fixed capital – is continuously replaced anew by, as we now see, the free and unpaid surplus labour of all the people who work in the capitalist enterprise.

Other references to Senior in Marx's work

Marx also refers to Senior in the notebooks now known as *Theories of Surplus Value (TSV)* Parts 1 and 3 (Part 1: 177, 230, 287, 289–292, 383; Part 3: 30, 353, 506), which were written sometime between 1861 and 1863, and were intended by Marx to form the basis of a fourth projected volume of *Capital* – never in fact written – on the purely theoretical aspects of political economy. But, with the exception perhaps of *TSV* Part 3, 506–507, these references are only of passing interest to us – see, for example, here, where Marx discusses and dismisses Senior's views on the question of productive and unproductive labour in *TSV* Part 1 (Marx, 1969: 289–292), while he discusses and refutes Senior theory of abstinence (again) in *TSV* Part 3 – and adds little or nothing to the question we are considering here until, in *TSV* Part 3: 506–507, Marx (1972) then has the following to say:

Of course the worthy *Senior* (Nassau) also converts *industrial profit* into wages of superintendence. But he forgets this humbug as soon as it is a question, not of doctrinaire phrases, but of practical struggles between workers and factory owners. Thus, he opposes the *shortening of the working-day*, because in a working-day of say 11½ hours, the workers allegedly work only one hour for the capitalist, and the product of this one hour constitutes the capitalist's profit (apart from the interest for which they also work an hour according to his own calculation). Suddenly here industrial profit is equal to the value added by the unpaid labour-time of the worker and not to the value added by the labour which the capitalist performs in the production process of commodities. If industrial profit were the product of the capitalist's own labour time, then Senior should not have deplored that the workers work only one hour for the capitalist instead of two, and even less should he have said that, if the workers worked only 10½ hours instead of 11½, there [would be] no profit *at all*. He should have said that if the workers worked only 10½ hours instead of 11½, the capitalist would not receive wages of superintendence for 11½ hours but only for 10½, he would thus lose one hour's wage of superintendence. In which case the workers would answer that if ordinary wages for 10½ hours have to suffice for them, then the *higher wages* the capitalist receives for 10½ hours should suffice for him.

(p. 506)

And Marx (1972) then continues,

It is incomprehensible how economists like John Stuart Mill, who are Ricardians and even express the principle that profit is equal to surplus value, surplus labour, in the form that the rate of profit and wages stand in inverse ratio to one another and the rate of wages determines the rate of profit (which is incorrect when put in this form), suddenly convert industrial profit into the individual labour of the capitalist instead of into the surplus labour of the worker, unless the function of exploitation of other people's labour is called labour by them. [T]he result of this is indeed that the wages of this labour are exactly equal to the amount of other people's labour appropriated, in other words they depend directly on the degree of exploitation, not on the degree of exertion that this costs the capitalist. (Insofar as this function of exploitation really requires labour in the course of capitalist production, it is represented by the wages of general managers).

(p. 506)

Marx also refers to Senior in passing in his pamphlet *Wages, Price and Profit*, written sometime between the end of May 1865 and 27 June 1865 (and hence well before *Capital* Vol. I was published), but here again he has very little to say about Senior other than to mention him as one among a number of bourgeois economists who have entirely misunderstood the nature of surplus value (Marx, 1973: 16, 37, 116).

Was Marx right to criticise Senior?

Was Marx right to criticise Senior in the way that he does in *Capital* Vol. I? I don't think that he was. I say this because Senior does not claim to be presenting a theory of *surplus value* – how could he do this when he had never heard of any such thing? This was Marx's theory after all and hence entirely unknown to Senior – but *only* to be presenting an account of *profit*. Senior's 'last hour' only refers to the amount of profit that a capitalist might make during a normal working day and here – viewed from this perspective – it seems entirely reasonable for Senior to argue that the amount of profit that the capitalist might make must be reduced if the length of the working day was also reduced by 2 hours even if what Senior says about all of this profit being made in the last hour of the working day is complete nonsense. If what Senior has argued about all of the capitalist's profit being produced during the last hour of a 12-hour working day had been correct, then it must also logically be the case that, profit being produced during the last 12th of the working day, this profit must also be produced during the last 12th of each *hour* of the working day ($60/12 = 5$ minutes), and hence that what Senior has argued could not be correct. However, where profit depends on the exploitation of the labourer – and both Marx and Senior have agreed that this is the case – then the shortening of the working day from 12 to 10 hours must reduce by one-sixth the *absolute* amount of profit that the capitalist could make in one day. Under the pressure of competition, the cotton manufacturers overcame this problem, as Marx explains in great detail in *Capital* Vol. I (Ch. 10 and Ch. 12), by introducing new and more efficient machinery, and thereby increasing the *intensity* of the labour process that each

worker performed. The absolute surplus value was reduced as the length of the working day was reduced, but, at the same time, the relative surplus value was increased by increasing the intensity of the labour performed. Ironically therefore, and in fairness to Senior, it is *just* possible to argue that Senior's 'analysis' of *profit* – but not, of course, of surplus value – is in fact correct as far as this goes, and hence that Marx's critique of Senior is of nothing more than a straw man. Like a poor student, Marx only quotes Senior from the second page of his first letter to Mr Thomson (the Right Honourable Charles Poulett Thomson who was in 1837 the President of the Board of Trade) and has nothing at all to say about what Senior says in the remainder of his three letters. In fairness to Marx, however, it has to be said that Senior's ignorance of what it must actually have been like to work in a factory for 10 hours per day – to say nothing of 12 hours or longer – is at times quite breath-taking and fully justifies Marx's indignation on this subject.³

Two letters of 1862–1863

It is worth making one final point here in our attempt to work out exactly when Marx discovered for himself his own theory of surplus value. It might just be possible to date the discovery of surplus value by Marx a little more precisely than we have done so far in terms of Marx's reading of Senior's mistaken views on the last hour of production. A curious addendum to Marx's writings on the subject of surplus value – and hence to the difference between surplus value and profit – can be found in two letters that Marx wrote to Frederick Engels, one in August 1862 and the other in July 1863, and hence less than a year apart from one another. In the first of these two letters, Marx presents a view of surplus value as profit that is remarkably like that of Senior's last hour, and hence is clearly mistaken as far as his mature theory is concerned, while in the second letter, written just 11 months later, he distinguishes surplus value from profit and hence presents his own mature theory. The claim that I am making here therefore is that these two letters illustrate Marx's *own* struggle to come to terms with the true nature of surplus value and hence may help us to further identify the time between which he developed his mature theory.

The first of these two letters is Marx's letter to Engels dated 2 August 1862 (5 years before the publication of *Capital* Vol. I in 1867) and the second is Marx's letter to Engels dated 6 July 1863. In the first of these letters of 2 August 1862 – letter number 232 in *Marx and Engels Collected Works (MECW)* Vol. 41, pp. 394–398 – Marx in London writes to Engels in Manchester. After a few preliminary remarks about some money that Engels has given to Marx – £10 in fact, a considerable sum of money at that time when a working man could just about support a family on a wage of £1 per week, and hence equivalent in value to perhaps £1000 today – and some further comments on how Marx has found it hard to get any work done lately, Marx begins, in the third paragraph of the letter, to outline his current thinking at that time on the concept of surplus value. This is what he has to say:

As you know, I distinguish 2 (sic) parts in capital: constant capital (raw material, *matières instrumentales* [auxiliary materials], machinery, etc.) whose value only reappears in the value of the product, and secondly variable capital, i.e., the capital laid out in wages, which contains less materialised labour than is given by the worker in return for it. E.g., if the daily wage = 10 hours and the worker works 12, he replaces the variable capital + 1/5 of the same (2 hours). This latter surplus I call surplus value.

([Marx and Engels, 1985: 394](#))

Now as we have already seen, this account of 'surplus value' is in fact wrong. Marx is here making the same mistake that he later on so scathingly criticises Senior for making (and one is tempted to suggest that Marx is perhaps *quite* so scathing of Senior later on in *Capital* precisely because he had made the same mistake himself earlier on?), except that here Marx attributes the entire 'surplus value' to the last 2 hours of the working day rather than the last one as with Senior.

We then come on to the second letter which is dated 6 July 1863, and therefore was written just 11 months after Marx wrote the previous letter to Engels and is once again from Marx in London to Engels in Manchester. This letter – number 292 in *MECW* Vol. 41, pp. 483–487 – is too long to quote in full here but is available to university libraries through Project Muse. Once again, the letter begins with Marx thanking Engels for sending him some more money, this time £250 (a huge sum of money at that time and easily equivalent to £25,000 at today's values). Marx then goes on to talk about a number of other things that were of interest to both Marx and Engels at that time, including, for example, the progress of the American Civil War, before, on the third page of the letter (*MECW*, Vol.41, p. 485), Marx once again explains his thinking on the subject of surplus value to Engels.

As you know, A. Smith sees the 'NATURAL' or 'NECESSARY PRICE' as being composed of wages, profit (interest) and rent – i.e., as wholly resolved into *revenue*. This nonsense has been taken over by Ricardo, although he excludes rent from the catalogue as being purely fortuitous. Nearly *all* economists have taken this over from Smith, and those who contest this succumb to some other folly. Smith himself is conscious of the nonsensicality of subsuming the *gross product* of a society *simply under revenue* (which may be consumed annually), whereas in the case of each *individual branch* of production he

resolves price into *capital* (raw materials, machinery, etc.) and revenue (wages, profit, rent). If this were so, a society would have to start each year *de novo* [anew], without capital ...

Category I. Means of Subsistence.

Working material and machinery = e.g. £400 (i.e. that part of *these* that is included in the annual product as *dechet* [depreciation], that part of the machinery, etc., which is not used up does not figure *at all* in the table. The variable capital exchanged for labour = 100, reproduces itself as 300, since 100 replaces wages in the shape of the product, and 200 represents surplus value (*unpaid surplus labour*). The product = 700 of which 400 represents the value of the constant capital which, however, has passed entirely into the product and must hence be replaced ... In the case of this relationship between variable capital and surplus value it is assumed that the worker works 1/3 of the working day for himself and 2/3 for his NATURAL SUPERIORS.

And finally Marx adds,

Category II. Machinery and Raw Materials.

Since the *gross product of this category*, not only that part of the product which replaces constant capital, but also that which represented the equivalent of wages and surplus value, consists of *raw material* and *machinery*, the revenue of this category cannot be realised in its own production, but only in the product of category I.

(Marx to Engels, 6 July 1863; 1985: 485–487, *Emphasis added)

We see here then for Marx surplus value is not – and perhaps we might even say is no longer? – composed entirely of profit, but includes also the replacement of the constant capital (as Marx here describes this) worn out during the process of production, that this is renewed in the form of unpaid surplus labour, and that where this was not the case society would have to begin over and over again without any capital having been accumulated.

By comparing these two letters, it is then possible to see exactly how Marx's views on the subject of surplus value developed between these two dates and how even here struggled to express clearly what in fact became his mature theory of surplus value. And, on this point, it is worth noting here that the editors of *Marx and Engels Collected Works* (Vol. 41, fn. 547, p. 649) make the following point about the second of these two letters:

*In late July or in August 1863 a new stage began in Marx's work on *Capital*, when he rewrote [his] 1861–63 manuscript ... producing, by the beginning of 1866, a third rough draft of the theoretical part of *Capital* (three books). In the present letter, Marx writes about his work on Book I.

Conclusion

In this essay, I have argued that the discovery of surplus value by Marx appears to have been made sometime after 1858, and possibly even sometime between August 1862 and July 1863, and that this discovery was inspired by Marx's earlier reading of Nassau W. Senior's mistaken views on this question. This is why Marx included the section on Senior in *Capital* Vol. I, and that it was after this important theoretical breakthrough that Marx was finally able to begin writing *Capital* Vol. I later the same year.⁴ I say this because, as we have seen, by July 1863, but only intermittently before then as it seems, Marx had clearly developed his own mature view on the question of the nature of surplus value and was only then able to explain the trick that the capitalist plays upon the labourer. In addition to profit, surplus value *also* entailed the replacement of the worn out capital of a capitalist enterprise. Where the capitalist takes the money to renew the worn out constant capital from within the enterprise itself (either directly as a deduction from the profit that might otherwise have been taken if the process of production is not renewed or indirectly in the form of a loan which is repaid from the gross product of the enterprise) then the capitalist not only renews the worn out capital of the enterprise but also, crucially, reproduces his or her claim to be the owner of that enterprise, a claim which would otherwise wear out along with their worn out capital. The capitalist enterprise appears to 'reproduce' itself when, in fact, as Marx explains, this is not the case. All of the people who work for the capitalist enterprise renew the worn out capital in the form of their unpaid surplus labour, and hence, all of these people are, properly speaking, the 'owners' of the enterprise. The capitalist views the replacement of the worn out capital as the reproduction of something that he already owns and of which he is therefore entitled to continue to claim to be the owner of in perpetuity, but in fact, as Marx explains, this is not the case. The raw materials, the machinery and every other aspect of the capitalist enterprise wear out over time and have to be renewed on a more or less daily basis and, along with this renewal of the fabric of the capitalist enterprise itself, so too the capitalist's claim to be the owner of the enterprise is also renewed.

The capitalist mode of production would appear to be long overdue another step change – another step down – in the normal hours of the working day. Writing in 1930, in a short pamphlet entitled ‘Economic Possibilities for our Grandchildren’, John Maynard Keynes predicted that we would all be working a normal 15-hour week of 3 hours per day by 2030 (Keynes, 1963), and clearly we have not arrived at this point just yet. The battle for the 10-hour working day was won in Britain during Marx’s own lifetime and then the battle for the normal 8-hour day/6 days per week began. Unthinkable during the nineteenth century, this was first implemented in Australia, in New South Wales, in 1916 (FedEE Global, 2016) and in most other industrialised societies at some time during the twentieth century. At every stage in the reduction of the normal hours of the working week, employers have argued that this was just not possible and could never be allowed or Britain (and here substitute America or Europe or Australia) would no longer be competitive in terms of world trade. The International Labour Organisation (ILO) proposed a normal working week of 40 hours in 1935 (FedEE Global, 2016), and this reduction was achieved during the twentieth century in most developed economies largely by ending normal Saturday working. In 1993, the European Union, at that time and still today largely dominated by the interests of neo-liberalism, begrudgingly recommended a normal working week of 48 hours on average but with a ‘voluntary’ opt outs in special cases. Then in 2000, France introduced the Loi Aubry (the Aubry Law, named after the French government minister Martine Aubry who promoted this legislation in the government of Lionel Jospin) which reduced the normal working week in France to 35 hours, but since then the process of a steady reduction in hours of work seems to have stalled once again. However, with more than 25 per cent of young people unemployed in many countries in the developed world today, and an increasing number of older people living for much longer and working well into what would previously have been regarded as retirement age, another step down in the normal hours of working from 35 to 30 hours or even 24 hours per week – and why not? – seems long overdue.

Notes

1. There are a couple of chapters in Vol. II and III that are eponymous, but this is the only such chapter/section in Vol. I and hence the only such section published by Marx himself.
2. Marx would appear to be referring here to the Factory Act of 1833, which however permitted a 12-hour working day for children, but he might just be referring to some of the other largely ineffective legislation passed between 1833 and 1838.
3. For example, Senior (1844 [1837]) repeatedly says ‘that the labour of children and young persons in factories is comparatively light’ (p. 4), which is of course to say nothing about how heavy it might actually have been, only that, presumably, it was not as bad – not as heavy – as that expected of adult labourers in the same factories or in other types of production (especially agriculture). Thus, he comments on the ‘extraordinary lightness of the labour, if labour it can be called [!], which render [long hours of work by children] practicable’ (Senior, 1844 [1837]: 11), and of ‘the exceeding easiness of cotton-factory labour’ (p. 14). ‘The work’ he says,

is merely that of watching the machinery, and piercing the threads that break. I have seen the girls who thus attend standing with their arms folded during the whole time that I stayed in the room – others sewing a handkerchief or sitting down. The work, in fact, is scarcely equal to that that of a shop-man behind a counter in a frequented shop – mere confinement, attention, and attendance.

(Senior, 1844 [1837]: 15)

Mere ‘confinement, attention and attendance’ for 12 hours per day! And all this to say nothing of the noise and the other conditions of such work! Only someone who had never done a day’s work in their life – or at least not work of this kind – could possibly say something like this. And all of this too when what was being demanded by the reform movement was relatively modest – at least by modern standards – reduction of the normal working day from 12 to 10 hours.

4. Roman Rosdolsky, in his book on *The Making of Marx’s ‘Capital’*, has something very similar to say on this point. Discussing the reasons for the changes in the subject matter of the three/four volumes of ‘Capital’ (the subject matter of Rosdolsky’s entire book is in fact the reason for these changes) criticising the work of another Marxist scholar, Henryk Grossmann (also Grossman), Rosdolsky (1977) has this to say:

But what about the reasons for the change [in the structure of Marx’s ‘Capital’] and how do these relate to the methodology of Marx’s work? It is indicative (and at the same time quite appalling) that this question, which is so fundamental to an understanding of Marx’s system was not brought up until Grossmann, the author of the *Akkumulationsgesetz*, did so in 1929. However, like several other post-war authors, he did not succeed in dealing with the subject, he did not succeed in answering this question.

Grossman is of course right when he says that: ‘A change in the outline of *Capital* could not have been an accidental matter, nor a technical question of the presentation, a question of clarity, for example’. Rather, as he says, it must be traced back to something ‘internal’; that is, methodological reasons must be found. However, the reasons Grossmann himself gives are so inadequate that we have to regard his attempted explanation as a complete failure.

According to Grossmann the question can be solved quite simply. Whereas Marx's work in its final form is structured according to the individual functions of industrial capital from a scientific viewpoint, the original outline merely represents an empirical division of the material dealt with. *It was not until later, in 1863*, that Marx – in connection with his study of the problem of reproduction – 'necessarily arrived at the point where he could no longer take the given world of appearance as the subject matter of his analysis'. It was not until then that he succeeded in advancing 'from the visible surface manifestations of profit and the different forms of capital to a comprehensive vision of the totality, aggregate surplus- value and aggregate capital. This made it impossible to adhere to the original outline. So that the abandonment of this outline amounted to breaking out of what was an essentially Vulgar-Economic which had imprisoned Marx until 1863!

(pp. 23–24, Emphasis added)

Rosdolsky, as we can see, is scathingly critical of Grossman's view – scathing criticism seeming to be the fashion in Marxist writings at this time, and this style undoubtedly derives from Marx's own work – but, in fact, I agree entirely with what Grossmann says here. It is Grossmann who has this matter right and Rosdolsky who has it entirely wrong I think, and this is why I have quoted this passage at length here.

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