‘*Empirics*’ *of the Profit-Rate Fall* -- *Global Strategic Hypotheses*. **Part I**. **Marx’s** *Theory of the Fall*.

by Miguel Detonacciones, for **F.*E*.*D***.

¿What Does the Growing Relative Dearth of Objectified New Surplus-Labor -- Resulting from a Growing Dearth of Living Labor-Time New Value Creation Relative to Accumulated Fixed-Capital Value, and Reflecting a High Level in the Growth of the Social Forces of Production, and Therefore Impending General, Core Value-Profit-Rate Decline -- Look Like “On the Surface of Society” for Descendence-Phase Capitalist Society?

Abstract. This essay addresses the Decline of “The Capital R[el]atio[n]” [Marx: **(S’/(C+V))↓**, or **((ΔM)/M)↓**], and the Rise, from out of It, of a New, Higher, Political-***ECONOMIC***-***DEMOCRATIC*** ‘‘‘Social Relation of [Societal Self-Re-]Production’’’ [Marx], one Capable of Re-Accelerating the Growth of the ‘Societal Self-Reproductive Self-Force of Humanity’ [Seldon, via Marx], and, thereby, of potentiating an unprecedented, planet-wide, *sustained* ‘Global Renaissance’ [Seldon]***?***

Introduction. Per Marx, the expanding “sphere” of capitalist world market [socio-]political-economy, i.e., of planetary ***human society***, features both a deep, “inner”, and humanly-comprehensible, ‘“core”’, & a “chaotic”, superficial, outer “surface”, which “inverts”, and otherwise obscures, the subtle but comprehensible, inner-core “law” of ***its*** “motion” [see diagram, appended].

¿What does the ***manifestation*** of Marx’s *“**Law of the Tendency of the Rate of Profit to Fall**”* ***look like empirically***, ***observably***, “at” or “on” what Marx called ‘“The Surface of [Capitalist] Society”’***?***

¿In particular, what is the relation of Marx’s *“**Law of the Tendency of the Rate of Profit to Fall**”* to the ***phenomenology*** of ever-worsening ***Global Crises of Human-Social Reproduction*** under capitalism, such as the recent, **2007+** ‘***Global Great Depression* II**’, and of the even more devastating ***Global Crises of Human-Social Reproduction*** that ***we*** can expect in the future***?***

The Marxian Value Profit-Rate Metric at the ‘“Core”’ of Capitalist Society. Marx formulated the value rate of profit ratio, **((ΔM)/M)** -- wherein **(ΔM)**, the ***change*** [**Δ**] in the magnitude of **M**oney-capital-value owned [*after* production], is divided by the magnitude of **M**oney-capital-value invested [*before* production], **M**; invested, *before* production, in productive capital, so as to produce that ***change***-in-value, **ΔM**, *after* production.

Marx also formulated an equivalent value profit rate ratio, **(S’/(C+V))** -- that ***of*** **S’**; of ***net*** **S**urplus-Value [or of ‘Core Profit’] *gained* ***to*** the value of ‘‘‘***non***-living means of production’’’, **C**, *plus* the value of ‘‘‘***living*** means of production’’’ [humans, working for wages], **V**, i.e., **S’** divided by **(C+V)** -- the latter, the denominator, **(C+V)**, representing the total capital *invested* so as to generate that *gain*, that ***net*** Surplus-Value [‘Core Profit’] “Return”.

He formulated these profitability rates/ratios as the key metrics of the dynamics, and of the ‘***meta***-dynamics’ [Seldon], of the capitalist [dynamical, and ‘***meta***-dynamical’] system.

Per Marx, this profit ratio ***IS*** *“**the capital-relation**”*; ***IS*** capital as the defining “social relation of production” of ‘capital-ist’ society; ***IS*** that ‘relatio’***** in ***its*** expression as a quantitative measure [See Marx, ***Capital***, **Volume II**, New World, pp. **30**, **38**, **43-45**, **87**.], directly tied to the deep qualitative, ontological difference between **V**-assets **&/**vs. **C**-assets. ***It*** is the capital-‘relatio[n]-of-production’ that keeps the capitalist system *existing* **&** *going* **&** *growing*, especially when this r[el]atio’s magnitude is rising, especially during the ‘‘‘ascendence phase’’’ of that system.

*****[The English word *“**relation**”* translates, in French, to the word «***rapport***», in German, to «***verhaltnisse***», both of which include quasi-*quant*itative connotations of “ratio” and “proportion”, as well as *qual*itative, ‘interconnectional’ connotations.].

Marx's value profit-rate metric -- **(S'/(C + V))**, or, equivalently******, **((S'/V)/((C/V) + 1))** -- is a ***core analytical expression***. ***Its*** movement with time is ***not***, directly ***and*** immediately, ***an empirically-observable phenomenon***, ***visible*** upon "***the surface of society***".

It is ***not*** the metric by which those "agents of [capitalist] production", e.g., the capital-owners themselves, measure the actualizations of the profitability concept that is central to the motivation of *their* 'capital-praxis'.

This ***expression*** implies that, as **(C/V)** rises -- e.g., if *both* total social **C** and total social **V** rise for the typical capitalist nation-state, participating in the World Market planetary human-social totality, as capitalist-epoch historical-time advances, but if **C** rises, with that time, faster than **V** rises -- then, if the ***net*** Rate of Surplus-Value, **(S'/V)**, rises ever more slowly than does the ratio **(C/V)** with that time, then the ***whole*** Marxian profit-rate ratio, **(S'/V)/((C/V) + 1)**, will decline, in its "dimensionless" or percent magnitude, over that time as well, because of the disproportionate escalation in magnitude of its denominator *vis-a-vis* that of its numerator.

It is crucial to understand the difference between *the algebraic mechanism* of the profit-rate fall, and the empirical, *'socio-physical mechanisms'* which *the algebraic mechanism* merely models, 'metaphorizes', or mimes mathematically.

The steeper rise in the value **C**, relative to the shallower rise in the value **V**, is called "growth in the organic composition of capital" [Marx], when it is a crude but durable index of the growth of 'human-societal self-productivity' [Seldon], "the growth of the social forces of production" [Marx], within the capitalist system.

This is because heightened industrial and agricultural productivity tends to be correlated with a growth in the physical mass, and, to a lesser extent, with a growth in the capital-value magnitude, the value-cost, of the ***non***-worker means of production -- machinery, "fixed capital plant and equipment" -- ***relative*** to the also tendentially rising value-cost of a growing "mass" of wage workers as "living" means of capital-production, **V**.

The variable **C** is a measure of the value-cost of the "flow" of raw **m**aterials and auxiliary **m**aterials consumed in capital production, call it $\mathbf{C_m}$, together with the value of "wear-and-tear" depreciation, the partial physical deterioration of the capability of machinery, of "**f**ixed capital plant and equipment" in general, to continue further, future production, as a result of its "wearing" use in current production; the incremental annual "using up" of the value of "**f**ixed capital plant and equipment". Let us call this latter value-cost $\mathbf{C_f}$.

Thus, $\mathbf{C \approx C_m + C_f}$.

Capitalists' Profit-Rate Metric. The "personifications" and agents of Capital -- e.g., the capitalists themselves -- measure profitability differently than by $\mathbf{(S'/V)/(\,(\,(C_m + C_f)/V\,) + 1\,)}$.

They do ***not*** see the "Surplus-Labor" portion of labor-time worked, from which Marx's ***gross*** "**S**urplus-Value", **S**, arises -- the portion of their daily labor-time which the workers' wages do ***not*** cover -- as the ultimate source and cause of [***net*** **S**urplus-Value, **S'**, and thus of] their Profits.

They originally have no explicit concept of "Surplus-Value" at all. They account wages as one *mere*, *denigrated* expense among many others, a *mere* expense not even included, explicitly, in *their* profit ratio.

They, fetishistically and mystically, treat the monetary value of their "Fixed-Capital Plant and Equipment **I**nvestment", **I** -- from which $\mathbf{C_f}$ models merely a periodic partial deduction of value-expense for the "wear-and-tear" depreciation of those **I** assets -- as the *"magical"* source and cause of their profits, and ***not*** the laborious "value-added", negentropy-adding activity of their human wage-workers, as the *real* source & cause thereof.

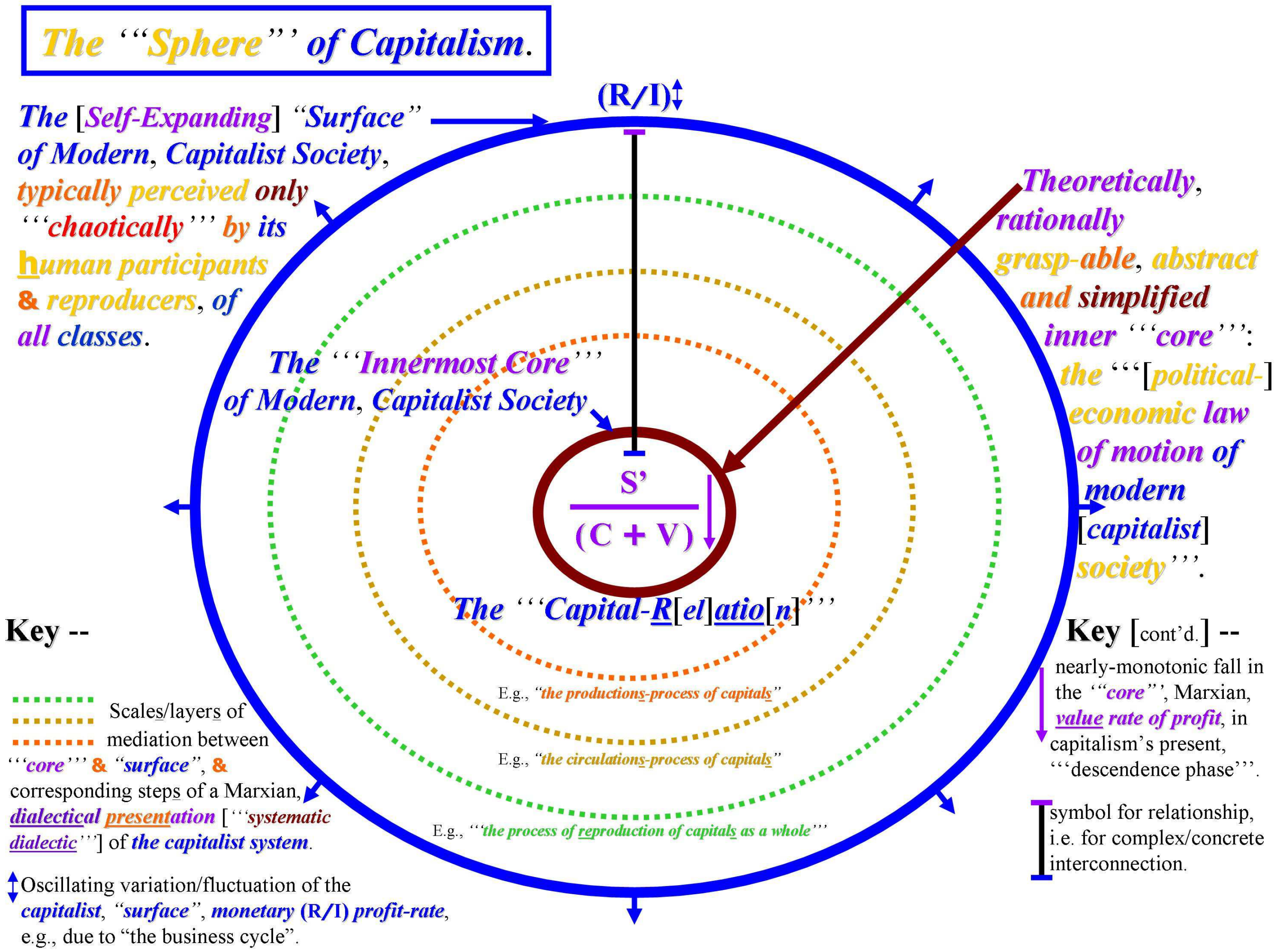
They measure profitability, e.g., by a ratio, **(R/I)**, for "**R**eturn **O**n **I**nvestment" ["**ROI**"] -- ***net***-**R**evenue **R**eturn divided by, e.g., their Fixed-Capital, etc., monetary **I**nvestment that is involved in producing that money **R**eturn.

[**(1) x (S'/(C+V)) = ((1/V)/(1/V)) x (S'/(C+V)) = ((S'/V)/((C/V) + (V/V)))].

It is a general secular fall in general social **(R/I)** that would get their attention, as a threat to the continued viability of the enterprises that they own, and of the capitalist system as a whole. See, for example --

https://capitalismsfundamentalflaw-wayforward.blogspot.com/2013/09/normal-0-0-1-2344-13363-111-26-16410-11.html

Clearly, **$(S'/V)/(((C_m + C_f)/V) + 1)$** is ***not*** the phenomenal, "surface of society" form of the rate of profit/rate of return on capital metric for the capitalist system.



The Growth of the 'Capitalized' Social-Productive Force is the 'Self-Undermining' of "The Capital-Relation". Marx has predicted that, as for previous social formations, so also for the capitalist social formation, that it is "the growth of the social forces of production" [Marx] -- 'the growth of the human-society self-[re]productive [self-]force of human society itself' [Seldon] -- that, beyond a certain threshold in its growth, will bring the dominance of the prevailing "social relation of production" to an end, and potentially launch a new main, higher-stage "social relation of production", one that is compatible with a 'Global Renaissance' [Seldon], i.e., with an even higher, flourishing upsurge in the 'human-societal self-reproductive self-force' [Seldon] than the capitalist system could ever attain, let alone sustain. [See Marx and Engels, ***Basic Writings on Politics and Philosophy***, Anchor, **1959**, pp. **42**-**44**, from Marx's *Preface* to his book «***Zur Kritik***...»].

It is thus the growth of "the social forces of production" [Marx], of humanity's 'self-[re]productivity', i.e., the growth of the '***meta***-Darwinian collective ***fitness*** of the planetary human species' [Seldon], as reflected in the growth of the "organic composition of capital", of the **(C/V)** ratio, of the [world market] "total social capital", that at the analytical core of the dynamics, and of the '''***meta***-dynamics''' [Seldon], of 'the capitals-system' [Seldon], drives the fall in the ***core***, ***analytical***, Marxian, general, value-rate of profit on the capital invested.

Since profitability is the driving incentive of capitalist [social re-]production, an *irreversible* monotonic fall in this rate of profit would signify a '''self-braking''' and ultimate 'self-breaking' of the capitalist system itself.

¿But how does any such 'self-braking and self-breaking' appear to human observers, situated, and active, within capitalist society, observing visible socio-political-economic events, from inside the planetary capitalist system***?***

"The Surface of [Capitalist] Society" versus the [Capitalist] '''Social Core'''. Marx makes a strong distinction between the innermost depths of the core of capitalism, 'seeable' via theory alone, and the '"surface of [capitalist] society''', perceivable -- but typically only "chaotically" -- by the agents of and participants in the 'capital-praxis'/'wage-labor-praxis' that dominates that society.

He describes the mode of access to this deep analytical core of the capitalist system in his *Preface* to the first German edition of ***Capital***, **Volume I**, in the following terms --

"...In the analysis of economic forms, moreover, neither microscopes nor chemical reagents are of use. ***The force of abstraction*** must replace both.**"** [***Capital* I**, New World, p. **8**, ***emphasis added***].

The Marxian, Rectified Version of the Classical Political-Economic "Law of Value". The Marxian ***law of*** [commodity-]***value*** is Marx's key fruition of this ***force of abstraction*** as applied to the 'capitals-system'. It is the key principle/axiom, and heuristic, of Marx's theory of capitalism. It holds that the unit *value* of a commodity-object of a given kind is proportional to the *duration* of *"abstract" or generic human labor-hours* socially *necessary*, at present, on average, e.g., for the present stage of advancement of production technology [i.e., for the presently-prevailing level of [re]productive force/productivity applied in the production of that commodity-object], to presently ***re***-produce one unit of that kind of commodity-object. This definition of capitalist value is a statement of that value's deep-core, '''capital-in-«gene»-ral''' form, abstracting, from that '''shallower''', but more concrete/complex layer of mediation that, via the competition among "the many [individual] capitals", brings about "the equalization of the general rate of profit".

These labor-time values are not directly observable at '"the surface of capitalist society"'.

Marx is at pains to point out that, in actuality, at "the surface of society", even abstracting from the effects upon commodity prices of the "equalisation of the general rate of profit", a typical commodity almost never sells at its '"socially necessary abstract human labor-duration"' value-price. Instead, its empirical price fluctuates "chaotically" around its value, under impacts of price competition, supply variances, etc., etc. Its labor-time-value is hidden, empirically, as some kind of "central tendency" of those fluctuations, until, e.g., the typical productive force/prevailing productivity in the production of that commodity, shifts, e.g., upward, thus lowering that "central tendency" of those "chaotic" value/price fluctuations of that commodity-product.
[See ***Capital III***, New World, p. **161**.].

The "presently socially necessary abstract labor-time" core of value is implicated ***not*** just at the level of the "abstract labor-time" bestowed upon an individual commodity-object, e.g., if that deviates from the "presently-socially-necessary" time-amount, but also at the level of the ***aggregate*** or ***total*** social labor-time of society.

If *too* *large* a fraction of the, e.g., annual, total social abstract labor-time of society is bestowed upon a given class of commodities, relative to the quantity of *effective* social need for it, even if "exactly" the socially necessary amount of abstract labor-time is bestowed upon the production of each unit of those commodities individually, then the unit-price of those commodities will tend to fall due to that '''over-emphasis''', i.e., due to their over-supply, i.e., to their 'under-demand', at least in terms of "effective demand".

If *too* *small* a fraction of the, e.g., annual, total social abstract labor-time of society is bestowed upon a given class of commodities, even if "exactly" the socially necessary amount of abstract labor-time is bestowed upon the production of each unit of those commodities individually, then the unit-price of those commodities will tend to rise, will be bid up, due to that '''under-emphasis''', i.e., due to their under-supply/effective 'over-demand'.

Marx did not "dream up" his "law of value" -- his principle or axiom of a very special kind of, economic, '''time-binding''' [cf. Korzybski] -- out of "pure thought". Instead, he arrived at it through his *immanent critique* of the "labor theory of value" that was, in his time, the prevailing theory in the ideology-vitiated science of capitalist classical political-economy, e.g., in the works of Adam Smith, Benjamin Franklin, David Ricardo, etc., etc. He corrected immanent flaws in their "labor theor*ies* of value" to arrive at his, corrected, improved version thereof.

Marx's critically-improved version of their classical "law(s) of value" abstractions provides us with an heuristic "rule-of-thumb" that can enable us, via its very abstract simplicity, to mentally simulate, hone in upon, and summarize the core dynamics, and '''***meta***-dynamics''', of our capitalist system -- the trajectory of our own 'capital-praxis'/'wage-labor praxis'. It so allows us without our having to try to mentally follow, individually, each of the voluminous & microscopically detailed fluctuatory tendencies & limit-asymptotic approaches of all the myriad elements of the actual capitalist political-economy, a task which is far beyond human mental capacity.

Nevertheless, Marx was abundantly clear about the goal of his [systematic-dialectical] presentation of the capitalist system. He designed that four-volume presentation to move from this simplified, abstract, core analysis, step-by-step toward presenting, and, via that core analysis, toward also explaining, the complex, concrete manifestations of that system at "the surface of society", no longer perceived '''chaotically''', but, via that core analysis, at last '''perceived''' theoretically -- and, potentially, '''perceived''' practically as well -- and thereby, potentially, comprehended and mastered as well.

Note also that Marx holds, ***yes***, of fixed capital plant and equipment, raw materials, of auxiliary materials, and of human labor-power -- which are all, to varying degrees, consumed in the process of producing products that exhibit both ***use***-value and ***exchange***-value -- that they, all together, in concert, add ***use***-value to that output product, via that concrete process of their "productive consumption". But Marx also holds, ***axiomatically***, that ***only*** the consumption of the use-value of human labor power commodities -- which is, for its capitalist consumers, the usefulness of adding surplus-value to the exchange-value of that output, hence adding profit thereto -- can add new exchange-value to that output product. The other elements of productive capital only pass their exchange-value purchase-cost, unchanged in magnitude, to the exchange-value of that output-product, and thus are named, by Marx, "constant" capital-values. Indeed, the ***unique*** use-value of human labor-power commodities, constituting "variable" capital-values, that makes capitalist's willing to pay for them, via wages, is, precisely, to create and to add new exchange-value, as potential profit, to that commodity output-product.

In the opening paragraphs of ***Capital***, **Volume III**, Marx makes this plain --

"In Book I [**F.*E.D.***: i.e., in "**Volume I**" of ***Capital***], we analyzed the phenomena which constitute the process of capitalist production as such, as the immediate production process, with no regard for any of the secondary effects of outside influences."

"But this immediate process of production does not exhaust the life span of capital."

"It is supplemented in the actual world by the process of circulation, which was the object of study in Book II [**F.*E.D.***: i.e., in "**Volume II**" of ***Capital***]."

"In the latter, namely in Part III [**F.*E.D.***: i.e., in Part III of "**Volume II**" of ***Capital***], which treated the process of circulation as a ***medium*** for ***the process of social reproduction***, it developed that the capitalist process of production ***taken as a whole*** represents a [**F.*E.D.***: ***dialectical***] ***synthesis*** of the processes of production and circulation."

"Considering what this third book [**F.*E.D.***: i.e., "**Volume III**" of ***Capital***] treats, it cannot confine itself to general reflection relative to this ***synthesis***."

"On the contrary, it must locate and describe the concrete forms which grow out of the *movements of capital as a whole*. In their actual movement capitals confront each other in such concrete shape, for which the form of capital in the immediate process of production, just as its form in the process of circulation, appear only as *special* instances."

"The various forms of capital, as evolved in this book [**F.*E.D.***: i.e., in "**Volume III**" of ***Capital***], thus approach step by step the form which they assume ***on the surface of society***, in the action of different capitals upon one another, in ***competition*** and ***in the ordinary consciousness of the agents of production themselves*****."**

[***Capital* III**, New World, p. **25**, ***emphases*** *added*].

We note, in passing, the '''psychohistorical''' content, in Karl Seldon's sense, of the explanatory dialectical method of presentation described in the final sentence of the extract above. This '''systematic-dialectical''' method is also '''psychohistorical''' in that the theory it presents is intended to account, scientifically, for not just the outer, '"physical"' phenomena of capital-centric society, but also for the collective psychology, for the human «mentalités», that the practices -- that the total «praxis» -- of that kind of society generates: the illusions, the mystifications, the fetishisms, the biases, in short the *ideologies* that it inculcates in its practitioners, because of the ways in which their experiences are shaped by those practices. That is, Marx's theory of capitalist society includes a theory as to ***what*** the **un**critical *de facto* agents of "the capital relation" wrongfully belief, and as to ***why*** they so believe.

Marx is also quite clear about the difference between the ***core analysis*** versus the ***empirical appearance*** of the deep dynamics and '***meta***-dynamics' of ***the capitalist system*** -- with ***the former*** formulated as the '''[socio-politico-]economic law of motion''' of that ***system*** -- specifically with regard to the ***phenomenology*** of ***the competition of capitals*** --

"... ***Conceptually***, ***competition*** is nothing other than the ***inner nature of capital***, ***its essential character***, ***appearing*** in and ***realized as*** the ***reciprocal interaction*** of ***many capitals*** with one another, the[ir] ***inner tendency*** as ***external necessity***. ... ***Capital*** exists and can only exist as ***many capitals***, and ***its self-determination*** therefore ***appears*** as ***their reciprocal interaction*** with ***one another***... .**"** [Marx, ***Grundrisse***, Nicolaus translation, Penguin Books, pp. **413**-**414**, ***emphases added***].

"*Competition* generally, this ***essential*** locomotive force of ***the bourgeois economy***, does ***not*** establish ***its laws***, but is rather ***their*** executor. ***Unlimited competition*** is therefore ***not*** the ***presupposition*** for the truth of the ***economic laws***, but rather the consequence -- the ***form of appearance*** in which ***their necessity realizes itself***. For ***the economists*** to ***presuppose***, as does Ricardo, that ***unlimited competition*** exists is to ***presuppose*** the ***full reality*** and ***realization*** of ***the bourgeois relations of production*** in ***their*** [**F.*E.D.***: *historically-*]***specific*** and distinct ***character***. ***Competition*** therefore does ***not*** *explain* ***these laws***; rather, ***it*** lets ***them*** be *seen*, but does ***not produce them*****."** [Marx, ***Grundrisse***, *ibid*., p. **552**, ***emphases added***; Also ***Capital* I**, p. **316**; ***Capital* III**, pp. **168**, **209**, **& 880**.].

The Marxian, "core", "law of <u>value</u>", '"the [political-]economic law of motion of modern [capitalist] society"', already '''***contains***''' Marx's law of the tendential fall of the "core", <u>value</u> profit-rate.

¿*<u>If</u>* the tendential fall in magnitude of the value-ratio **S'/(C + V)** expresses the "inner nature", the "essential character" & "inner tendency" of "the capital relation" -- of capital<u>s</u> in mutual competition; of the capitalist system as a whole, as being, initially, a driver of "growth of the social forces of production", e.g., during the capital-relation's '''ascendence phase''' -- ***<u>then</u>*** what "surface" phenomenology expresses this fall in the context of seemingly "external" necessity; of the "reciprocal interaction, with one another" of the individual capital<u>s</u>; in the fuller-complexity, concrete, "surface of society" context of "the competition of capital<u>s</u>"***?***

¿In particular, what does this "external" manifestation of this fall in the "inner", core, value-profit-rate have to do with the superficial, fetishistic, mystical -- in short, *<u>ideological</u>* -- grasp of capital-profitability expressed in the capitalists' "**ROI**" ratio, **(R/I)*?***

¿What is the relation between the tendential fall of the magnitude of the "inner", deep-core <u>value</u>-ratio, namely, of **S'/(C + V)**, and the movements in the magnitude of the "external", "surface", "superficial" monetary ratio **(R/I)**, across capitalist-epoch historical time***?***

<u>The '''Translation''' of the Marxian Law from Social *"Core"* to *"Surface of Society"*.</u> Marx's four-volume treatise on Capital does ***<u>not</u>*** systematically '''cover''' -- or fully present, order, and scientifically ***<u>explain</u>*** -- the "surface" phenomena of the competition of capitals, of the capitalist "credit system", and of capitalist crises:

"In our description of how production relations are converted into entities and rendered independent in relation to the agents of production, we leave aside the manner in which the interrelations, due to the world-market, its conjunctures, movements of market prices, periods of credit, industrial and commercial cycles, alternations of prosperity and crisis, appear to them as overwhelming natural laws that irresistibly enforce their will over them, and confront them as blind necessity. We leave this aside because the actual movement of competition belongs beyond our scope, and we need present only the ***<u>inner</u>*** organization of the capitalist mode of production, in its ***ideal average***, as it were.**"** [Marx, ***<u>Capital</u>* <u>III</u>**, New World, pp. **831**; see also pp. **249**, **258**, **263**-**264**, **312**-**313**, **358**, and **360**, ***<u>emphases</u> added***].

Beyond this initial '''scientific idealization''' in all of ***<u>Capital</u>***, that '''coverage''' was planned, by Marx, for his hoped-for "eventual continuation" of ***<u>Capital</u>*** -- of his treatise on the "Capital" category -- in later treatises on each of the other six categories "which make up the inner structure" of capitalist society, and especially in the last four of the seven treatises, to have been titled, likewise, by the names of *their* categories -- ***<u>The [National] State</u>***, [Its] ***<u>Foreign Trade</u>***, ***<u>[The] World Market</u>***, and ***<u>Crises</u>*** [See Marx, ***<u>Grundrisse</u>***, *ibid*., p. **108**; see also p. **264**; *Preface* to «***<u>Zur Kritik</u>***...», opening sentence.] But he did ***<u>not</u>*** survive long enough to produce those works.

As Marx did not live to complete his scientific theorization of these phenomena, we are "on our own" in seeking answers to the questions that we have posed herein.

But let us take advantage of the opportunity of "standing on his shoulders". Let us do so by applying his "law of <u>value</u>". That "law" served Marx as his key heuristic m<u>i</u>croscope, and 'm<u>a</u>croscope', to see into the whole '''sphere''' of the planetary capitalist system, as the [***<u>non</u>linear***] dynamical [and '***<u>meta</u>***-dynamical'] system that he found it to be [albeit not in those terms]. Let it also so serve us.

¿What are "surface of society" consequences, when the '''value added''' by the "living labor", '''object-ified''' in the product/output of capitalist enterprises, **V + S** -- especially when the "living *surplus* labor" magnitude, the creatrix of ***<u>gross</u>*** Surplus-Value, **S** -- steadily falls ***<u>relative</u> <u>to</u>*** the value of the '''***<u>non</u>***-living labor''', the ***<u>past</u>*** "living labor", the "***<u>dead</u>*** labor", '"stored"' in **C**, that is involved in producing that **S*?***

The full value of that output, **(C + V + S)**, must become more and more **C**, less and less **V + S**; ***<u>relatively</u>*** so.

¿What happens if the unit-value of $\mathbf{C_m}$ falls in **(S'/(C$_m$ + C$_f$ + V))**, due to a rise in the productive force/-productivity of producing the aggregate of commodities represented by $\mathbf{C_m}$**?** All other unit-values in that ratio remaining the same, the unit value-cost of the commodity output produced, in aggregate --

$$\mathbf{C_m + C_f + V + S \approx C + V + S}$$

-- will fall, and fall even more so if **V**'s unit-value [e.g., the per hour wage] also falls, as an ***in***direct result of the $\mathbf{C_m}$ unit-value fall. If that unit-value-cost falls for a given capitalist, who purchases output, as his/her input, from (a) firm(s) with a new, higher '$\mathbf{C_m}$-productive' technology, "ahead" of his/her competitors, then he/she can sell his/her output at the prevailing unit-price, and reap a higher unit-profit than his/her "behind" competitors.

¿What happens if the unit-value in $\mathbf{C_f}$ falls in **(S'/(C$_m$ + C$_f$ + V))**, due to a rise in the productive force/-productivity of producing the aggregate of commodities represented by $\mathbf{C_f}$**?** All other unit-values in that ratio remaining the same, the unit-value-cost of the commodity output produced, again, in aggregate --

$$\mathbf{C_m + C_f + V + S}$$

-- will fall, and fall even more so if the **V** unit-wage [e.g., hourly] value-cost also falls, as an ***in***direct result of the $\mathbf{C_f}$ unit-value-cost fall. If that unit-value-cost falls for a given capitalist, purchasing output from a new, higher '$\mathbf{C_f}$-productive-technology' capitalist producer, "ahead" of her/his competitors, then she/he can sell her/his output at the prevailing unit-price, and reap a higher unit-profit than her/his "behind" competitors. So far, these results are not so bad for the "ahead" capitalists. But the idea is that, in the aggregate of all commodity units, both $\mathbf{C_f}$ and $\mathbf{C_m}$ grow so much ***relative*** to **V**, that the aggregate magnitude, $\mathbf{((C_m + C_f)/V)}$, is ever greater in --

$$\mathbf{(S'/V)/(\ (\ (C_m + C_f)/V\ ) + 1\ )}$$

-- so that, eventually, due to this ever-growing overall denominator magnitude, *and if the* **S'** *value in the numerator also grows slowly enough*, then the magnitude of the whole Marxian "core" value-profit-rate ratio, $\mathbf{((S'/V)/(\ (\ (C_m + C_f)/V\ ) + 1\ ))}$, or **(S'/(C + V))**, will fall in its "dimensionless", percentage magnitude.

There are good reasons to hold that the growth-potential of **S**, and especially of what Marx calls *"Relative* **S**urplus-Value" -- which is the kind of **S**urplus-Value that investment in more productive, and/or more productively produced, machinery, i.e., in advanced '''fixed capital plant and equipment''' especially and specifically augments -- is much more limited than is the capitalist growth-potential of **C**.

Marx exemplifies these boundaries on the growth of **S**, in considerable numerical/arithmetical detail, in an extended passage within his ***Grundrisse*** manuscript [Marx, ***Grundrisse***, *ibid*., pp. **333-341**; extract therefrom reproduced in **Appendix** hereto]. Basically, the immanent limit on the growth of *relative* surplus-value per wage worker is the limit of the duration of the working day -- even in the ***un***sustainable ***extreme*** of a 24-hour working-day! The entire working day of each wage-worker could accrue to surplus-labor, hence to [relative] surplus-value, only via an "infinite", i.e., impossible, productive force, such that the fraction of the duration of the working day reproducing, in output commodity form, the daily value paid to each worker in the form of money-wages -- the "necessary labor" duration -- was **0** labor-hours, i.e., only if an "infinitesimal" fraction of the duration of the working day sufficed to produce, and, thus, to reimburse the capitalist for, the labor-time-value equivalent of each worker's daily wages.

¿Granting Marx's point that the aggregate value of Wages, **V**, and of ***net*** Surplus-Value, **S'**, will tend to fall, as the capitalist system continues -- ***not*** in their ***absolute*** magnitudes, but ***relative*** to "**C**onstant Capital" value, **~(C$_m$ + C$_f$)** -- where, then, does the resulting fall in the ***core***, value-profit-rate, **(S'/(C + V))**, that Marx predicts, adversely impact the capitalists' "***surface of society***" profit-rate, **(R/I)*?***

Per Marx's model of the capitalist system, it is the growing ***relative*** dearth of surplus-value, **S**, resulting from the growing ***relative*** dearth of surplus labor-time, due to the overall ***relative*** dearth of direct *"living* labor-time" -- of **V** and **S** combined -- i.e., ***relative to*** the accumulated *past* "living labor-time", embodied in "**C**onstant Capital", decomposed as **C** $\approx$ $\mathbf{C_m + C_f}$, that drives down the ***core***, value profit-*rate*, **S'/(C + V)**, while the *"mass"* of ***gross*** value-profit, **S**, and even of ***net*** value-profit, **S'**, may continue to increase. **¿**Where does this ***relative*** decline in "living labor-time" show up empirically, at "the surface of [capitalist] society", and how does that mode of its "showing up" adversely impact profitability as capitalists measure it***?***

Not by a fall in the unit-prices, to the capitalist enterprises, of the *"**raw materials**"* and *"**auxiliary materials**"* inputs that they purchase from other capitalist enterprises, and whose price reductions reflect a fall in the generic labor-time cost of [re-]production of those materials, due to an increase in productivity/productive force in the production of those materials. That fall in their input unit-prices is ***not*** a problem for the "ahead" capitalist enterprises. It is an advantage. It potentially makes their commodity-output ***more*** price-competitive, by enabling them to lower its unit-prices -- reflecting a lowered materials-costs "pass-through" component in those output unit-prices -- without reducing their unit profit margins.

Not by a fall in the unit-prices, to the capitalist enterprises, of the ***fixed capital plant and equipment*** that they purchase from other capitalist enterprises, i.e., from those that "produce means of production", and whose unit price reductions reflect a fall in the generic labor-time cost of production of that capital plant and equipment, and that are due to an increase in productivity/productive force in the production of those "capital goods" commodities. That fall in their input unit-prices is ***not*** a problem for those "ahead" capitalist enterprises. It is an advantage for them. It is so because it potentially makes their commodity-output ***more*** price-competitive, by enabling them to lower its unit-prices, reflecting a lowered "wear and tear depreciation" charges-component of their output unit prices, without reducing their unit profit margins. The "wear and tear" depreciation charge components in those unit prices are typically but a small, fixed percentage of the total past, historical, original cost, or even of the present replacement cost, of that fixed capital plant and equipment, for each accounting period of its useful life. So lower input unit costs of those "means of production" mean a lower "wear and tear'" depreciation charge in the money price of each unit of output.

Not by a fall in the per-hour ***wages***, paid to their wage-workers, reflecting a fall in the generic labor time-cost of production of the "basket" of goods necessary to be consumed, daily, by workers if they are to reproduce their capacity to work again the next day, and whose fall is due to an increased productivity/productive force in the production of those "wages-goods". That fall in their wages input unit-prices is ***not*** a problem for those "ahead" capitalist enterprises. It is an advantage for them. It potentially makes their commodity-output ***more*** price-competitive, by enabling them to lower their unit prices -- reflecting a lowered unit wages-cost "pass-through" component in their output unit-prices -- without reducing their unit profit margins.

$\mathbf{C_m}$: The bulk of their ***raw and auxiliary materials***, and its monetary value, at the end of every production-cycle, typically ***leaves*** the physical plants of the capitalists, "embodied" in their "commodity-capital" output, on its way to market. Yes, it remains their property in that output form. But it is intended for sale, and, in the normal course, it *is* sold.

$\mathbf{C_f}$: The monetary value of the circulating portion -- the production-cycle increment of the "wear and tear" depreciation expense -- of their ***fixed capital plant and equipment***, at the end of every production-cycle, in effect, typically ***leaves*** the physical plants of the capitalists, on its way to market, as included in the prices of their "commodity-capital" output. Yes, it remains their property in that commodity-capital form. But it is intended for sale, and, in the normal course, *is* sold.

V: The money-value of wages paid to their wage workers, covering the **V** portion of total worked-time, **(V + S)** -- the latter representing the duration of generic human labor required to process the raw & auxiliary materials, using their fixed capital plant & equipment, during each production-cycle -- will, typically, in effect, at the end of every production-cycle, ***leave*** the physical plants of the capitalists, on its way to market, as included in the prices of their commodity-capital output. Yes, it remains the property of those capitalists in that output, "commodity-capital", form. But it is intended for sale, &, in the normal course, *is* sold, & thereby converted [back] into "money-capital" again. Each day's portion of the production-cycle money wages paid to the workers is, typically, especially during the ascendence phase of the capitals-system, forced, in the normal course, by competition among the capitalists, to cover only the money prices of the goods necessary for their wage-workers to consume 'to live to work again another day'. That money amount, in "core", value terms, is represented by the daily fraction of production-cycle **V**, the "necessary labor" portion of the full duration of the wage-workers' production-cycle period generic working time, the other portion representing "surplus labor", whose value is denoted **S**.

S: The rest of the duration of each production-cycle working day, the "surplus-labor" portion, adds value to the capitalists' output in the form of ***gross*** "**S**urplus-Value" [**S**], without compensation to their workers, and forms the [local] source of the capitalists' profits. The monetary value of the surplus-labor-time portion of the work-time required to process their raw and auxiliary materials, using their fixed capital plant and equipment, during each production-cycle, will, typically, at the end of every production-cycle, in effect, ***leave*** the physical plants of the capitalists, on its way to market, as included in the prices of their "commodity-capital" output. Yes, it remains the property of those capitalists in that output, "commodity-capital", form. But it is intended for sale, and, in the normal course, *is* sold.

¿Where, in all of this, among any of these dynamically-distinct capitalist production-category value-variables -- $\mathbf{C_m}$, $\mathbf{C_f}$, **V**, and **S** -- are the capitalists exposed to any vulnerability to a reduction of their profitability***?*** How do reductions in the unit-prices of their "commodity-capital" inputs, reflecting the continuing growth of the social-[re-]productive force/productivity of [re-]producing those inputs, ***or*** how do their production-cycle processes of transformation of those inputs, ***or*** how do the departures of their output "commodity-capital" product to market, expose the "ahead" capitalists to any reduction in their profit-rate***?***

¿What category of capital-value is there left to be the possible locus of vulnerability to ***relative*** loss of profit, due to the ***relatively***-declining portion of *"living* labor-time" '''value-added''', **(V + S)**, &, thus also, especially, of *surplus*-labor-time, hence of ***gross*** **S**urplus-*Value*, **S**, in each present, production-cycle *increment* to the total value of the annual output of the capitalist system; to the **(C+V+S)** output-value of the "total social capital"***?***

Only a fall in the current price & value of what does ***not*** *leave; of what stays behind, in the capitalist's "physical plants" -- the "sunk" portion of their owned fixed capital plant and equipment that is as-yet-* ***un****depreciated by "wear and tear depreciation"/"amortization", could possibly threaten their profitability.*

Only a decline in the monetary value of that "fixed capital" that has ***not*** yet passed, by price-included charges for "wear and tear" deterioration, into "circulating capital"; *only a fall in money value of the "fixed capital"* that the capitalists already own and, typically, will continue to own, for a considerable further duration of production cycles yet to come, continuing to own it in this "fixed" shape; as this "fixed capital", in this ***non***-"circulating" form, that they do ***not*** sell in the normal course of capitalist conduct, *could possibly pose such a threat*.

This part of capitalists' capital is ***un***like the output "commodity-capital" product that they *do* send to market, and sell, therein, as fast as possible, thereby converting the latter [back] into the form of "money-capital". It is different in the following dimensions --

- This part of capitalists' capital is ***un***like that commodity-capital's included monetary-price costs of the raw materials and of the auxiliary materials that are consumed in the process of production, whose monetary costs thus pass into the unit price of the output "commodity-capital" product, in the normal course.

- This part of capitalists' capital is ***un***like even the physical "wear and tear" consumption, by production, of a physical portion of the capitalists' fixed capital plant and equipment, that, in each production cycle, passes a corresponding monetary cost of that consumption of productive fixed capital, as "wear and tear depreciation expense", into the pricing of the output "commodity-capital" product, in the normal course.

- And this part of capitalists' capital is also ***un***like the life-energy of the wage workers, who conduct, guide, and/or contribute to that raw material and auxiliary material *consumption*, and that fixed-capital plant and equipment *consumption*/"wear-and-tear", thereby converting it into the form of the output "commodity-capital" product, whose life-energy is thereby consumed in that process of production, and whose monetary wage-cost thus also passes into that output "commodity-capital" products' monetary pricing, in the normal course.

¿But how could this "fixed" part of capital-value potentiate a driving-down of capitalist ***relative*** profitability***?***

¿What could be the mechanism by which monetary capital-value of/in this category would occasion any detraction from capitalists' **(R/I)** profitability "at the surface of society"***?***

Surplus-Value *"Spread Thin"* Over Constant Capital. The root idea of Marx's **(S'/(C + V))**↓ law is that, as the physical mass of fixed-capital plant and equipment, and of raw and auxiliary materials, consumed in/by production, upsurges astronomically as the time of capitalism progresses, & as, to a much lesser degree, the value of that fixed capital plant & equipment also grows, but at a much lower rate, due, e.g., to "capital-saving innovations" [due to the growth of productive force/productivity in the means-of-production-making industries], a likewise growing but ***relatively*** ever smaller physical mass, and value, of wage workers, hence of value-adding *"living* labor", hence of ***gross***-profit-creating "surplus-labor-time", measured as **S**, is increasingly *"**spread thin**"* -- ***thinner and thinner*** -- over an even faster growing, ever ***relatively*** larger physical mass, and value, of "**C**onstant Capital", measured as **~(C_m + C_f)**.

But, by virtue of one of the consequences of the ***competition of capitals*** that Marx *does* cover under Marx's category-title "Capital", in **volume III** of his treatise so-titled -- namely, the *"**Equalization of the General Rate of Profit Through Competition**"* -- Marx describes how and why every individual capital, regardless of its variant individual "organic composition", measured as its [local] **C/V** rating, tends to obtain the ***same*** percentage profit return on every monetary unit of the aggregate monetary capital it invests, and thus also on every value-unit of **(C + V)**, through an "invisible", competition-orchestrated economy-wide redistribution of ***gross*** **S**urplus-Value, **S**. Otherwise, if the local profit-rates of individual capitals declined as their local **C/V** ratings rose, no capitalist would want to invest in the high **C/V**, high productive-force industries, and capitalism would not work. Instead, capital continually *withdraws from* low profit-rate industries, tendentially lowering the volume of what those industries supply, and thus also raising the prices, and the profitability, of their outputs, given an undiminished effective demand for those industries' outputs. And capital continually *floods into* higher profit-rate industries, tendentially raising the volume of what those industries supply, and thus also lowering the prices, and the profitability, of their outputs, again, given stable demand for their outputs. These processes maintain a 'fluctuatory' "dynamic equilibrium" in profit-rate across industries, thus forming and sustaining a "general" profit-rate. Therefore, if empirical profit-rates are to steadily fall, world-market-wide, then it must be that "general" profit-rate that falls, due to an economy-wide drop in ***aggregate gross*** **S** relative to ***aggregate*** **(C + V)**, i.e., due to a *'''spreading ever thinner'''* of still rising ***aggregate*** **S**$^{(')}$ over *even more-steeply*-rising ***aggregate*** **(C + V)**, and, mainly, over the *most* steeply rising component, **C**, of **(C + V)**.

¿But by what mechanism(s) would such a general drop in profitability become distributed among the many specific, individual capitals, and by what phenomena would (that)(those) mechanism(s) manifest empirically***?***

From ***Gross*** Surplus-Value (**S**) to ***Net*** Surplus-Value (**S'**). Recall that the Marxian, value-profit-rate ***net*** quantifier is **S'/(C + V)**, ***not*** **S/(C + V)**. ¿What, then, is the more detailed difference between ***gross*** **S** and ***net*** **S'*?***

Net Surplus-Value, **S'**, is derived from **S**, the ***gross*** Surplus-Value magnitude, by a series of subtractions from **S** of the values of inescapable expenses of capitalist enterprise operation, which, taken together, reduce **S** down to **S'** -- **i**nterest-on-loans expenses [periodic, required debt-service payments], **r**ent-of-land expenses, governmental **t**axes expenses, expenses for **u**nproductive but necessary [cf. Joseph Gilman], e.g., "indirect" and "overhead" labor [e.g., the "labor" of corporate 'private bureaucrats']..., and an '''expense''', often not even not[ic]ed, for the "moral depreciation", or "**T**echnological Obsolescence" **d**epreciation ['**T**echno**d**epreciation' for short] of the value of fixed capital plant and equipment, $\mathbf{d_T}$ --

$$\mathbf{S' = S - i - r - t - u - ... - d_T}.$$

¿But how does all of this impact the *capitalists'* profit-rate, **(R/I)*?***

"Wear-and-Tear Depreciation of Fixed Capital ***versus*** *"Moral Depreciation"* [*'Technodepreciation'*]. The capitalist enterprises, in the *still*-competing sector of such, can be forced, by price-competition against their output from their competitors' output, to "write-off" or "write-down" the "sunk" capital monetary-value, the "original cost" or "historical cost", of [those portions of] their fixed capital plant and equipment that can presently be produced at a substantially lower cost, owing to, e.g., the "capital-saving" innovations accumulated since the time of that "original cost". If such enterprises were to refuse such write-downs of the capital-**I**nvested denominators of their profit ratios, then they would exhibit, instead, a *sustained*, secular drop in their **(R/I)** profit-rate, as their "**R**eturns"-numerator, **R**, dropped per unit of their output, due to the lowered prices at which their output must thenceforth be set if it is to be saleable, i.e., to meet the price competition from their newer competitors, who purchased, e.g., the "same" fixed capital, but at a lower unit price. Or, older capitals may be forced to shift production to new-design or new-style products, offered by, e.g., their new-entrant competitors -- products that are more purchasers-desirable than their old-style products, and that may also require new-design fixed capital plant and equipment for their fabrication.

‘Technodepreciation’ Due to Falling Replacement Cost of Fixed-Capital Plant and Equipment. Presently-produced vintages of fixed capital plant and equipment may sell today, e.g., to “new-entrant” competitors in the field of production in question, for prices that are substantially lower than the present “book-value” -- the “original cost” price, or “historical cost” price -- of that fixed capital plant and equipment, purchased earlier, e.g., in the accounting books of an ‘‘‘old entrant’’’, legacy competitor, who purchased their “copies” of that fixed capital plant and equipment in the past, when the production of that fixed capital plant and equipment itself was less productive, so that its price -- its “capital cost” -- was higher then than it is at present, in constant-value currency terms.

In the ‘***value***-profit-rate’ formula, this write-off due to depreciation of past vintages of fixed capital plant and equipment, ***not*** due to “wear and tear”, but, instead, due to a drop in their “replacement cost”, as a result of an increase in the productive force of their [re-]production since the past vintage in question was produced, is reflected by the surplus-value subtrahend variable noted above, namely, by $\mathbf{d_T}$.

Recognizing this kind of “**T**echno**d**epreciation’ in the accounting books of a capitalist enterprise will lower its ***net*** profit for the accounting period in which the write-off occurs, when the ‘**T**echno**d**epreciated’ part of the ***un***amortized portion of the capital-value of the fixed capital plant & equipment, whose higher ‘“original price”’ is now ‘‘‘obsolete’’’, is subtracted from the ***gross*** profit for that period, in the formation of that period’s ***net*** profit for this enterprise, thus reducing both ***net*** profit & probably also ***net*** profit-***rate***, for that period.

However, thereafter, in subsequent accounting periods, that enterprise’s capitalist profit rate may even rise, were all other contributions, negative and positive, to ***net*** profit to remain the same. This is because the **I** denominator of its **(R/I)** ratio will have been reduced, henceforth, by that same, “written-off” amount that also reduced its ***gross*** profit in that past accounting period. The pricing of the output of this enterprise can, thereby, become more competitive with the prices of later-entrants, who *started* their operations using the “cheaper” fixed capital plant and equipment “from the get-go”. This is because the “wear and tear depreciation expense” component of that unit-pricing, necessary to cover that form of fixed-capital depreciation, will be reduced, by that “write-off”, to, e.g., ≈ the same monetary value as that for the new-entrant competitors.

Nevertheless, if such fixed-capital monetary-value “write-offs” continue for such enterprises, *accounting-period-after-accounting-period* -- even if interrupted by episodic accounting periods in which no such write-offs are forced, by the competition, to occur -- a secular decline in the ***net***-profit-rates of such enterprises would likely result. Such a secular fall in their ***net***-profitability would reflect a continual and even accelerating rate of productivity-increasing innovation, due to the profit-incentives for productivity-increasing innovation within the capitals-system itself, and of consequent productive-force/productivity increase, in the industrial “department” of “the production of means of production” for those enterprises.

That is, such accelerating rates of technological innovation, hence of productive-force increase, in that “department”, would, ironically, reflect the profit-rate-increase motives and incentives of the capitalist system itself, which rewards, temporarily, with above-average profits, capitalist innovators who increase their productivity, by applying more advanced “machinery” -- e.g., more advanced fixed capital plant and equipment -- to the production of, in this case, the fixed capital plant and equipment that they produce and sell to *other* capitalists. This above-average profits-advantage lasts only until their competitors in that “department” adopt equivalents, or better, of that more advanced “machinery for machinery production”, thus eliminating, or even reversing, that temporary productive-force/productivity advantage, and the temporary profit advantage resulting therefrom.

‘Technodepreciation’ Due to Transformed Designs of Fixed-Capital Plant & Equipment &/or of Their Product. The situation is even worse, for the profitability of legacy capitalist enterprises, when the kind of competition-driven ‘**T**echno**d**epreciation’ that they face is ***not*** simply due to a lowering of the cost of reproduction of the newest vintages of their fixed capital plant and equipment, ***relative to*** the higher monetary value for that fixed capital plant and equipment that they had to invest earlier, because they purchased/invested in that fixed capital plant and equipment in the past, before that lowering of its cost of reproduction had occurred.

In the former kind of '**T**echno**d**epreciation', the ***design*** of the fixed capital plant and equipment "means of production", and the ***design*** of the products that they are used to produce, remain essentially the same.

A more severe '**T**echno**d**epreciation' scenario arises when both the new-entrant competitor(')s(') "means of production", and the competing product of those "means of production", change together, in a way that makes the old-design products obsolete, or at least less desirable, hence less-demanded, and therefore reduced in saleable price, and hence typically reduced in unit profit-margin as well, *vis-a-vis* the new-design products.

In such a scenario, the legacy capitalist enterprises may be forced, e.g., in order to avoid bankruptcy, to "remove from service", and to "scrap", their old-vintage "fixed capital plant and equipment" *entire*, e.g., selling it as salvage for whatever meager "Net Realizable Value" [NRV] it can command, and to buy and install, in its place, the new-design "capital plant and equipment" required to produce the new, improved-design product.

The old capital plant and equipment, thus "retired" -- e.g., typically long before its total original cost, via many production cycles of recovery of fractions of that cost, until its gradual "wear and tear" depreciation-to-zero-original-cost-remaining/-deterioration-to-zero-usefulness-remaining, has been fully covered, fully "amortized", by passing its expenses along to the paying customers, a little each year in the unit prices of its output -- may have been purchasable only with the help of, e.g., a 50-year bank loan, on which the legacy firm is still paying monthly principal and interest "debt-service" payments, and is required to continue to do so, for many more years of months to come, by its loan contract with its lender/bank.

Those debt-service payments must continue, on pain of contractual default and bankruptcy if they are not made, despite the fact that the capital plant and equipment purchased with the 50-year loan has gone out of service and has even been scrapped -- has ceased to exist as such.

The new capital plant and equipment, matching or besting that of, e.g., the new-entrant competitor(')s('), may also be purchasable only with the help of a *new* such, e.g., 50 year bank loan. Thus, the legacy firm now has, e.g., two bank loans requiring monthly debt-service payments, whereas the new-entrant competitor(s) may have as few as one such loan outstanding and requiring servicing.

Thus, the legacy competitor(s) may continually remain at a cost disadvantage in price competition with the new-entrant or later-entrant competitor(s), even after the legacy competitor(s) match(es), or even '*over*match(es)', the new-entrant or later-entrant competitor(')s(') fixed capital plant and equipment.

The scrapped fixed capital plant and equipment in this, second, scenario -- just as for the legacy fixed capital plant and equipment still in use, but currently over-valued vs. its present replacement cost, in the earlier-presented, first-presented '**T**echno**d**epreciation' scenario -- will be "written of", and the cost of that "write-off", less any NRV salvage proceeds, will be deducted from *gross* profits in the accounting period in which that "write-off" occurs, thus tending to reduce both *net* profit, and *net* profit *rate*, in that accounting period.

In subsequent accounting periods, with a thus reduced capital **I**nvestment denominator, and ***iff*** there are no further, new '**T**echno**d**epreciation' "write-offs" requiring **I**nvestment reductions also deducted from the ***gross***-profit numerator, the profit rate in both cases will tend to rise. However, again, as in the first-presented scenario of '**T**echno**d**epreciation', ***if*** subsequent accounting periods regularly see such "write-offs" due to even further productivity-enhancing innovations in fixed capital plant design, &/or in fixed capital equipment design, &/or in their output products' designs, ***then*** a secular fall in the capitalists' **ROI**, **(R/I)** rate of profit will likely ensue.

Marx defined capital as "***self-expanding value***". But '**T**echno**d**epreciation' is thus a process whereby the growth of the [***re***]productive forces ***contracts*** monetary capital-values, especially those of as yet 'wear-and-tear"-***in***completely-depreciated fixed capital plant and equipment. Since the incentives to increase the human-societal self-[***re***-]productive [self-]force are generated immanently, by "the capital-relation" itself, motivating the pursuit of increasing "relative surplus-value" [Marx], '**T**echno**d**epreciation' thus exemplifies a contrary aspect of capital as '***SELF-contracting value***', opposing its aspect as "***self-expanding value***". This ***inner*** opposition, or '*intra*-duality' [Seldon], is the very heart of the historical dialectic of capitalist society, and drives the transition from the '''ascendence phase''' to the '''descendence phase''' of the history of the capitalist system.

These scenarios apply to the "competitive sector" of capitalist enterprises; to capitalist enterprises which are relatively ***un***shielded from these two kinds of '**T**echno**d**epreciating competition', e.g., from new-entrant or later-entrant competitors.

‘Crisis-Depreciation’ of Fixed-Capital Plant and Equipment. However, an essential component of the ‘‘‘political-economic law of motion of modern [capitalist] society’’’ that Marx identifies, and whose ultimate upshot is Marx’s ***“law of the tendency of the rate of profit to fall***”, is the component ‘‘***‘law of the progressive concentration, centralization, & consolidation of capital-ownership***’’’.

The ever-increasing ‘‘‘***concentration, centralization, & consolidation of capital-ownership***’’’ within global capitalism, and the collusion regarding pricing, competitive territoriality, and other capitalists’ policy that ***it*** facilitates & encourages, tend to shield, e.g., monopolistic, duopolistic, and, in general, oligopolistic capitalist enterprises from direct competitive forcing of the write-down of the historical cost of their ‘**T**echno**d**epreciated’ fixed capital plant and equipment assets. ***Relative*** to the capital asset valuations, & resulting pricing levels, prevalent throughout the more-competitive sector of the capitalist economy, oligopoly sector capital asset valuations, and corresponding output prices, thus tend to be too large.

Thus, the prices of oligopoly sector output can continue to be inflated by charges for the “wear and tear depreciation” of their “sunk”, legacy fixed capital plant and equipment assets, whose book values are over-valued ***relative*** to the present monetary “replacement-cost”, and, hence, the present monetary ‘replacement-value’, of those assets.

This is the original, root-form of the “fictitious value”, and of the “***capitalized*** fictitious ***value***, or “fictitious ***capital***”, that are more visibly manifest otherwise, e.g., in forms of stock market speculative excess, speculative bubbles, and fraudulent machinations at “the surface of [capitalist] society”.

The resulting relative over-pricing of the oligopolies’ output, when, e.g., that output forms parts of the purchased inputs to the production processes of firms in the “competitive sector”, increasingly deteriorates the “terms of trade” between the ‘oligopoly sector’ and the “competitive sector”, so that, e.g., smaller, firms, ***un***shielded from ‘**T**echno**d**epreciating’ competition, are in an ever-worsening position regarding solvency, and probability of bankruptcy, *vis-a-vis* their larger, ‘oligopolarchic’ rivals. Upon the bankruptcies of the former, the former assets of such former firms may be swept up at “fire sale prices”, by other firms, including by ‘oligopoly sector’ firms, i.e., for the proverbial “pennies on the dollar”, thus contributing even further and ever further increments to the ‘“law of capital-motion”’-predicted ***concentration, & centralization, & consolidation of capital-ownership***.

¿Are there any capitalism-immanent “lawful” mechanisms that serve to manifest, at “the surface of society”, the ***core*** ‘**T**echno**d**epreciation’ of the capital-assets of the ever-growing, ‘∂ competition-shielded’, ‘write-down resistant’, ‘oligopoly sector’ of the capitalist global economy**?**

Per Marx, where competition-enforced, *‘recognized* **T**echno**d**epreciation’ write-down is absent, or muted, nevertheless, the accumulation of [***relative***] fictitious capital-value potential illiquidity eventually builds up, albeit ***a***periodically, to a critical point whereafter a sudden socio-economic “crisis” precipitates. Such a crisis, after much human agony, eventually abates, and eventuates in a “recovery”, but only once sufficient ‘crisis-depreciation’ of the fixed capital plant & equipment monetary-value denominators, or **I**, denominators, of the capitalists’ profit-rate ratios has occurred, relative to those ratios’ numerators, enough to raise the profit ratio as a whole, of the general rate of profit, back to a sufficient level to again profit-motivate a [re-]starting of investment, hiring, & production [until, once ***again***, such ***un***recognized ‘**T**echno**d**epreciation’ has accumulated to a critical, “crisis” level, and on an even higher scale than that at which the previous “crisis” was precipitated] **--**

“...***the development of the productive forces*** brought about by the historical development of ***capital itself***, when it reaches a certain stage, ***suspends*** [‘«***aufheben***»***s***’ -- **F**.***E***.***D***.] the ***self-realization*** of ***capital itself***, instead of ***positing*** it.”

“Beyond a certain point, ***the development of the powers of production*** becomes a ***barrier*** for ***capital***; hence ***the capital relation*** a ***barrier*** for ***the development of the productive powers of labor***.”

“When it has reached this point, ***capital***, i.e. ***wage labor***, enters into the same relation towards the development of ***social wealth*** and of ***the forces of production*** as the ***guild system***, ***serfdom***, ***slavery***, and is necessarily stripped off as a ***fetter***.”

*“**The last form of servitude assumed by human activity***, that of ***wage labor*** on one side, ***capital*** on the other, is thereby cast off like a skin, and this casting-off is itself the result of ***the mode of production corresponding to capital***; the material and mental conditions of the [**F**.***E***.***D***.: «***aufheben***»-]***negation*** of ***wage labor*** and of ***capital***, themselves already the [**F**.***E***.***D***.: «***aufheben***»-]***negation*** of ***earlier forms of unfree social production***, are themselves the result of ***its*** production process.”

"The ***growing incompatibility*** between ***the productive development of society*** and its hitherto existing ***relations of production*** expresses itself in ***bitter contradictions***, ***crises***, ***spasms***."

"The ***violent destruction of capital***, ***not*** by relations ***external*** to it, but rather ***as a condition of its self-preservation***, is the most striking form in which ***advice is given it to be gone*** and to give room to ***a higher state of social production***..."

"Hence the ***highest development*** of ***productive power*** together with the ***greatest expansion of existing wealth*** will coincide with ***depreciation of capital***, ***degradation of the laborer***, and ***a most straitened exhaustion of his vital powers***."

"These ***contradictions*** lead to ***explosions***, ***cataclysms***, ***crises***, in which, by ***momentaneous suspension of all labor*** and ***annihilation of a great portion of capital*** the latter is ***violently reduced*** to the point where it can go on fully employing its ***productive powers*** without ***committing suicide***.**"** [Marx, ***Grundrisse***, *ibid*., pp. **749-750**, ***emphases added by*** **F.*E*.*D*.**]. Thus we see that, per Marx, it is the "depression-crises" of the capitalist business "cycle" that, [***a***]periodically, accomplish -- *albeit in a "shotgun" manner, with high "collateral damage" also to* ***non****-morally-depreciated components of the "total social capital", and, even more so, to the lives of billions of working/middle class families* -- that degree of devaluation of the fixed capital plant & equipment denominator of the capitalist profit-rate ratio as a whole that is necessary to once more raise that profit-ratio to a level attractive to sufficient capital investment again, enough to re-start the expansion of capitalist business activity, and thus to end the depression-crisis. However: **"**...these ***regularly recurring catastrophes*** lead to their ***repetition on a higher scale***...**"** [Marx, ***Grundrisse***, *ibid*., p. **750**, ***emphases added*** by **F.*E*.*D*.**], ***as we have seen***, ***just as Marx predicted***, ***but long after Marx's death***, ***in the tragic history of the 20th century***, ***and of the 21st century to-date***, ***that Marx never saw***, ***but foresaw***. And these worsening recurrences of capitalist crisis are, in Marx's view, a driving force behind a gradual erosion of capitalist ideology -- & behind a gradual '''de-legitimization''' of capitalist ideologues & apologist con-men of all kinds -- in the hearts and minds of the majority population of humanity. That erosion prepares the ground for the human species'/for humanity's eventual ***self***-transcendence of its capitalist system, & for humanity's accession to a higher successor system of human-social reproduction: **"**The ***violent destruction of capital***, ***not*** by relations ***external*** to it, but rather ***as a condition of its self-preservation***, is the most striking form in which ***advice is given it to be gone*** and to give room to ***a higher state of social production***...**"** [***Grundrisse***, pp. **749-750**, ***emphases added*** by **F.*E*.*D*.**].

Preliminary Conclusions: Marxian answers to the two questions with which we began are now, for us, at hand at last. '**T**echno**d**epreciation' and '***Crisis-Depreciation***' of monetary capital-value -- &, especially, of the monetary capital-value of fixed capital plant & equipment, & of ***un***repayable loan-capital -- are the two primary forms in which & by which the ***deep-core***, **(S'/(C+V))**$\downarrow$ ***fall*** of the Marxian, ***core-analytical***, labor-time-***value rate of profit***[‡] ***manifests empirically***, ***concretely & phenomenally***, on/at '''***The Surface of Capitalist Society***'''. The '"core"', ever growing ***relative*** dearth of "living labor-time", i.e., of ***value***, shows up, at '''the surface of capitalist society''', in a manner which reduces the capitalist rate of profit. It does so ultimately because of the relatively falling amounts living-labor-time that are presently required for that fixed capital plant & equipment's ***re***production, thus dropping its present value, as the social-productive force grows. This ***manifests*** via the ongoing ***de***valuation of that fixed capital plant & equipment, both continual/secular, in the more-competitive sector, & episodic/crisis-imposed, in the oligopolistic sector, & thus throughout all sectors. The "writing-off" of the ***de***valued portion of fixed capital plant and equipment, against 'accounting-periodic' ***gross*** profits, whether competition-caused or crisis-caused, decrements, or '***de***-expands', monetary capital-value, **I**, & decrements ***net*** profit "mass" & ***net*** profit ***rate***, in each accounting period in which such ***de***valuation of fixed capital assets is recognized. It is ultimately, as Marx predicted, "the growth of the social forces of production" [Marx], driven by the capitalist profit motive itself, that «***aufheben***»-destroys capitalist profitability, fixed-capital value, the credibility and legitimacy of the capitalist ruling class and of its ideologues, &, finally, the 'politico-econo-socio-psychohistorical' viability of the capitalist system itself, in the hearts and minds of humankind, planet-wide.

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‡[A little-noticed potential insight about Marx's 'value profit-rate' formula is that it inheres in a little-known species of a general kind of ratios which has a long and beneficial history in the allied engineering fields of the applied sciences, where it is often addressed under terms like '''amplification factor''', '''gain-rate''', or '''gain ratio'''. In particular, Marx's value profit-rate ratio is not a '''***gross*** gain ratio''', of the form **(Output/Input)**, or **(O/I)**, but a '''***net***-gain ratio''', of the form **((Output - Input)/Input)**, **((O - I)/I)**, or **((O/I) - 1)**. The Marxian ***gross***, periodic, e.g., annual, value-**O**utput of the capitalist system -- of the total social capital -- e.g., at the *end* of an annual "production-cycle", is **(C + V + S)**. The value *self*-re-**I**nput to that system, e.g., at the *beginning* of each annual period, is of the form **(C + V)**, in terms of the elements of "Productive Capital" [Marx]. Thus, its periodic '''***gross*** gain rate''' is **((O - I)/I) = (((C + V + S) - (C + V))/(C + V)) = (S /(C + V))**. However, Marx's periodic '''value ***net*** gain rate''' for the capitalist system is **(((C + V + S) - (C + V) - (i + r + t + u + ... + d_T))/(C + V)) = (S'/(C + V))**. The latter is a political-economic example of such a '''***net***-gain ratio''', or rate, which is also a ***non***-physical-spatial [e.g., '***state***-spatial'] '*self-related* ***velocity***'. A cruder example of this kind of 'self-relative' metric is the econometric GDP growth rate equation/definition, e.g. --

GDP *net* growth rate for year τ [%] = (((GDP(τ+1) - GDP(τ))/GDP(τ)) × 100%) = (ΔGDP(τ)/GDP(τ)) × 100%).].

Especially the latter, ***crisis***, form of fixed capital plant and equipment ***de***valuation, masks, after each "recovery", much of the deepening overall fall, especially, of the oligopolistic sector's capitalist, **(R/I)** profitability, ***until*** the next crisis precipitates from out of the '''restoring forces''' of ***the law of value***. The resulting ***re***valuation /-***de***valuation of ***relatively***-inflated capital-asset book-values, and of the ***relatively***-inflated pricing-levels to which they give rise, drives both down toward their momentaneous real, competitive, ***relative*** values.

These recurring depression-crises are the capitalism-immanent way of episodically and occasionally cleansing the global capitalist system of its otherwise burgeoning clogs of vampiric, parasitic ***fictitious*** monetary capital-values. These crises do ***not only*** clear the 'pseudo-values' of purely speculative and fraudulent stock market and other paper-titles that falsely demand "general rate of profit" profit payments. These crises also clear part of the radical, root form of fictitious monetary capital-value, which is the irretrievably "sunk" monetary capital-value of presently, ***relatively*** over-valued book-values for fixed capital plant and equipment, fixed capital that is ***inflated*** relative to its ***current*** cost of ***re***production/***re***placement, or that has even become entirely obsolete and '''value-less''', but which is shielded from competitively-enforced ***de***valuation by its oligopolistic context.

Moreover, as Marx noted in his ***Grundrisse*** manuscript, the mounting succession of [***a***]periodic, ever-worsening global market depression-crises -- Like the 1930s '***Global Great Depression* I**', and like our recent '***Global Great Depression* II**', and like those yet to come, ***and like the next one, which, judging by the past, is soon to come*** -- is a main lever of the gradual '''de-legitimization''' of the rule of the capitalist ruling class, and of the capital-***r***[el]***atio***[n]-based system of human-societal self-reproduction as a whole. This "de-legitimation" paves the way, '''psychohistorically''', for humanity's planet-wide self-transcendence of its capitalist system, and for humanity's production of that higher successor "state" and system of human-social relations of human-societal self-reproduction, and for that higher stage of '***meta***-Darwinian, collective human-species-fitness' [Seldon], that **w*e*** of **F.*E*.*D***. have named '***Political-ECONOMIC DEMOCRACY***'.

APPENDIX. ***Immanent Asymptotic Limits on the Growth of Relative Surplus-Value***.
Marx, ***Grundrisse***, excerpts from pages **333** through **341** --

"[**Surplus-Value and Productive Force. Relation when these increase. -- Result. -- Productive force of labor is productive force of capital. -- In proportion as necessary labor is already diminished, the realization of capital becomes more difficult.**"] The worker needs to work only e.g. half a working day in order to live a whole one; and hence to be able to begin the same process again the next day."

"Only [**F.*E.D***.: the value of] a half day's work is objectified in his laboring capacity -- to the extent that it exists in him as someone *alive*, or as a *living* instrument of labor."

"The worker's entire living day [**F.*E.D***.: day of life] is the static result, the objectification of half a day's work."

"By appropriating the entire day's work and then consuming it in the production process with the materials of which his [**F.*E.D***.: "*constant*"] capital consists, but by giving in exchange only the labor objectified in the worker -- i.e. half a day's work -- the capitalist creates the surplus value of his capital; in this case, half a day of objectified labor [**F.*E.D***.: i.e., the "*other* half", the "half" not given back to the worker in the wage]."

"Now suppose that the productive powers of labor double [**F.*E.D***.: i.e., suppose that the level of the development of ***the social forces of production*** doubles, at least "locally"], i.e. that the same labor[-*time* -- **F.*E.D***.] creates double the use-value..."

"The worker would then have to work only 1/4 day in order to live a full day; the capitalist then needs to give the worker only 1/4 day's objectified labor in exchange, in order to increase his surplus value in the production process from 1/2 to 3/4; so that he would gain 3/4 day's objectified labor [**F.*E.D***.: per worker] instead of 1/2."

"At the end of the production process, the value of the capital would have risen by 3/4 [**F.*E.D***.: of the value of a day's generic labor-time, per worker] instead of by 2/4 [**F.*E.D***.: thereof]..."

"The increase, ***the doubling of the productive force***, has increased his surplus labor by 1/4 [of the value of the duration of a working-day of generic labor-time -- **F.*E.D***.]."

"One remark here: The ***productive force*** has ***doubled***, the **surplus labor** the worker has to do has ***not*** doubled, but has only grown by 1/4 [of the duration of an average work-day -- **F.*E.D***.]; nor has the capital's surplus-value doubled; but it, too, has grown by only 1/4 [of the value of the duration of an average working-day of generic labor-time -- **F.*E.D***.].

This shows, then, that surplus labor (from the worker's standpoint) ***or surplus-value*** (from capital's standpoint) ***does not grow in the same numerical proportion as the productive force***."

"Why?"

"***The doubling in the productive force*** is the ***reduction*** of ***necessary labor*** [for the worker -- **F.*E.D***.] by 1/4 [of an average working day's generic labor-time duration -- **F.*E.D***.], hence also the [increase of the -- **F.*E.D***.] ***production of surplus-value*** by 1/4 [of the value of the duration of an average working-day of generic labor-time -- **F.*E.D***.], ***because the original relation was posited as*** 1/2."

"If the worker had to work, originally, 2/3 day in order to live one full day, then the ***surplus value*** would have been 1/3 [of the value of the duration of an average working-day of generic labor-time -- **F.*E.D***.], and the ***surplus labor*** [increment -- **F.*E.D***.] the same [1/3 of an average working day's generic labor-time duration -- **F.*E.D***.]."

"***The doubling in the productive force of labor*** would then have enabled the worker to restrict his ***necessary labor*** to half of 2/3 or 2/(3·2), 2/6 or 1/3 day, and the capitalist would have gained 1/3 [of the duration of an average working-day of generic labor-time -- **F.*E.D***.] of ***value***."

"But the ***total surplus labor*** would have become 2/3 [of an average working day's duration of generic labor-time -- **F.*E.D***.]."

"***The doubling of the productive force***, which resulted in 1/4 [day] [an average generic working-day's worth of -- **F.*E.D***.] ***surplus value*** [per worker -- **F.*E.D***.] and ***surplus labor*** [per worker, incremental -- **F.*E.D***.] in the first example, would now result in 1/3 [day] [of an average generic working-day's worth of -- **F.*E.D***.] ***surplus value*** and ***surplus labor*** [per worker, incremental -- **F.*E.D***.]."

"*The multiplier of the productive force* -- the number by which it is multiplied -- is therefore *not* the *multiplier of surplus labor or of surplus value*; but rather, if the original relation of the labor[-time -- F.E.D.] objectified in the labor price was 1/2 of the labor[-time -- F.E.D.] objectified in 1 working-day, which always appears as the limit, then the doubling is equal to the division of 1/2 by 2 (in the original relation), i.e. 1/4."

"If the original relation was 2/3, then the doubling equals the division of 2/3 by 2 = 2/6 or 1/3."

"*The multiplier of the productive force* is thus *never* the *multiplier* but always the *divisor* of *the original relation*, *not the multiplier of its numerator but of its denominator*... ."

"Therefore *the value of capital does not grow* [F.E.D.: by increments which are] *in the same proportion as the productive force increases*, but in the proportion in which *the increase in the productive force*, *the multiplier of the productive force*, *divides the fraction of the working day which expresses the part of the day belonging to the worker*... ."

"*The multiplier of the productive force is the divisor of the original function*... ."

"*The* [F.E.D.: relative surplus-]*value can never be equal to the entire working day*; i.e. *a certain part of the working day* must always be *exchanged* for *the labor objectified in the worker*."

"*Surplus value in general is only the relation of* [the surplus-labor part of the working-day's -- F.E.D.] *living labor to that objectified in the worker*; *one member of the relation must therefore always remain*."

"A certain *relation* between *increase in the productive force* and *increase of* [F.E.D.: relative surplus-]*value* is already given in the fact that the *relation* is *constant as a relation*, although its *factors vary*... ."

"*The larger the surplus value of capital before the increase of productive force*, *the larger the amount of presupposed surplus labor or surplus value of capital*; or, *the smaller the fractional part of the working day which forms the equivalent of the worker*, *which expresses necessary labor*, *the smaller is the increase in* [F.E.D. -- relative] *surplus value which capital obtains* from *the increase of productive force*."

"*Thus the more developed capital already is*, the more surplus labor it has [F.E.D. -- already] created, *the more* ... *must it develop the productive force in order to realize itself in only smaller proportion*, i.e. to *add surplus value* -- because its *barrier* always remains the *relation* between the fractional part of the day which expresses *necessary labor*, and *the entire working day*."

"It can move only within these boundaries."

"*The smaller the fractional part falling to necessary labor*, *the greater the surplus labor*, *the less can any increase in the productive force perceptibly diminish necessary labor; since the denominator has grown enormously*."

"*The self-realization of capital becomes more difficult to the extent that it has already been realized*."

"*The increase of productive force would become irrelevant to capital*; *realization itself would become irrelevant, because its proportions have become minimal, and it would have ceased to be capital*."

"If *necessary labor* were 1/1000 and the *productive force* tripled, then it would fall to only 1/3000 or *surplus labor* would have increased by only 2/3000[ths of the value of an average working-day's generic labor-time, per worker -- F.E.D.]."

"But this happens *not because wages have increased* or the share of labor in the product [of labor has increased -- F.E.D.], *but because it* [the wages, or the share of labor in the value of the product of labor -- F.E.D.] *has already fallen so low*, regarded in its *relation* to the [F.E.D.: value of the] product of labor or to the [F.E.D.: duration of the]living working day."

"(All these statements *correct only in this abstraction for the relation from the present standpoint*. Additional *relations will enter* which *modify them significantly*. The whole, *to the extent that it proceeds entirely in generalities*, *actually already belongs in the doctrine of profit*.)."