The *Grundrisse* (The 1857-58 Manuscript)

The Chapter on Capital: Part 11

Relative Surplus Value (II): The Increase in the Productivity of Labour and the Accumulation of Capital (pp. 341-347)

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Marx now states ("in anticipation") the following: "the increase in the productive force does not in and by itself increase prices."[1] (Marx 1973, p. 341) This is at first sight rather cryptic.

What Marx is *not* saying is that an increase in the productivity of labour will not increase the *per-unit* price of commodities: no one in the world of classical political economy would have thought that this *could* be the case. What he means, rather, is that an increase in the productivity of labour does not, "in and of itself", increase the *sum* of the prices of the commodities. Given the length of the working day,[2] how much labour-time is objectified in a mass of commodity product is insensible to the division of this labour-time into necessary labour and surplus labour. "The product [of one working day] objectifies one working day, whether *the necessary time of labour* is represented by 6 or 3 hours, by $\frac{1}{2}$ or $\frac{1}{4}$ of the working day." (Marx 1973, p. 342)

Marx illustrates the point by means of the following numerical example.

Let 1 bushel of wheat objectify half a day's labour-time, and let this be equal to "the worker's price" (i.e. the reproduction cost of the worker). Let the price of one day's labour-time be equal to 26s. The daily wage is then equal to 13s. (1 bushel), and the ratio of surplus labour to necessary labour is 1:1.

Now let there be a general rise in the productivity of labour, such that 1 bushel is now the objectification of $\frac{1}{4}$ day's labour-time (and its price will be $6\frac{1}{2}$s). The per-unit price of a bushel (what Marx labels "this fractional part" being 1 bushel) has fallen, but the total price of the product is the same (now 4 bushels at $6\frac{1}{2}$s a bushel, a total of 26s.). It remains the case that the reproduction of the worker ("the value of labour") is equal to 1 bushel, the price of this now

[1] The subheading "Concerning increases in the value of capital" is not Marx's (there is no subheading in the original manuscript).

[2] "[W]e here assume the working day to be the natural amount of labour-time which the worker is able to put at the disposal of capital; this is always only for a *specific time*, i.e.*specific labour-time*." (Marx 1973, p. 342)

being $6\frac{1}{2}$s. This means the (daily) surplus is $19\frac{1}{2}$s. The ratio of surplus labour to necessary labour is now 3:1.

Now let the productivity of the labour that produces gold (the money commodity) also rise, to the same degree. The price of 1 bushel of wheat, $6\frac{1}{2}$s after the rise of wheat-producing labour, will now be 13s. The price of 1 day's labour-time (objectified now in 4 bushels) is now (after the change in the productivity of the gold-producing labour) 52s. Nevertheless, this sum of money represents the same amount of labour-time as 26s. did previously.

(Note here that there are no means of production involved in the production process that Marx has set out.)

We have assumed here that the working day is at its maximum, and therefore constant (see note 2 above). If this is the case, it then follows that "an increase in the productive force [of labour] cannot increase labour time, nor, therefore, objectified labour time." (Marx 1973, p. 342). Independently of the ratio of surplus labour-time to necessary labour-time, a working day is objectified in the form of the product, and this quantity of labour-time is fixed.[3]

Marx notes that "[t]he surplus value of capital has grown", but that this has occurred "not because the *absolute* but because the *relative amount of labour* grew; i.e. the total amount of labour did not grow; the working day is as long before as after; hence [there has been] no absolute increase in surplus time (surplus labour-time); rather the *amount of necessary labour decreased* [...]." (Marx 1973, p. 342) The price of the product (the "exchange value of capital") has remained unchanged: the "rate of profit" (the ratio of surplus to capital advanced) has changed, even if the value of the product (the value of the *valorised* product) has not.

Marx now says, a little cryptically, that "in fact the absolute values also increase in this manner, because that part of wealth which is posited as capital—as self-valorising value—also increases. (*Accumulation of capitals*.)" (Marx 1973, pp. 342-3, translation modified) What I take him to mean is that if the surplus value produced by capital increases (and the surplus *is* surplus because it the excess of the value of the product over the replacement cost of the capital advanced), then the possibility of *accumulation*, the redeployment of (a part of) the surplus as *new capital*, is posited.

Marx sets out another numerical example.

Consider a capital advance of 50 thalers for cotton (raw material to be worked into product) and 10 for the instrument of labour (machinery). Let us assume that the instrument is consumed in "one act of production". Let 10 thalers be the objectification of one hour of labour-time, and let the reproduction cost of labour be 40 thalers per day.

Suppose the worker to be an early-and-rude-state producer, who owns her own means of production, and that she works only 4 hours. She will produce a product of 100 thalers (60 cotton plus 10 instrument plus 40 labour).

> He [the producer] would increase the 60 thalers by 40, which he could consume, since firstly he replaces the 60 thalers in raw material and instrument required for production, and then

[3] Note that when Marx says that "[t]he product objectifies one working day, whether the necessary time of labour is represented by 6 or 3 hours, by $\frac{1}{2}$ or $\frac{1}{4}$ of the working day" (Marx 1973, p. 342) he assumes a working day of 12 hours, even though in the numerical examples in this part of the Manuscript he assumes a working day is of 8 hours.

> adds a surplus value of 40 thalers as reproduction of his own living labour capacity or of the time objectified in him. He could repeat the work again and again, since he would have reproduced the value of the raw material and of the instrument as well as of the labouring capacity; the latter by constantly increasing the value of the former by 4 hours of objectified labour. (Marx 1973, p. 343)

Now let the worker be a worker, working for a wage, in return of which she works 8 hours. Now, the value of the product (the value of the valorised capital) will be 60 (50 materials and 10 instrument) plus 40 (wages) plus 40 surplus value, equals 140 thalers. (Note that the ratio of surplus labour to necessary labour—what Marx in *Capital* will call the rate of surplus value—is here 1:1 (or 100%); and note that this ratio is dependent on the one hand on the reproduction cost of labour and on the other on the length of the working day.[4])

(Marx makes two (conflicting) parenthetical remarks at this point in the manuscript (included in Marx 1973 as footnotes). First, he says that "[i]t is not in the least necessary at this point" to assume that there has been an increase in the mass either of materials or of instrument consumed in production in the transition from independent producer working 4 hours and producing a product of 100 thalers to worker working 8, and producing one of 140. The second, which he makes one (short) sentence later, sets out the assumption that there *is* an increase in materials and instrument consumed. Let the former double, Marx says, and the latter increase by one half. The capital advanced as means of production will increase to 120 thalers (100 cotton plus 20 instrument[5]), a total capital advanced, including wages, of 160 thalers. On this capital advance, Marx then (confusingly) assumes a rate of profit of 40% ("If a surplus labour of 4 hours increases 100 thalers by 40%, then it increases 160 thalers by 64 thalers.").[6] This means that the final product (capital valorised) will be equal to 224 thalers (160 thalers capital advanced plus 64 thalers profit).[7])

In this case, that of the worker working for a wage, the capital ("regarded as simple exchange value"; Marx here refers to the commodity *product*) "would be absolutely greater, 140 thalers instead of 100" (Marx 1973, p. 344), the latter figure being that of the product produced under the early-and-rude-state conditions. Now, there appears a new value of 40 thalers (which appears because the worker works for 4 hours more). There is therefore an increase in "[t]he values in circulation" of 40 thalers, "40 thalers of additional objectified labour time."[8] (Marx

[4] Another way to think of this is as follows. One hour of labour-time is objectified as 10 thalers. A working day of 8 hours will therefore be objectified as 80 thalers. If the wage is 40 thalers (equal to the reproduction cost of the worker), then the surplus is the residual of the value of the product once the means of production are replaced and wages paid, or *the residual of the new value created in production once wages are paid*, therefore 40 thalers, giving a ratio of necessary labour-time to surplus labour-time fof 1:1.

[5] Marx is mistaken here: this figure supposes a doubling of the instrument, not an increase of one half.

[6] The reason behind this figure of (40%) appears to be that the capital advanced of 100 thalers has produced a product of 140 thalers, i.e. a surplus of 40. This kind of procedure—the assumption of a given rate of profit, a rate that pre-exists the production processes which in fact produce it—is typical of the Ricardo of the first chapter of the *Principles*, and most uncharacteristic of Marx.

[7] Marx continues: "We here have presupposed, further, that the rate of profit does not vary with the size of capital; and material and instrument of labour are not regarded as being themselves realizations, capitalisations of surplus labour; as we saw, the greater the already posited surplus time, i.e. the size of capital as such, the more is it presupposed that an *absolute increase of labour-time* is impossible, and that a relative increase, resulting from an increase in the productive force, declines in geometric proportion." (Marx 1973, pp. 343-4n.

[8] There is an unfortunate error on p. 344 of Marx 1973, which says that the "values in circulation would have been increased by 80 thalers". This should read that the "values in circulation would have been increased by 40

1973, p. 344)

Now let us assume that the productivity of labour doubles, with all else remaining the same.[9] The worker still works for 8 hours and produces 80 thalers of new value. The surplus value[10] for capital is now 60 thalers; necessary labour-time is halved because the wage basket is now equal to 20 thalers, not 40. The capital advanced will be equal to 80 thalers (50 materials, 10 instrument and 20 wages), and the "gain" (i.e. profit) for the capitalist is 60 thalers.[11]

Note that there is no change in the value (Marx says "exchange value") of the product, which remains at 140 thalers. Now, however, the surplus stands at 60 thalers, as compared previous to the increase in the productivity of labour of a value of 40.[12] Note here also, however (though Marx does not say this), that the reason that the surplus has risen (by 20) is that the capital advanced, particularly that part dedicated to the reproduction of labour, has fallen (by 20). "The worker in fact worked 2 hours more for him [the capitalist] free of charge, i.e. 6 hours instead of 4." (Marx 1973, p. 345) The result "is the same for him [the capitalist] as if he [the worker] had worked 10 hours instead of 8 in the earlier relation, had increased his absolute labour time." Marx's point here is Marx's point is that it would be equally the case (from the point of view of the capitalist) that an extra 20 new value has been created whether the worker works an extra 2 hours or the cost of the reproduction of the worker's labouring capacity has been reduced by the monetary equivalent of 2 hours.[13]

This "extra" sum of 20 thalers (surplus) can "present itself" in one of two ways: either it can be accumulated as new capital (to "set as much additional labour into motion as corresponds to their becoming capital and creating larger exchange value: making more objectified labour into the point of departure for the new production process" (Marx 1973, p. 345, translation modified according to Marx 2006, p. 259)); or it can be consumed unproductively by the capitalist ("or the capitalist exchanges the 20 thalers as money for commodities other than those which he needs in its production as industrial capital." (Marx 1973, p. 345)) (A little further on Marx also

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thalers" (cf. Marx 2006, p. 258).

9 Under the assumption that the worker herself owns the means of production, a doubling of the productivity of labour would mean that to she could reproduce her own means of life in 2 hours instead of 4, and would therefore produce a product of 80 thalers (60 materials and instrument) plus 20 means of workers subsistence. She would be able to work less time, and would therefore produce a product of a lower value.

10 Surplus value is "posited as *autonomous* value, as objectified labour which has become free, unbound from the task of serving only in exchange for earlier labour power." (Marx 1973, p. 345)

11 We need to keep in mind Marx's earlier statement that "use value is [to be] defined in the present relation as only that which the worker consumes in order to stay alive as a worker; the quantity of the means of life for which, through the mediation of money, he exchanges the labour objectified in his living labouring capacity." (Marx 1973, p. 334) In other words, the means of production here consumed in production are excluded from this social rise in the productivity of labour.

12 Marx 1973, p. 345 says the following (square brackets in original). "On one side, therefore, he throws only the same exchange value into circulation as before, 140 thalers. But the surplus value of his capital has grown by 20 thalers. Accordingly, only the share he gets of the 140 thalers [is] the rate of his profit." This is confusing. Marx's text is better (and more clearly) rendered as follows. "On the one hand, he therefore only puts the same exchange value into circulation as before, 140 thalers. However, the surplus value of his capital has increased by 20 thalers. Therefore, only his share of the 140 thalers, the rate of his profit, has increased." (Cf. Marx 2006, pp. 358-9)

13 In the former case, there would be an outlay of 40 for wages, and there would be 60 surplus (the product being equal to 60 (means of production) + 40 (wages) + 60 (surplus) = 160, on a capital advanced of 100); in the latter the wages stand at 20 and there is a surplus of 60 (product being equal to 60 (means of production + 20 (wages) + 60 surplus = 140). Note that between the two scenarios the sum of wages advanced is different.

posits the possibility of it being "accumulated as money, i.e. added to the stock of exchange values in general (abstract) exchange value form" (Marx 1973, p. 346).) In both (all) of these cases, there will be an extra 20 commodity product which needs to be sold, and there will be an extra 20 thalers of money (eventually) to be spent.

Even though the commodity product before the rise in the productivity of labour was of the same value (140 thalers) as that after it, each of these sums of 140 thalers is *differently composed*. In the former case, 100 thalers were to replace capital, and there was 40 surplus. In the latter, the capital replacement is 80 thalers, and there is a surplus of 60 (which Marx calls "*independent exchange value*, [...] *money*, [...] *latent capital*; i.e. [...] wealth posited as *wealth*." (Marx 1973, p. 345)

The important point here is the following. The product of 140 thalers after the rise in the productivity of labour represents more use value, but it does not *just* represent more use value, because it also incorporates a larger sum of exchange value out of which accumulation—the redeployment of a part of the commodity product as new capital—can take place. "The economists themselves admit this [...] when they allow the accumulation of capitals to accumulate not only the mass of use values, but that of *exchange values* too; for, according to Ricardo himself, the element of the accumulation of capitals is posited just as completely with relative surplus labour as with absolute [...]."[14] (Marx 1973, p. 345)

That the 20 thalers additional surplus value "can become capital again" is "implicit" in Ricardo, who argues that an increase in capitalist income supposed by a fall in the price of reproduction of labour can also prove to be the basis of increased accumulation.[15] Previously, 40 thalers of the 140 valorised capital "could could become new capital; 100 do not become capital but remain capital; now 60 [can], i.e. the present capital is [can be] greater by an exchange value of 20 thalers." (Marx 1973, p. 346) In short, "exchange value, *wealth as such*, has increased, although the total sum of the same has *not* directly increased. Why has it increased? Because that part of the total sum has increased which was not a mere medium of circulation, but money; or which was not merely equivalent, but *exchange value for-itself*." (Marx 1973, p. 346)

What happens to this 20 thalers additional surplus value? "Either the liberated 20 thalers are accumulated as money, i.e. added to the stock of exchange values in general (abstract) exchange value form; or they all circulated, and then the prices of the commodities bought with them rise; [...]; or the 20 thalers are directly used up as capital by the originally circulating capital." In short, "a new capital of 20 thalers is posited—a sum of self-preserving and self-realising [valorising] wealth. Capital has risen by the exchange value of 20 thalers."[16] (Marx 1973, p.

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[14] Marx's reference to Ricardo will be to the following.

"Capital may increase in quantity at the same time that its value rises. An addition may be made to the food and clothing of a country, at the same time that more labour may be required to produce the additional quantity than before; in that case not only the quantity, but the value of capital will rise.

"Or capital may increase without its value increasing, and even while its value is actually diminishing; not only may an addition be made to the food and clothing of a country, but the addition may be made by the aid of machinery, without any increase, and even with an absolute diminution in the proportional quantity of labour required to produce them. The quantity of capital may increase, while neither the whole together, nor any part of it singly, will have a greater value than before, but may actually have a less." (Ricardo 2004, p. 95)

[15] "If, by the introduction of machinery, the generality of the commodities on which revenue was expended fell 20 per cent. in value, I should be enabled to save as effectually as if my revenue had been raised 20 per cent." (Ricardo 2004, p. 131)

[16] Marx makes the following point here. "Circulation actually does not yet concern us here, since we are here

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Marx here now makes the following parenthetical remark. He notes that in his example, the productive force (*ex hypothesi*) has doubled, while the "value of capital" (the surplus value) has risen by 50% (by 20, from 40 to 60).[17]

> Every increase in the mass of capital employed can increase the *productive force* not only at an arithmetical but at a geometrical rate; although it can increase profit at the same time—as increase of productive force—only at a much lower rate. The influence of the increase of capital on the increase of productive force is thus infinitely greater than that of the increase of the productive force on the growth of capital. (Marx 1973, pp. 346-7)

Thus an increase in the productivity of labour will increase the amount of surplus value produced, therefore (potentially) increasing capital (i.e. the value of capital advanced). But such an increase in capital (through the replacement of labour by machinery) will in turn increase the productivity of labour. The rate of increase in productivity (which is "geometric", i.e. exponential), will outstrip the rate of increase in capital, which is arithmetic (i.e. linear).

Here, Marx implicitly references two important ideas he introduced a little earlier in the text. First, that the relative magnitude of the increase in surplus value is not equal to that of the rise in the productivity of labour, that the "surplus labour (from the worker's standpoint) or surplus value (from capital's standpoint) does not grow in the same numerical proportion as the productive force." (Marx 1973, p. 335). Second, that the degree to which a rise in a productivity of labour acts on the magnitude of capital depends on the weight of necessary labour in the division of the new value added in production between surplus labour and necessary labour (on what Marx will come to call the rate of surplus value); the greater the latter, the greater the former. But as the productivity of labour develops (and Marx has argued that it is immanent to capital—"in general"—to raise the social productivity of labour), the cost of production of labour will fall, both absolutely and relative to surplus value. The virtuous (or vicious) circle of the rise in the productivity of labour leading to an increase in the magnitude of capital, which in turn drives the productivity of labour, has a natural limit, as the weight of the necessary labour in the new value created by labour tends in the limit to zero, as does the effect of the effect of the magnitude of capital to advance the productivity of labour.[18]

Marx now emphasises the essential point that has emerged from this discussion. Before the rise in the productivity of labour, "[t]he capitalist consumes, say, 20 of the 140 thalers as use values for himself". As a result, "he could [re]begin the process of self-realisation [valorisation] only with a larger capital, a larger use value of 120 (as against 100)." After the increase in the productivity of labour, she has 120 as against 80 original capital to reinitiate production. Her

dealing with capital in general, and circulation can only mediate between capital in the form of money and capital in its form as capital; the first capital may realize money as such, i.e. exchange it for commodities, consume more than before; but in the hand of the producer of these commodities this money becomes capital. Thus it becomes capital directly in the hands of the first capital, or, via a detour, [in those] of another capital. But the other capital is always in turn capital as such; and we are concerned here with *capital* as such, [let us] say the capital of the whole society. The differentiation etc. of capitals does not concern us yet." (Marx 1973, p. 346), interpolations in square brackets in original)

[17] There is another unfortunate numerical error in Marx 1973, which has the rise in the "value of capital" to be 20% (Marx 1973, p. 346n; cf. Marx 2006, p. 260).

[18] This is implicit in what Marx says here, and he does not make it explicit. In his discussion of accumulation in *Capital* III Marx will introduce different kinds of limits to the progress of capitalist reproduction.

(the capitalist's) consumption is not restricted, but, despite this, "[a] larger part of the exchange values solidifies as exchange value, instead of vanishing in use value [...] To create a larger capital means to create a larger exchange value; although exchange value in its direct form as simple exchange value has not been increased by the growth of productivity, it has in its intensified form as capital."[19] (Marx 1973, p. 347)

Thus, while there is no increase in the value of the product, in "simple exchange value", there is in "wealth as such" (surplus value), and this permits the growth in capital (accumulation). Previously, if the capitalist consumed 20 thalers of the surplus value unproductively, there was 120 left over for investment (with 20 accumulated); now there is again 120 (but with 40 accumulated). This, to the extent that more living labour is set in motion, i.e. that a part of this surplus is accumulated in the form of wages (independently of whether or not a greater mass of means of production is consumed in production, and independently of whether the mass of surplus value produced be determined by maintaining the previous rate of proft or by maintaining the previous ratio of surplus to necessary labour-time), will result in a greater mass of commodity product being produced *and* a greater mass of surplus value.

The result of this is that "more living labour [will be set] into motion and therefore also [...] more simple exchange value" will be ultimately reproduced if that part of the surplus not consumed unproductively by the capitalist is accumulated as new capital after the increase in the productivity of labour compared to before.

(Marx now states the following (apparently to illustrate the point he has just made, regarding the increasing production of "simple exchange value"). "The capital of 120 thalers at 40% produced a product or simple exchange value of 60 thalers at 40%; the capital of 140 thalers a simple exchange value of 64 thalers." (Marx 1973, p. 347) What Marx must have in mind here is the parenthetical example above (Marx 1973, p. 344n), where he assumed, in the transition from the early-and-rude-state conditions of production to those of capitalist production of surplus value, a doubling of the mass of materials consumed in production and an increase of 50% (in practice a doubling also) in the instrument. In that example, it will be recalled that Marx assumed a rate of profit of 40% (that that applied to the case of the capital of 100 thalers producing a surplus value of 40) applying to the capital (assuming a larger mass of means of production) of 160, in which case there would be a surplus of 40% on 160, *viz.* 64 thalers. But Marx is mixing ideas here, and this particular example makes little sense.)

Nevertheless, the essential point here is the following. An "increase in exchange value in the form of capital [an expansion of the mass of surplus value produced, and hence available for accumulation] is [...] posited directly as an increase in exchange value in its simple form [in a greater mass of commodity product, of valorised capital]. It is of the highest importance to remember this," Marx advises us. (Marx, 1973, p. 347)

[19] Marx confuses some of the numbers here, taking the valorised capital after the increase in the productivity of labour to be 140, not 120. I think that what was in his mind is the original advance of wages of 40; he seems not to have accounted here for the fact that with the increase in productivity the wage falls (to 20). Nevertheless, the point he makes is clear.

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