

Some Preliminary Thoughts: 49 Seconds On Mustafar.

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Introduction/Abstract.

We simply intend to apply elements of Marx's understanding of capitalism in general to the particular question of knowledge-based production. We approach the tricky question of 'which' Marx by briefly explaining how many interpretations of Marx suggest that Marx's concept of value is internally in-consistent, while in contrast the Temporal Single System Interpretation (TSSI) contends that Marx's concept of value can be interpreted as internally consistent. Next we consider in general how Marx's conception of capitalism as the unity of a valorization process and a labour process shapes our conception of what is productive (and productive of what). We move on to consider how questions of productive and unproductive labour are relevant to knowledge-based production. We then turn our focus on research and development, a knowledge intensive activity, and then to questions of training/skills in our knowledge-based society. Finally we consider what George Lucas considers to be the value of 49 seconds on Mustafar, 49 seconds of knowledge-based production.

Physical Hang-Ups And Confusion Over Where Profit Comes From.

If a concept of value is to be relevant to our understanding of knowledge-based production it must be relevant to our understanding of the economy in general. Freeman (1996) explains how Bortkiewicz (1906-7/1952 and 1907/1984), popularised by Sweezy (1942 and 1949), initiated the tradition of interpreting Marx as having employed (or should have employed!) a simultaneous approach and that we should see price and value as dual distinct separate systems to reconcile in simultaneous equilibrium. Bortkiewicz 'discovered' that if value was interpreted in a simultaneous and dualistic fashion then value becomes an in-consistent/internally contradictory concept, as expressed in the failure of 'Marx's' transformation 'problem' to add-up!

Total value may be equated to total price (Winternitz, 1948), or total profit may be equated to total surplus value (as in Bortkiewicz's 'solution'), or the price of wage goods may be equated to their value (Seton, 1957), but, as Desai (1979) explains, as the dual systems must be uniquely reconciled, preservation of only one aggregate equality is possible, and this simply depends on the observer's own preference.¹ Faced with such difficulties/in-consistencies the position of holding to, at least, the idea that all profit results from exploitation, the fundamental Marxian theorem (FMT), was put forward by Moroshima (1973). However, as Kliman (2001) and Kliman and Freeman (2006) explain, for all simultaneous approaches profit may be positive although surplus labour is negative or profit negative although surplus labour is positive, the FMT falls, surplus labour is not necessary or sufficient for profit. Steedman (1977) decisively stepped into the debate declaring value a redundant concept, for the compelling reason that in simultaneous and dualistic models value merely proxies 'physical' magnitudes in the 'real' economy. If value is a redundant concept the road is open to prioritising 'physical' phenomena/things, by for example conventionally imagining such a concept as a natural rate of return on all capital.²

In reaction to such developments, among other developments and retrogressions, a new form of value emerged, not necessarily claiming to follow Marx (Reuten, 1993), the social paradigm/abstract labour approach/the value form paradigm (Arthur, 2001). Essentially focus is switched from prioritising the production of value/surplus value in production to the determination of value/surplus value through realisation/exchange in circulation (McGlone and Kliman, 2004). We would not wish to suggest that such a concept of value may not be helpful to understanding knowledge-based production, but do agree with McGlone and Kliman (2004) that it is incompatible with Marx's own concept of value, note Marx (1867/1976), pages 261-262,

'Hence we see that behind all attempts to represent the circulation of commodities as a source of surplus-value, there lurks an inadvertent substitution, a confusion of use-value and exchange-value. In Condillac, for instance: ... Still, Condillac's argument is frequently repeated by modern economists, especially when the point is to show that the exchange of commodities in its developed form, commerce, is productive of surplus-value. ... We might therefore just as well say that the buyer performs what is 'strictly' an 'act of production' by converting stockings, for example, into money.'

But how can we usefully employ Marx's apparently in-consistent concept of value; or rather do we really have to? If an interpretation of Marx existed that could reproduce his results/conclusions from an interpretation of his method, removing any internal inconsistency, then we could turn to Marx's concept of value for now consistent insight. The TSSI of Marx has risen to this challenge, arguing that Marx's concept of value is consistent if we interpret Marx as following a sequential approach and treating prices and values as categories within the same single system, mutually determining each other in succession through time (in particular see Freeman and Carchedi, 1996, and Freeman *et al*, 2004). Kliman (2002) explicitly identifies 13 of Marx's key conclusions, and explains how the TSSI can deduce them all, through employing their interpretation of Marx's method, while alternative interpretations of Marx can satisfy only at most a small subset of Marx's key conclusions. Consequently, by hermeneutic criterion/Stigler's principle of scientific exegesis, Kliman concludes that the TSSI of Marx best claims to represent Marx by reasserting an internally consistent Marx.³ The transformation 'problem' is no longer a problem. Appropriately accounting for the value of money, the price of total social capital equals its value and total surplus value produced/extracted in production equals total profit in money terms. Although, given varying value compositions of capital, individual commodities' prices/exchange-values will tend to diverge from their intrinsic-values, reflecting the tendency to profit rate equalisation, for the system as a whole the source of profit is clear, surplus value extracted in production. To summarise we look to Marx's concept of value to help understand knowledge-based production, understanding Marx to have employed a sequential and non-dualistic method i.e. we look to the input of a potentially internally consistent Marx.

The Labour Process And The Valorization Process.

Marx (1976) emphasises how capitalism should be understood as two processes in one, the labour process and the valorization process. The labour process, the assembly and co-ordination of workers and things, is explained as being obviously essential in-itself, but not specific to capitalist production i.e. production must occur in all forms of society. In contrast the valorization process is identified as being both historically specific to the capitalist mode of production, and essentially as the underlying purpose/logic of this mode of production. Quite simply the labour process

is the necessary form of appearance of the underlying driving essence of the system, the drive to valorize/expand capital; it's the M – M' stupid! What use-values that are produced, and what concrete labour and use-values that are necessary for their production, are only relevant in so far as the activity satisfies the valorization process; M – M' is successfully achieved. Surplus value, either directly produced by the enterprise or alternatively produced by productive labour elsewhere in the system, must be 'retained'/'captured' to satisfy the valorization process, or that activity/labour process will seek to be undertaken by private business. It is humbling to realise that we live in a system, which so 'abstractly' prioritises the valorization process over 'physical' needs/apparent realities. It is the nature of the valorization process (the autonomization/independence/leading role of value in action), rather than any particular labour process, which leads Marx to conclude that,

- A) Productivity improvements are in-themselves unproductive of value, but rather simply cheapen commodities, for example see Marx (1976) page 137.
- B) In aggregate the drive to accumulate creates a tendency for the rate of profit to fall, Marx (1894/1981) Part Three.
- C) Unlike in other societies surplus production is a recipe for crisis rather than a cause for celebration, see Marx (1885/1978) pages 544-545.

Marx seeks to explain how all activities either fit into the process of capitalist production or stand beside it, from the standpoint of recognising the essential nature of the valorization process i.e. by recognising that the source of profit is the unpaid labour of productive workers, no-matter how mystifying the actual distribution of this profit may be. Marx warns us to avoid the folly of over-focusing on the material or 'physical' nature of production, Marx (1976) page 998 then page 1046,⁴

'The folly of identifying a specific *social relationship of production* with the thing-like [*dingliche*] qualities of certain articles simply because it represents itself in terms of certain articles is what strikes us most forcibly whenever we open any textbook on economics and see on the first page how the elements of the process of production, reduced to their basic form, turn out to be land, *capital* and labour.'

'The desire to define productive and unproductive labour in terms of their *material* content has a threefold source.

- (1) The fetishism peculiar to the capitalist mode of production from which it arises. This consists in regarding *economic* categories, such as being a *commodity* or *productive* labour, as qualities inherent in the material incarnations of these formal determinations or categories.
- (2) Looking at the labour process as such, labour is held to be *productive* only if it results in a *product* (and since we are concerned here with material wealth, it must be a material product).
- (3) In the *actual* process of reproduction – considering only its *real* moments – there is a vast difference which affects the formation of wealth, between labour which is engaged on articles essential to reproduction and labour concerned purely with luxuries.’

In the next section we shall consider how association with production or circulation informs Marx’s concept of productive and unproductive labour. To sum up we stress how knowledge-based production must not be assessed as productive or unproductive according to the particular nature of its labour process or the use-value/materiality of its output, Marx (1976) page 1044,

‘From the foregoing it is evident that for *labour to be designated productive*, qualities are required which are utterly unconnected with the *specific content* of the labour, with its particular utility or use-value in which it is objectified. Hence labour with the *same content* can be either productive or unproductive. ... A singer who sings like a bird is an unproductive worker. If she sells her song for money, she is to that extent a wage-labourer or merchant. But if the same singer is engaged by an entrepreneur who makes her sing to make money, then she becomes a productive worker, since she *produces* capital directly. A schoolmaster who instructs others is not a productive worker. But a schoolmaster who works for wages in an institution along with others, using his own labour to increase the money of the entrepreneur who owns the knowledge-mongering institution, is a productive worker.’

Productive And Unproductive Labour.

We must avoid making the naïve mistake of thinking that if an activity is unproductive then it is of less importance to our investigation. By reserving the category of productive labour to labour that is directly productive of surplus value in production Marx intends to help our understanding of the phenomenon/necessary role of unproductive labour in the capitalism. Whether knowledge-based production is important to capitalism does not rest on if it, as an output or as an input, is primarily productive or unproductive in nature, rather the productive or unproductive nature of activities helps us to understand how these activities are important to/fit into the

operation of the capitalist system as a whole. Marx (1978, Chapter 6) argues that all activities purely associated with circulation, the change of form of commodity and money capital, are unproductive, and that all labour in the productive sphere which is not necessary for the labour process, but only necessary for the valorization process, is also unproductive. Furthermore the matter does not depend on the scale in which unproductive labour is performed, Marx (1978) page 225-226 and 209,

‘The general law is that *all circulation costs that arise simply from a change in form of the commodity cannot add any value to it*. They are simply costs involved in realizing the value or transferring it from one form into another. The capital expended in these costs (including the labour it commands) belongs to the *faux frais* of capitalist production. The replacement of these costs must come from the surplus product, and from the standpoint of the capitalist class as a whole it forms a deduction of surplus-value or surplus product, in just the same way as the time that a worker needs to buy his means of subsistence is lost time for him.’

‘if we have a function which, although in and for itself unproductive, is nevertheless a necessary moment of reproduction, then when this is transformed, through the division of labour, from the secondary activity of many into the exclusive activity of a few, into their special business, this does not change the character of the function itself.’

So if knowledge-based production enables unproductive activities to be conducted on a greater scale (through helping concentration and centralisation) it can not change their unproductive nature. Acts of buying and selling, in productive firms or outside e.g. the entire retail sector, including advertising and marketing, are necessary, but unproductive, a deduction of surplus value. The banking/financial system, whether facilitating circulation, lending and attracting deposits, or trading titles/fictitious capital, is necessary, but unproductive, again a deduction of surplus value. Book-keeping, or rather the recording of the valorisation process, Marx (1978) page 211,

‘By way of book-keeping, which also includes the determination or reckoning of commodity prices (price calculation), the movement of capital is registered and controlled. The movement of production, and particularly of valorization – in which commodities figure only as bearers of value, as the name of things whose ideal value-existence is set down in money of account – thus receives a symbolic reflection in the imagination.’

is strictly unproductive, a deduction of surplus value. Expenditures of labour necessary to the supervision/co-ordination of the labour process, no matter in which

society it may be performed, are productive. But additional supervision aimed at simply maximising the self-expansion of capital in the valorization process i.e. working all as hard as possible, is not productive. If we imagine a supervising machine, a reality made increasingly possible by knowledge-based production, if it is co-ordinating you, it is acting as constant capital, which will enter the commodities value. But if it is simply checking up on you/speeding you up it is acting as unproductive constant capital, a deduction from surplus value.

Knowledge-based production may improve the 'efficiency' of all these unproductive activities, reducing the proportion of surplus value they consume. It is no wonder that firms are keen to use the internet to sell direct, as if they can reduce their circulation costs/time their profit rates will be boosted in just as real sense than if they had exploited their productive workers more. Interestingly Marx defines transport, the movement of commodities to their point of sale, as productive, the continuation of the production process in circulation.⁵ In addition to the affect knowledge-based production may have on actual transport, we must recognise that knowledge-based production is frequently concerned with the transport of information. It would seem however that this form of transport is cost-less, a minute expenditure of electricity, however, even more than railways relatively, it requires the investment of large sums of capital in communications infrastructure. For all the capital to complete its circuit i.e. for fixed capital to fully pass its value bit by bit to the product, a commercially non-viable length of time may have to elapse. To solve this 'timber problem' (Marx, 1978, page 321-322) we would expect to see the appearance of this problem of the 'reality of value' manifest in state provision/funding of communications networks or granting of some form of monopoly status to a private capital.

Before we consider research and development and training let us briefly consider the self-employed. Given the nature of knowledge-based production many opportunities have, will continue to, occur for self-employed specialists, 'virtual plumbers', to operate successfully. To capitalists their services, or rather their cost, represents if employed productively, an equal addition to the value of their commodity, or if employed unproductively, a deduction of surplus value equal to the value/cost of that service. The 'wages' of such self-employed labour power ultimately seems to rest on supply and demand. Specialists in excess demand may receive a high reward, but

specialists which are amply supplied will see their 'wages' reduced to, or even below, its bare minimum (for that level of skill). Furthermore such knowledge-based specialists should beware (Marx, 1976, Chapter 15), the more essential a particular skill may be, the greater will be capitalists' drive to circumvent it through technological advance e.g. what became of TV repair men?

Research And Development.

The fact that knowledge-based production is important to, and is made possible by, research and development is self-evident. The question is rather how does a high level of research and development, supported by and creating new branches of knowledge-based production, fit into the operation of capitalism as a whole. Research and development is aimed at creating new use-values, whether as commodities for final consumption or as inputs into, potentially radically changing, productive and unproductive labour processes. Although research and development can change the nature of production it is not an act of 'immediate' production itself of any value or surplus value, in the same way as advertising can not be seen as a productive, an 'immediate' act of production. So if research and development is unproductive then why does it make any sense to do it? We contend that the three 'answers' we shall put forward to this problem do not negate Marx's concept of value, rather they illuminate it in action,

- A) Research and development is conducted to support capitalist's search for relative surplus value.
- B) Granting of monopoly status through patent, the creation of 'intellectual' land, is a manifestation of the essentially unproductive nature of research and development.
- C) State provision or support for research and development is a further manifestation of the essentially unproductive nature of research and development.

As we have already noted, Marx (1976) page 137, productivity improvements, the creation of more use-values by labour performed for the same length of time, are unproductive of value in themselves. However Marx (1976) Chapter 12 explains how

for capitalism as a whole the production of relative surplus value rests on productivity improvement reducing the value of labour power and consequently the value of wages, assuming the price of labour power adjusts to its value, Marx (1976) pages 436-437,

‘Capital therefore has an immanent drive, and a constant tendency, towards increasing the productivity of labour, in order to cheapen commodities and, by cheapening commodities, to cheapen the worker himself.’

For the individual capital who introduces a successful new commodity or a more productive method of production first, as the result of their unproductive expenditure on research and development, their reward and motivation extends beyond helping to cheapen labour power, Marx (1976) page 434 then page 436,

‘Now let some one capitalist contrive to double the productivity of labour, ... The real value of a commodity, however, is not its individual, but its social value; that is to say, its value is not measured by the labour-time that the article costs the producer in each individual case, but by the labour-time socially required for its production. ... Other things being equal, the capitalist’s commodities can only command a more extensive market if their prices are reduced. He will therefore sell them above their individual value but below their social value, ... This augmentation of surplus-value is pocketed by the capitalist himself,’

‘On the other hand, however, this extra surplus-value vanishes as soon as the new method of production is generalised, for then the difference between the individual value of the cheapened commodity and its social value vanishes. The law of the determination of value by labour time makes itself felt to the individual capitalist who applies the new method of production by compelling him to sell his goods under their social value; this same law, acting as a coercive law of competition, forces his competitors to adopt the new method.’

So pocketing additional surplus-value/realising above average profit, or desperately trying to keep up with those who do, is a powerful impetus for unproductive expenditure on research and development. Clearly those in front, if they wish to stay in front, will ‘invest’ much of their ‘surplus’ profits in research and development, and thus hope to stay in front. The law of the determination of value by labour time is reflected by capitals’ attempts to break free of its consequences through attaining a legal right to stay ahead, a monopoly by patent. Competitors will seek to circumvent patents, if they are in any position to do so, to avoid being on the wrong side of the socially necessary/average level of productivity in their branch, or in order to operate

in that branch at all. We can see how new medical drugs, patented products in general, as new branches with entry prevented by patent, attract additional surplus value from elsewhere in the system if they have the demand combined with their monopoly status to charge above their commodities value. So whether patents are necessary to facilitate research and development or not, desire for them to circumvent the law of the determination of value by labour time, and the desire of competitors to stop this, can be seen as manifestations of this very law in action.

If a research and development activity will only be conducted if a patent is granted or if it is publicly funded then we are back to Marx's 'timber' problem in a new form. State intervention must circumvent the operation of the law of the determination of value by labour time for that activity to proceed. Given the rewards of being on the right 'side' in the search for relative surplus value are so significant it should be of no surprise that the state in 'developed' countries, acting as a collective capitalist, should subsidise research and development to stay ahead of 'underdeveloped' countries. Putting it crudely 'developed' countries 'waste' 'their' labour on much, in-itself unproductive, research and development, so-as to capture a greater quantity of labour from 'underdeveloped' countries, who can not 'afford' to 'waste' their labour so 'unproductively' on research and development. To the extent that knowledge-based production is contributing to the 'developed' world's ability to stay ahead, it is helping the 'developed' world to pocket additional surplus value at the expense of the average/below average producers i.e. the rest of the world. Knowledge-based production is consequently contributing to the, at least relative, impoverishment of the majority of the world's population.⁶

The Tricky Question Of Training.

We do not dispute that the education system may be seen as a grand social sorting system reflecting/reinforcing immobility between classes rather than opening it up. Neither do we dispute the view that much firm 'training' e.g. team building, is simple an extension/part of the supervision of the valorisation process. We shall however leave these important issues behind, to focus on what direct affect education and training may have on various labour powers' contribution to the valorisation process. Clearly knowledge-based production, in common with all activities conducted in the

economy, requires, in addition to simple labour, the input of a skilled labour component, Marx (1976) page 135,

‘the value of a commodity represents human labour pure and simple, the expenditure of human labour in general. And just as, in civil society, a general or a banker plays a great part but man as such plays a very mean part, so, here too, the same is true of human labour. It is the expenditure of simple labour-power, i.e. of the labour-power possessed in his bodily organism by every ordinary man, on the average, without being developed in any special way. *Simple average labour*, it is true, varies in character in different countries and at different cultural epochs, but in a particular society it is given. More complex labour counts only as *intensified*, or rather *multiplied* simple labour, so that a smaller quantity of complex labour is considered equal to a larger quantity of simple labour.’

Let us for the moment leave aside complex/skilled labour to focus on simple/unskilled labour. It is evident Marx thought that the concrete nature of simple labour is not set, but is historically/level of development specific. Given the nature of simple labour varies we would expect its reproduction cost to vary. The lengthening of compulsory education in advanced capitalist countries in the C20 may thus reflect state funded (as the collective capitalist) reproduction of concretely more use-full simple labour. Marx (1976, pages 617 to 619) explains how continual revolutions in the nature of the labour process (through machines/science i.e. like revolutions made possible by knowledge-based production) are likely to constantly make specialist workers redundant. By specialist we interpret Marx as meaning not specifically skilled but just simple labour conditioned to its specialist task. Such ‘structurally’ unemployed now have to enter the worst paid/longest hours/most over-supplied segments of the labour market (coal miners becoming taxi drivers). In defence against such a fate Marx imagines that education may have a role in making workers many-sided i.e. able to transfer from one specialist occupation to another. We are unclear as to whether Marx sees education of many-sided workers as a necessary development for capitalism, or simply as a necessary development for the working class to strengthen its resistance to, eventual ability to overthrow, capitalism. Assuming the latter allows us to see education as a progressive activity to the extent it actually produces many-sided workers. Compulsory education may thus improve the concrete quality of simple labour to the advantage of capitalists (matching developments in labour processes) and the many-sided nature of simple labour to the advantage of the working class. We should also note how Marx reports that factory-owners think

workers must be conditioned by factory work at a very young age (Marx, 1976, page 549) and should not be short-sightedly allowed to emigrate if unemployed (Marx, 1976, page 722) thus wasting their long-learned conditioning to their labour. Marx (1976) page 546,

‘All work at a machine requires the worker to be taught from childhood upwards, in order that he may learn to adapt his own movements to the uniform and necessary motion of an automation.’

It is in this context that we should judge the introduction of computers in primary schools, and parents desire to make their children computer literate – there’s some advantage to be had from learning to press those buttons fast – but only to capital if most can do it i.e. if it’s a feature of simple labour.⁷ Moving on to skilled labour, Marx (1976) pages 304 to 305),

‘in the valorization process it does not in the least matter whether the labour appropriated by the capitalist is simple labour of average social quality, or more complex labour, labour with a higher specific gravity as it were. All labour of a higher, or more complicated, character than average labour is expenditure of labour-power of a more costly kind, labour-power whose production has cost more time and labour than unskilled or simple labour-power, and which therefore has a higher value. This power being of higher value, it expresses itself in labour of a higher sort, and therefore becomes objectified, during an equal amount of time, in proportionally higher values.’

Let us assume over a working lifetime it takes 100,000 hours (measured in average/simple labour) to reproduce a simple labour power, and that it requires an additional 20,000 hours (measured in average/simple labour) to train/reproduce a particular skilled labour power. The value of that skilled labour power, as expressed in money (by multiplying the total hours by the monetary expression of labour time), will thus be 20% higher than the value of simple labour power over its lifetime, and consequently 20% higher for any given period of time. Let v_s^{\pounds} represents the monetary expression of the value of this particular skilled labour power for one working day and v^{\pounds} represents the monetary expression of the value of simple labour power for one working day. $v_s^{\pounds} = \Phi v^{\pounds}$, with Φ representing the proportionally higher reproduction cost of this particular skilled labour power ($\Phi = 1.2$). Let us assume that simple labour and this particular form of skilled labour have an equal length of working day, $l_s = l$. We must now be clear that the monetary expression of labour

time (MELT) does not represent the monetary expression of the value of an hour of simple labour power, but rather the monetary expression of the result, in terms of the value added, of one hour of simple labour power being employed productively under average social conditions of production. One hour of simple labour may add £10 to the value of a commodity (MELT = £10), whereas its value as labour power, the commodity the worker sells, may be say £5. Let x represent the monetary expression of labour time. $xl_s = \Phi xl$, in a equal working day our particular form of skilled labour will add 20% more value as expressed in money to the value of what is produced than an hour of simple labour. If $l_s = l = 8$ hours and $x = £10$, our particular form of skilled labour would add in a day £96 to the value of what is produced, while simple labour would add £80 in a day. If we assume $v^£ = £40$ then $v_s^£ = £48$, but this does not mean our particular skilled worker will be paid a wage of £48 for that day, equal to the value of their labour power. When Marx introduces the concept of simple and complex labour he notes, Marx (1976) page 135, footnote 15,⁸

‘The reader should note that we are not speaking here of the wages or value the worker receives for (e.g.) a day’s labour, but of the value of the commodities in which his day of labour is objectified. At this stage of our presentation, the category of wages does not exist at all.’

Although Marx usually assumes for analytical convenience that the price of labour power, its wage, equals its value, when Marx does consider wages and also the process of accumulation as a whole (Marx, 1976, Parts 6 and 7) he imagines that the phenomenon of the price of labour power not equalling its value is a very real possibility. Assuming the price of different labour powers always equals/reflects their values, as is conventionally assumed e.g. Roberts (2004), ignores this real possibility. Furthermore it may distort our view of exploitation, depending on whether the government, the firm or the worker has funded the training. In our example if the worker had funded their own training then paying them less than £48 a day would clearly represent additional exploitation through depressing the price of their labour power below its value, restricting their ability to reproduce. Wages for now self-funded graduates must reflect their student debt or their ability to reproduce will be restricted. In contrast if the firm had in the firm’s time incurred the training cost then the now skilled worker need only be paid as simple labour, at £40 a day, to successfully reproduce. Full state funding of training would likewise leave the

worker's reproduction cost at £40 a day, while saving the firm the cost of training. Competition between capitalists for already firm or government trained workers is likely to ensure such skilled workers' wages rise above their daily reproduction cost of £40. So although who pays the training cost does not affect the monetary expression of the value objectified in commodities by employment of a particular skilled labour power (Φx an hour), it does affect how that labour power's wage relates to its actual reproduction cost (that faced by the worker). We could perhaps identify in skilled labour a form of human capital, but we should remember to who/what the worker acts as capital, Marx (1978) page 516,

‘In point of fact, labour-power is his capacity (ever renewing and reproducing itself), not his capital. It is the only commodity that he can constantly sell, and he has to sell it in order to live, but it operates as capital (variable capital) only in the hands of the buyer, the capitalist. If a man is perpetually forced to sell his labour-power over and over again, i.e. to sell himself, to someone else, this proves, according to these economists, that he is a capitalist, because he always has a ‘commodity’ (himself) for sale. In this sense even a slave would be a capitalist,’

Given that labour powers vary in ‘specific gravity’ wage differentials between skilled and unskilled labour powers should be seen as a consequence/manifestation of the determination of value by labour time. To the extent capitalism requires particular skilled labour powers it provides the material foundation for different ‘classes’ of workers. If knowledge-based production were to increase the proportion of skilled labour required in a particular country then it would provide the material basis for a matching change in the class composition of that country. However even if knowledge-based production itself requires a high skilled labour input (like early machine building, Marx, 1976, Chapter 15) its ‘products’ are likely to make many existing skilled workers unnecessary/redundant, as with the introduction of any new ‘machinery’. In aggregate knowledge-based production may thus increase the proportion of simple labour in the economy rather than reduce it.

49 Seconds On Mustafar.

When summarising what goes into the complex process of modern film-making, an act of knowledge-based production, George Lucas speaks of all the various types of concrete labour that lie behind producing 49 seconds of action on the imaginary

Mustafar in the last of his Star Wars films. He express the total value of this 49 seconds of film as representing 70,441 'man' hours of labour, not \$70,441 or 70,441 units of a physical commodity. Obviously he does not differentiate between productive and unproductive labour or provide a formula for his calculations (presumably reduction to some sort of average or simple labour), but we think George is on the right track. In the spirit of modern Hollywood choose your preferred ending,

- (A) Knowledge-based production may change labour processes but can not buck the, universal in the capitalist mode, underlying dominance of the valorization process. So let us understand the underlying valorization process in order to understand how knowledge-based production fits into the development of the capitalist mode of production i.e. Marx's theory of the determination of value by labour time is alive and well and rides off into the sunset.
- (B) Knowledge-based production marks a completely new mode of production, providing yet another reason to see Marx's theory of the determination of value by labour time as redundant i.e. as nothing more than another tedious and irrelevant C19 costume drama.

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Notes.

1. Periodically new 'improved' simultaneous and dualistic interpretations of the transformation problem appear, such as Loranger (2004), which appear to satisfy all three equalities, but only upon the pain of introducing further assumptions/restrictions to the 'solution'.

2. Note the paradox of increased 'personal' security from developments in communication/technology – you need two mobile phones, so you can ring to say one is stolen – people now need your pin number, not just your card – as your car becomes harder to break into, people break into your house to steal your keys. Who, or rather what, are we really 'securing'.

3. Mongiovi and Veneziani are notable critics of the TSSI e.g. Mongiovi (2002) and Veneziani (2004), while it may be more illuminating to follow the debate on sequential valuation/the TSSI in *Research In Political Economy* (Foley 1999, 2000, Freeman and Kliman 2000a, 2000b, and Laibman 1999a, 1999b, 2000a, 2000b) or in *Capital and Class* (Kliman 2001, Mohun 2003, Kliman and Freeman 2006). Essentially we contend the TSSI is criticised, misrepresented by Nelson-like observation, for not corresponding to the conventional methodology of other ‘Marxist’ approaches, which can not find an internally consistent Marx themselves.
4. We suggest that Marx’s avoidance of ‘physical’ hang-ups follows precisely from the fact that he was not seeking to simply build a ‘neat’ ‘complete’ mathematical model. Once abstractly modelling, and ‘we’ are no exception, economists can control ‘physicality’, ultimately assuming a single identical commodity, and thus if they wish give undue significance to ‘physical’ ‘notions’ or ‘results’.
5. Although the dot-com bubble primarily serves to remind us of the excitable nature of fictitious capital, dot-com companies practice of seemingly adding operating costs to their capital, waiting for the profit to role in, has a echo of Marx’s (1978) recording of how railway firms manipulated charges to capital and current expenditure to ‘manage’ their dividends.
6. We could perhaps suggest that the conditions for the rise in globalisation were partially created by advances in knowledge-based production, but not as conventionally imagined by merely speeding communications. Soviet fears of falling behind the knowledge-based production high-tech revolutionary information-system based, unproductive, US weapon systems is considered key to the Soviet elite’s gamble on Gorbachev’s reforms. Reaction by the elite to the very box they opened led to the rapid disintegration of the USSR, as if destroyed in a video game virtually by the very weapons it feared.
7. Through increasing the productivity of simple labour capital as a whole potentially benefits from the production of relative surplus value, the cheapening of the worker.
8. We would like to thank Andrew Kliman for bringing this interpretation to our attention, and only hope that we have not misrepresented it.

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