THE TRANSFORMATION OF VALUES INTO PRICES OF PRODUCTION.
Some additional comments and insights.

Two years have elapsed since I posted my solution to Marx's "Transformation Problem" entitled: TRANSFORMING VALUE INTO PRICE. Chapter 9, Volume 3, Das Kapital. It can be found using the following link - **https://theplanningmotivedotcom.files.wordpress.com/2015/09/transformation-solution-pdf.pdf.** During this time a few heroic attempts at solutions, notably by Fred Moseley in his *Money and Totality, A Macro-Monetary Interpretation of Marx's Logic in Capital and the End of the 'Transformation Problem'* have been published. Fred Moseley's effort has been added to the efforts by Paul Sweezy, Piero Sraffa, Anwar Shaikh, Duncan Foley, Gerard Dumenil, Andrew Kliman, Ted McGlone, Richard Wolff, Bruce Roberts, Antonio Callari, Ben Fine and Alfredo Saad-Filho (quoted in the International Journal of Socialist Renewal preview to Moseley's book).

Just as Mr Moseley contends in his book that these efforts do not add to Marx's Chapter 9, so it must be said, neither does Mr Moseley's effort. All my comments on Fred Moseley's solution, which appear at the end of this article, is based on his 2015 paper entitled: "*M − C − M' and the End of the 'Transformation Problem'*" which is a useful and easily obtainable summary of his method. All the efforts of these outstanding Marxist intellectuals are the equivalent of DIY builders, who in trying to improve the house that Marx and Engels built, end up reducing its value because of their bodged efforts.

Marx's simple arithmetical example in Chapter 9 has either been deliberately misunderstood, or when not misunderstood been rendered more profound, and when not rendered more profound, has been reinvented by re-arranging all its assumptions. What Marx does in Chapter 9 is to illustrate by how much prices needed to deviate from their original values to yield an average rate of profit for five capitals with differing compositions, but equal rates of exploitation. Had Marx anticipated the cacophony of criticism this Chapter and its simple example would have precipitated, he may have turned his example into a proof, as I believe I have done. Marx's Chapter 9 only needed to be completed, it did not need to be rendered more profound, nor reinvented.

Contrary to Moseley's interpretation of Volume's 1 and 2, Marx does not treat capital there as a single or aggregated capital. Marx understood capital could only exist as many capitals or not at all. Hence Marx's "capital in general" refers to the removal of all the differences between these capitals which turns them into average capitals, with average compositions, average productivities, enjoying average rates of exploitation of a workforce who have also been rendered average in terms of skill and intensity. The object for doing so was to ensure that all exchanges could be equal, to ensure they "were the exchange of equivalents", so that prices never deviated from values.

This was not semantic; Marx needed to describe the capitalist social relation in its <u>pure</u> form, free of the variations found in real life that tend to obscure the deeper processes found there. Only in its pure form could the inner workings, the most fundamental connections and the most common processes be analysed and described.

Looking at the matter more closely. Unless exchanges were equal, that is price equalled value, Marx could not explain where profits came from. He could not prove it did not come from the mere act of buying and selling. If prices equalled values, it meant that the value given up by the seller in the commodity form equalled the value received back in its monetary form. Therefore, the seller and buyers were not enriched by the mere act of exchanging goods for money. If prices, however, were allowed to deviate from values, then what was given up in the commodity form may not be received

back in the monetary form, meaning that either the buyer or seller was enriched or impoverished by the act of exchange, obscuring the source of profit making and cluttering the analysis.

Similarly, with the value of labour power. Marx could not explain the distinction between the value of labour power and the value of (the resulting) labour, if the price of labour power deviated from its value. If the price of labour power deviated from its value, Marx could not establish that the value of labour power depended on the value of the commodities needed to reproduce the worker, especially if the prices of these articles of consumption also deviated from their values. Marx therefore treats the worker here, not as workers with different or more developed skills, but of average skill, just as he reduces different capitals to an average capital.

Marx had to equate price to value in order to establish the genesis of value and surplus value which the market movement of prices obscures, and if not obscures, then modifies. Unless prices were merely the monetary form of value, fluctuating prices would have produced a veil obscuring the inner workings of capital. Marx speaks often and eloquently in Volume 3, that all connections between market prices and their underlying values appear to be broken by a pricing system organised to satisfy the needs of profit.

To avoid this in Volumes 1 & 2, Marx did not resort to making total price equal total value, as would be the case with a single aggregated capital, but by making capitals average so that individual values equalled individual prices. Of course, these figures are not hypothetical. The average value of all commodities multiplied by their number would yield a single aggregated value, what Moseley describes as total aggregated value. This total would not be different were the values of each capital to shift, therefore no longer average, provided the plusses and minuses which make them unaverage, cancel each other out.

What Marx does in Volume 1 and 2 Marx is to model the processes that comprise capitalist production and exchange in their most general form, the common form they share rendering them uniquely capital. This is a recognised scientific approach. Examining the features of any phenomenon begins with the general features unique to that phenomenon. The alternative approach: beginning with the differences found in that phenomenon leads only to confusion because there is no way to explain how or why these differences arise in the first place, what their limits are, the direction of their movement, the order of their importance, how they interact or how they effect the totality of the phenomenon.

Hence before Marx could explain the differences between individual capitals he had to first analyse, explore and present their similarities, what they all had in common, because it is this commonness that is used, later, to make their differences explicable. That is why I used the human face as an analogy. If we started with the differences found in the 7 billion faces on this planet, we could never describe the human face in general. But if we start with all the features that are both common and unique to the human face, we not only describe it, but isolate the human face from the hundreds of billions of faces that inhabit the animal world. If we could not identify the human face in the first place, it is worthless discussing the differences found in the human face because that face needs to be first recognised before it can be identified. This is the way "face recognition" algorithms were set up: first to recognise the human face against the confusing background, secondly, and with greater analytical detail and precision, to identify individual faces, a feat even smartphones are capable of today.

Hence in Volume 1 and 2 Marx ensures that all capital and labour is similar (average) and that commodities therefore exchange at their value so that price and value are synonymous. However, in the real world, capital and labour are not similar, and commodities do not therefore circulate at prices equal to value, but at prices that reflect these differences. In sum, in Volume 3, Marx restores the

differences between capitals, and between capital and labour power which he had previously removed. He continues to deal with many capitals, but now they are all different.

These differences must affect the relation between value and price. But this divergence no longer matters because by Volume 3, Marx has explained what value is and what price is. In Volume 3 prices are allowed to revert to their unequal or normal state, because the real-world capitals that generate these exchanges are themselves unequal in terms of composition and productivity. Hence what is now required is the modification of the general relation found between capitals to include these differences.

Nothing unscientific about this. It is found in all kinds of disciplines that involves modelling, including weather forecasting. The general theory of weather which is centuries old has been concretised enormously over the last fifty years through the discovery of new features – the jet stream for example – and the use of aids such as computers, satellites and improved sensors. This has not altered the most fundamental aspect of weather, that it is sun-driven as confirmed by the biggest alteration to the weather, seasonal variations, but what it has done is to allow meteorologists to identify more of the influences that mediate the sun/planet relationship, to map these differing interactions, to measure their importance, thus making their modelling more complex which produces more accurate and detailed weather forecasting.

So too with Marx. Volume 3 reintroduces all the aspects that were removed to ensure an uncluttered analysis. In Chapter 9 and 10 of Volume 3, Marx analyses and discusses the divergence of prices from individual values in both an industry and between industries, the former influenced by variations in productivity and the latter by variations in the composition of capital. But here is the point, we would not know that there was this divergence in the first place, had Marx not demonstrated the nature of prices and values beforehand. The problem would not have been recognised let alone identified.

This is his transformation problems. Marx was aware from the outset, before he had penned the first chapter of Volume 1, that prices deviated from value. Volume 3 is much more than the confirmation that value and prices diverge. Its importance lies in the fact that it analyses and describes the laws that govern these divergences, their causation, the direction of divergence, and most importantly, the extent of or limits to, this divergence. Hence what Marx returns to are the prices that populate the markets, where commodities circulate as products of capital, and, profit dominates.

These are the laws that govern capitalist production. Capitals of higher composition are the recipient of prices rising above values, and, capitals of lower composition are the donator of prices falling below values. Hence Marx is now able to plot direction. Secondly, by demonstrating how far prices and values must diverge to establish the average rate of profit found in the real economy, he sets the limits of this divergence. If there were no laws governing the direction and extent to these deviations, the pricing system would destabilise the capitalist mode of production. If there was no underlying value to anchor prices, so that prices bore no resemblance to production costs, as happened in the USSR, then capitalism would collapse as well.

The juxtaposing of Chapter 9 and Chapter 10.

Marx and Engels understood that it was not only the method of investigation that needed to be scientific, but also the method of presenting these results. Marx understood, and investigated not one but the two transformations that take place in an evolving capitalist economy, the first within an industry and the second between industries. Chapter 10 deals with the first and earlier transformation: the emergence of market value setting market prices. In Chapter 10 Marx writes: "What we have said here of market value also holds for the price of production, as soon as this takes

the place of market value." (volume 3, chapter 10, page 280 – Penguin Edition) Four pages earlier Marx points out that prices of production govern market prices only at a higher stage in the development of capitalism.

Chapter 10 thus logically and historically precedes Chapter 9, which deals with capitalism's eventual and fully developed pricing mechanism, resulting from the emergence of a substantial credit system which lubricates the movement of capital between industries. Thus, in terms of presentation, Chapter 10 should have preceded Chapter 9 and this juxtaposition must be considered an editing error on behalf of Engels. This has added to the confusion relating to Marx's solution of the transformation problem found in Chapter 9. Most Marxist theoreticians assume Marx is referring to individual values rather than market values in his tables found in Chapter 9. However, individual values have no validity because, as it will become clear, they are incapable of being transformed.

Chapter 10 deals with the first transformation of value into prices. Here Marx abandons his treatment of labour as abstract and capital as average. He introduces the concept of "market value". This is the form that value actually takes, its living social form. Abstract labour is now discarded. Market value is the weighted average labour time found in any industry. Weighted averages differ from the simple average that Marx used hitherto, and which was the substance of his category – abstract labour.

Weighted average labour time rises above the simple average when the preponderance of production is above the average, and, weighted average labour time falls below the simple average when the preponderance of production is carried out below the average. Market value is the synthesis of individual values brought about by competition because an identical product cannot sell at multiple prices in the same market. Weighted average labour times when multiplied by the volume of production always equals the sum of individual labour times. Simple averages do not, unless they coincide with weighted averages, which is exceptional.

Hence Marx takes the first step in concretising value and market prices. The market price that emerges under these conditions is the monetary expression of market value. Just as market value represents a single value for a product, rather than diverse individual values, so the market price represents the single price competition forces upon the sellers in any industry (assuming demand and supply balance).

But capitalists do not sell products to realise their value. They sell commodities to make a profit, and the measure of that profit is the rate of profit. This brings us to the second transformation problem, the movement from market prices to prices of production or more correctly market prices of production. To ensure that the two forms of market prices are not confused in this article, market price refers to that price set by market value, and market prices of production to that market price set by prices of production.

If the market price, based on the market value in a particular industry, yields an average rate of profit, such that it neither attracts nor repels investment, then that market price would coincide with the market price of production. If, however, the rate of profit was higher than average, the market price would not coincide with the market price of production, it would be higher and vice versa if profits are below the average. However, this recognition that market prices of production deviate from market prices and therefore market value, requires the a priori determination of market prices. That is why Chapter 10 should have been Chapter 9, and Chapter 9 should have been Chapter 10.

Marx makes it clear in Chapter 9 that market prices originally yielded different rates of profit when it was simply determined by market value. To yield an average rate of profit, prices had to deviate from market values which they did under the pressure of capital moving from lower rates of profit to higher

rates of profit changing the terms of competition. Because the rate of profit is the driver of investment, prices are altered by the incessant movement of capital which erodes differences in the rate of profit as it continuously changes the balance of supply and demand throughout the economy.

This has real consequences for the transformation solution. The five capitals Marx sets out the first table of Chapter 9 have to be understood not as individual capitals but of capitals that represent the market value for their industry. They are representative capitals. Only as market value can they be transformed. If they were individual values, they would not represent market prices because they could be residing above or below their market value. Seen this way, Marx transformation solution deals with the conversion not merely of market value, but of the conversion of market prices into market prices of production. This would be more visible if Chapter 10 had preceded Chapter 9 as this would represent the logical and historical movement of prices from market prices to market prices of production. This is supported by the quote selected above which appears on page 280 of Volume 3.

However, this is by and by. The real point is that the reproduced prices rather than embodied prices only applies to market value and never to individual values. Within an industry, some individual values do not change, while others change. Market value reflects this inertia as well as this change together with the weight of change. Hence if a new technology enters an industry, the degree and weight of its penetration is reflected through alterations to market value.

My posting therefore always implied that the five capitals at the outset were based on market values and not individual values allowing market prices to be converted into market prices of production. The five capitals are representative of five different industries because the initial price of their output coincides with the market value for that industry. It does not matter if these 5 capitals add up to the total capital invested in the economy or they do not. What is important is that they represent the market value for their branch of production, the pivot on which all prices rotate.

Using reproduced prices and by repricing the five capitals themselves, I was able to turn Marx's example into a proof by extending it. In this I was helped by comments Marx made in Chapters 11 and 12 found in Volume 3. The "proof" that Marx was employing only an example was always there. As I pointed out in my earlier posting, every time the capitalists withdraw the 110 profits (s) at the end of the cycle in Chapter 9, each of the five capitals revert back to their original 100. We are returned back to the original state and the exercise must be conducted over and over again showing it to be an intellectual exercise and nothing more.

However, with my new prices of production which differ significantly from Marx's "prices of commodities" the price of each capital is not returned back to 100 each when the profit is removed, but to their newly appreciated or depreciated prices. They are no longer 100 each, but different. This is the proof that is required, namely that market prices of production must maintain the capitals at their new appreciated and/or depreciated states, while simultaneously yielding differing masses of profit, so that an average rate of profit based on the new prices of these capitals, is realised. The fact that most Marxists did not realise that the price of each capital had to be transformed as well, and that this requires a two-part transformation solution, robbed them of the insight needed to complete Chapter 9.

Section 2 of my original posting.

My section 2 dealt with market value and market price, as described by Marx in Chapter 10. Chapter 10 has always been eclipsed by Chapter 9, consigned to reside in its shadow. And yet it is the chapter in which Marx decisively alters his analysis from abstract labour, or capitalism in its pure form, into a

more concrete representation of value. Hence all his quotes on reproduced and embodied values which precedes this chapter, must be heavily qualified.

Chapter 10 represents the first and more elementary transformation of value and price, from abstract value to market value and from average price into market price. Here, Marx explained for the first time how the market value, which sets the market price, comes into being. It is no longer a question of simple values but market values. When, at an earlier stage, and at a more general level of analysis, Marx's described value, he always implied a simple average.

Mathematically speaking, a simple average is merely the sum of all the individual values averaged out. If a new technique of production is introduced, yielding a lower individual value, this will immediately reduce the simple average by that difference. However, in real life, market value is not a simple average, it is a weighted average. The effect of a new and lower individual value has a different impact on a weighted average compared to a simple average. With weighted averages, it depends not simply on the difference in values, but on the weight of that difference (which is difference multiplied by the changed weight of production). For example, let us assume three individual values: 70, 60, and 50 that make up a branch of production. The simple average would be 60 for that branch of production or 180/3. Now let us assume that a new technique of production is introduced yielding an individual value of 20. The result will be a fall in the simple average from 60 to 50 or 200/4.

Does the same apply to weighted averages? Probably not. It depends on the individual weight of production at each level of value. This is described in the table below. (It is safe to assume that the weight of production is concentrated in the lowest cost producers.) The result is that the market value of 56.7 sits below the simple average of 60 (total value divided by quantity or 34,000 divided by 600).

Table 1.

Producer	Individual value	Quantity of units	Total value
A	70	100	7000
B	60	200	12000
C	50	300	15000
		600 total quantity	34000
180/3 = 60	60 Simple average	34000/600	= 56.7 market value

Now let us see what happens when the new technique of production is introduced. Because it is early days and production has not yet ramped up, D can only provide a quantity of 50 units. Let us assume that this 50 comes at the expense of 50 units produced by A, the highest cost producer, and that the social need is unchanged at 600 for this product.

Table 2.

Producer	Individual Value	Quantity of units	
A	70	50	3500
B	60	200	12000
C	50	300	15000
D	20	50	1000
	200/4 = 50	600	31500
	50 simple average	31500/600	52.5 market value

We note that the market value has not fallen as far as the simple value. It has fallen to only 52.5 compared to the fall in the simple average to 50. The reason is that the weight of change is insufficient to drive the market value below 50.

Of course, this could all change. If the new market value of 52.5 yields a market price of the same magnitude, such that demand increases from 600 to 700 units and this increase is fulfilled solely by D, the following would happen. D's output would increase from 1000 to 3000 (20 x 150 units). This would lift total output from 31,500 to 33,500. Because this new value is spread over 700 units rather than 600, the market value for that product now falls to 47.9 or below the simple average of 50. In other words, the weight of change effecting the lowest cost producer is now sufficient to depress the market value below the simple value for that product. Assuming that it is market value that determines the market price, then it can be said that the market price has also fallen below the simple average cost for that product.

Market value allows us to understand the interaction of embodied values and reproduced values. The weight of change as we shall see is never 100%, because the change in individual values that make up market values cannot all simultaneously change overnight. The key to understand change is to understand it **as the weight of change**, which not only involves differences in values, but the balance between reproduced values and embodied values. I used the example of steel production in my original posting, but a more living example is to be found in the transformation of the printing industry during the second half of the 20th Century.

One of the most significant technical revolutions that occurred during the second half of the twentieth century occurred in the sphere of printing, where cold typesetting (phototypesetting) replaced highly skilled hot typesetting, the foremost example of which was the Linotype machine. Hot typesetting reached its apogee in the 1950s when more than 100,000 machines were used world-wide. However, by the 1960s, hot typesetting was being replaced by phototypesetting which had been invented in the early 1950s. By 1976 (or 1978 in the case of the New York Times) the ninety-year era of hot typesetting had come to an end, replaced with few exceptions, by photo typesetting.

Photo typesetting had many advantages compared to hot typesetting. It was cleaner, simpler and much more productive. At best, an operator using a linotype machine could cast 16 lines of print per minute compared to 1000 lines when photo typesetting was computerised. However, phototypesetting itself was merely a transitional phase lasting just 40 years before it too was wholly replaced by digital printing at the end of the 1980s. Desktop Publishing heralded the end of photo typesetting when software such as Abode appeared in the early 1980s, allowing layout and editing to be carried out electronically on WYSIWYG enabled screens (what you see is what you get). (Source: http://muse.jhu.edu/chapter/1314675)

Phototypesetting suffered from the same shortcomings suffered by hot typesetting. It could only be produced in strips and corrections had to be made manually. Dedicated typesetting firms and departments were still needed. However, with desktop publishing these firms and departments were made obsolete. The type could be imputed directly by journalists or semi-skilled typists and edited directly on screen. The delayering of the printing process began. Newspapers could now cull their typesetting departments which made inevitable the clashes in the industry, notably on Fleet Street in London, clashes which reached their height with the year-long Wapping dispute of 1986. It ended with the decisive defeat of the print chapels and their unions.

Hence the revolution in typesetting from the hey day of hot typesetting to the advent of digital printing took about thirty years. It was not overnight. The weight of change took years. Change does not

happen in series, where one begins and the other ends. There is overlap, they sit alongside each other at first. But the new grows at the expense of the old. That shift marks the decisive role of reproduced prices.

There are three phases to technical revolutions. The introductory phase, when the new technology appears on the market and its viability is established. The acceptance phase, when uptake increases allowing production to be scaled up and to become more economic. Finally, the dominant phase, when the widespread use of the new technology displaces the older technology and production of the older technology ceases. The speed and tempo of these phases is of course influenced by the business cycle and the level of demand found in that industry.

Hence the changes in market values reflects this change. In the first phase, the fall in market value is gradual because the weight of change is insignificant. In the second phase, the weight of change is faster, but market prices are still held back by the premium the new machines command. During the third phase, the weight of change is complete and the fall in market prices is precipitous as the growing number of new machines unleashes a fight for market share ending any premiums.

In the language of Marx. At first the preponderance of higher cost producers maintains an elevated market value and price. However, during the latter stage, the preponderance of lower cost producers drags down the market value, a fall accelerated by the bankrupting of the higher cost producers. The point at which the higher cost producers are driven out the market is when the market price falls below their cost price. This is what happened in the print industry which was once dominated by hot typesetting and later by cold typesetting.

In examining this transition within the print industry, two market values stand out. Firstly, the market prices of the machinery themselves, and secondly the market price of typesetting employing both hot and cold typesetting machinery. With regard to the former, the fall in the market price of the equipment was more abrupt. It took less than ten years. It would be an error to believe that so soon as cold typesetting was born, hot typesetting ended. There was a period of overlap. Linotype machine sales increased up to 1966 even though an increasing number of cold typesetting machines were being rolled out, with later models having improved computerised controls. Sales only collapsed after 1966, but sales the actual typefaces continued strongly for ten more years showing that these machines remained in widespread use. (It is worth noting that 1966 marked the high point in the post-war rate of profit ensuring demand was robust.)

However, before the collapse in production in 1966, it was clear that Linotype was already facing competitive pressures in the market from the newer machines. This had led to Linotype cutting corners to reduce prices which resulted in costly repairs after sale, hastening their demise. The weight of change in the industry accelerated over the ten years up to 1966 as the balance between hot and cold typesetting machines changed. And as the weight of change accelerated so the weight of embodied value was diminished while the weight of reproduced value expanded, resulting in a sharper fall in market prices until these market prices purely reflected reproduced prices.

The craft of typesetting was different. Here the fall in market value was much more gradual. The mix of hot and cold typesetting endured long after the production of hot typesetting machines was discontinued at the end of the 1960s. Typesetting firms, of which there were 150,000 in the USA, gradually swopped over from hot typesetting to cold typesetting. Hot typesetting remained economic until the mid-1970s, roughly ten years beyond the discontinuation of the production of the machines themselves, primarily because the capital values of the machines was now zero resulting in minimal amortisation.

In the end, it was digital printing in the 1980s that led to the biggest shakeout of typesetting firms as typesetting was taken in-house. This effectively ended the era of typesetting firms and departments. The revolution was now complete, and change would henceforth be incremental.

The purpose of section 2 was to demonstrate how the synthesis of embodied value and reproduced values occurs. The change in market value always represents the weight of change which can be anything between 0% and 100%, and this weight of change is a product of the difference in individual values multiplied by changes in the patterns of production. It is seldom 100% to begin with simply because there are never enough new machines initially to displace the older machines which are still employed (subject to the level of demand).

Here the business cycle is important. In the down-phase of the cycle which is plagued by a generalised insufficiency of demand, older machines will be scrapped more quickly. The fall in their weight will hasten the fall in the market value pressuring market prices and increasing the urgency to invest in the newer machines. Hence in Chapter 10, Marx not only deals with the emergence of market value, but how the level of demand itself influences the pace of change, altering the weight of the lowest cost producers at the expense of the higher cost.

The point I wish to make, is that market values will always reflect more than reproduced values, or what is the same thing, current values. This is not a departure from Marx's and Engels' understanding that value always depends on reproduced labour times and not embodied labour times. The difference which Marx makes clear in Chapter 10 is that reproduced or current labour times impacts simple value differently to market value because the latter depends on the weight of change. However, in the end, it is reproduced labour times or current labour times that is decisive, because it sets the direction of travel, with embodied values merely providing the residual friction affecting the pace of change.

Market prices expressing market values is a transitional form. As soon as capitalism is sufficiently developed, so that investment flows without obstruction between industries, market prices are shaped not by market value but prices of production. Commodities now circulate as products of capital, and all links to labour times now seem to be severed.

However, market value, or what is the same thing, social value still plays a role. It interacts directly with cost price and indirectly with prices of production. One of the largest elements of cost price is wages, or more accurately variable capital (which is wages modified by turnover). When a new technique of production is introduced it is introduced only because it reduces the cost price, and it can reduce cost price, only if the wages spent on producing each item is reduced. More precisely, this means the fall in variable capital must exceed the increase in the other circulating inputs resulting in a net reduction.

A word of caution. It would be incorrect to simply say that a fall in cost price will stimulate investment. It would be correct to say: that the fall in cost price must be of sufficient magnitude to also raise the rate of profit. The new profit margin when multiplied by the new output, must be sufficient to generate an increase in the mass of profits relatively larger than the total investment going into this new production.

This being so, should the rise in the rate of profit yield a new industry rate above the average, this would attract new and additional investment (capital) from outside the industry. Because of this, supply will increase depressing the market price until such time it coincides with the price of production for the industry, or what is the same thing, a market price equal to cost price plus an average rate of profit. That is the interaction between market value, cost price and market prices of

production. By acting on cost prices, market value acts as the beacon directing investment flows in the crowded, but dark night, that blankets the market.

For this author, our understanding of the pricing system has but one purpose. We seek to know how the pricing system works under capitalism, where prices are distorted by the need to satisfy profitability, so that we are can untangle it, thus preparing an objective pricing system for our future emancipated society.

Critiquing Moseley's solution.

Fred Moseley's hypothesis is elegant, even appealing, particularly to those distressed by the constant carping over Marx's solution to the "Transformation Problem". Fred Moseley has no problem précising his hypothesis; viz, *"This paper argues that Marx did not 'fail to transform the inputs' because the inputs of constant capital and variable capital are not supposed to be transformed. Instead, constant capital and variable capital are supposed to be the same in the determination of both values and prices of production – the actual quantities of money capital advanced to purchase means of production and labor-power at the beginning of the circuit of money capital (M – C – M') which are taken as given – and thus Marx's theory of prices of production is logically coherent and complete."*

In other words, Volumes 1 and 2 theorise the production of the total value including surplus value which thus sets the average rate of profit for the economy. Marx identifies this to be 22% in his example. Volume 3 then discusses how this total value is distributed between differing capitals based to yield an average rate of profit. Hence prior to and post this distribution the totals remain unaltered, only the components making up this total have been changed.

To begin with Mr Moseley is correct. The total capital in Marx's example amounts to 500 (5 x 100) It still amounts to 500 after being transformed from market value to market prices of production. This however is completely unimportant. What is important is what has happened to the components making up the 500. Marx's table in Chapter 9 is reproduced below

Table 3.

Capitals	Surplus Value	Value of commodities	Cost price of commodities	Price of commodities	Rate of profit	Divergence price vs value
i) 80c + 20v = 100	20	90	70	92	22%	+2
ii) 70c + 30v = 100	30	111	81	103	22%	-8
iii) 60c + 40v = 100	40	131	91	113	22%	-18
iv) 85c + 15v = 100	15	70	55	77	22%	+7
v) 95c + 5v = 100	5	20	15	37	22%	+17
390c+110v = 500	**110**	**422**	**312**	**422**	**22%**	**0**

(page 256, Volume 3 Penguin Edition)

Column 1 "Capitals" gives us total capital amounting to 500, comprising 390 constant capital and 110 variable capital. As the rate of exploitation is 100% the mass of surplus value is 110. As a result of the movement of prices (final column) each capital of 100 earns a gross profit of 22 yielding an equal rate of profit of 22%. This uniform rate is different to the variable rates Marx begins with in Chapter 9 where Marx records, that when market values apply, these capitals would yield rates of profit of 20%, 30%, 40%, 15% and 5% respectively. This still adds up to the same 110 total profit or 22% on the total profit, but at the "micro" level, unequal rates of profit prevail.

Marx therefore shows by how much prices of production must deviate from market values to harmonise these rates of profit (final column Table 3). But if, because of competition, this divergence takes place, it has to alter the prices throughout the entire economy, every price. The price of each

capital cannot remain unaltered at 100 any longer even though their total price remains unaltered at 500.

This is what I did in my earlier posting, the final table of which is reproduced below in a rearranged format.

Table 4.

Newly priced capital	Adjusted profit + cost price =	Price of Production.	Marx's "*Price of commodity*" *(Volume 3 Chapter 9).*	
102	22.4 (102 x22%) + 72	=94.4	92	+2.4 difference
93	20.5 (93 x 22%) + 74	=94.5	103	-8.5 difference
85	18.7 (85 x 22%) + 76	=94.7	113	-18.3 difference
106	23.3 (106 x 22%) + 61	=84.3	77	+7.3 difference
114	25.1 (114 x 22%) + 29	=54.1	37	+17.1 difference
500	**110** 312	**422**	**422**	0

Each capital is now different though the total has not changed. They are no longer 100 each. Each profit is also different in order to yield a rate of 22%. To yield these new market prices of production, the newly priced cost price must differ to a greater degree than Marx's "Price of Commodity" (final column) because Marx's table does not reprice the capital from which input prices are drawn. Table 3 and 4 demonstrate the difference between market prices when set by market value and market prices set by prices of production. In table 4, both input prices and selling prices have been repriced such that prices deviate from values throughout the cycle. We can now see that Fred Mosely's methodology is deeply flawed because he claims it is not necessary to reprice each capital because the macro figure of 500 is already repriced.

There is an additional objection which stabs his assumptions through the heart. In his paper he uses Marx's circuit of capital, as a single macro circuit for the entire economy. This circuit he correctly describes as M.C….P…C⁺M⁺. However, such a circuit cannot be used for the entire economy because of the presence of revenue in addition to capital. This will become clear when we substitute the figures Marx uses in Chapter 9 for the letters found in the circuit. The circuit is now:

> 312(M) . 312(C)…..P…..422(C) . [312(M) + 110(R)]   [where   R   stands   for revenue].

To begin with 312 money-capital is exchanged for 312 commodity-capital comprising 202 constant and 110 variable. Production commences and a commodity-product of 422 is produced swelled by the 110 of gross profit or (s). When this is exchanged for money at the end of the circuit only 312 of that money represents capital and 110 represents revenue. In other words of the 422 the capitalists receive, only 312 will be reinvested while 110 is withdrawn to satisfy the consumption of the capitalist class itself.

Therefore, it is impossible for the commodity product or what is the same thing, the price of production for that commodity capital, to be equated with money capital. In the first instance, before production commences, the total capital is 500. However, it only requires (in the aggregate) 312 of money capital to set production in motion under the existing conditions. Then when the new commodity product swells to 422, the same 312 is needed to recycle it back to production. In each case the amount of money capital is less than either the total capital (pre-production) or the commodity product (post-production).

In Chapter 9, Marx correctly assumes that simple reproduction takes place. This limiting assumption is essential to equate total value to prices. Expanded reproduction would see the capitals increase by the additional capital the 110 could provide. In that case we could no longer compare like with like, the total capital at the end of the cycle would exceed the capital to begin with. It is for this reason that the proof I have provided is less complicated than would be the case in the real world, where depending on the business cycle, expanded production is the norm. This is by and by, simply introduced to show the limitations of any proof. More to the point, it shows that Fred Mosely must assume that none of the 110 is consumed as revenue, but would have to be consumed as additional capital in order to complete his macro circuit of capital. While this will have the beneficial result of the capitalists starving and production expanding, it does show that in fact Fred Mosely has engaged in a forced abstraction.

There is a real problem with Fred Moseley assuming a single aggregated capital. A single aggregated capital cannot be exchanged with itself. Marx titled Volume 1: "The Process of Capitalist Production". But these processes can only be investigated on the basis of the interaction of many capitals. Hence Marx's abstractions, the turning of many capitals into average capitals to examine these processes in their pure form, is a real abstraction. Fred Moseley's is not. A single aggregated capital, even in money form, is an end result, and as an end point rather than a starting point, examination of processes between the two is rendered impossible. That is why he ends up claiming that the market values Marx starts with in Chapter 9 do not require transforming, because they are already transformed, when in fact Marx wrote Chapter 9 to prove the opposite, that these market values needed to be transformed into market prices of production.

Marx's transformation problem is truly the graveyard where intellectual reputations are buried. However, I still consider Fred Moseley to stand head and shoulders above most of the other Marxist intellectuals because his efforts are not limited to the transformation problem. For my part I do believe that the transformation problem is now solved and that it has been solved by holding on tightly to Marx's method, applying it and extending it, thereby eliminating the shortcomings associated with Chapter 9. As a result, we can now confidently defend the so called "labour theory of value" with renewed vigour.

Brian Green. January 2017.