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# Mental and Manual Labour in Marxism

## A. HISTORY, NATURAL AND HUMAN

Marxism takes the materialistic view of things historical in that human history is seen as an extension and offshoot of natural history. All characteristics of man, even those that seem most irreducibly remote from nature, like the human intellect, his logical and mathematical reasoning, moral judgement, aesthetic discrimination, etc., are, as a matter of methodological postulate, regarded as explainable in terms of historical, spatio-temporal reality, their strange appearances being results of man's self-estrangement from historical causes. Marx considers man's history to have departed from animal nature when man set upon producing his own means of subsistence, thereby taking his adaptation to nature in hand himself.

> Man can be distinguished from animals by consciousness, by religion or anything else you like. They themselves begin to distinguish themselves from animals as soon as they begin to *produce* their means of subsistence, a step which is conditioned by their physical organization. By producing their means of subsistence men are indirectly producing their actual material life.[1]

His productive labour made man social, gave him inventiveness of tools and the co-operative intelligence of speech.[2] Correspondingly, the materialist conception of history locates in the labour process and the material forces of production the prime determinant of the historical process. It is in production that man enters into that material inter-exchange (*Stoffwechsel*) with nature in which he acts as a natural being and as man. I would therefore start my argument by drawing on Marx's general description of the 'Labour Process' in *Capital*, quoting only a few salient points:

> Labour is . . . a process between man and nature, in which man of his own accord starts, regulates, and controls the material inter-exchange between himself and nature. He meets and confronts nature as a

> natural power himself. . . . By his acting on the external world and changing it, he at the same time changes his own nature. . . . Not *what* is produced, but *how*, with what instruments, enables us to distinguish different economic epochs. The instruments used are not only a measuring rod for the development of the human labour-power, they are also indicators of the social order within which they are used. . . . The labour process . . . is purposive activity for the production of use-values, utilization of nature for the satisfaction of human wants, elementary basis for the material interchange between man and nature, indispensable necessity of human life regardless of any particular mode of existence and therefore common to human existence in all its social forms.[3]

This exposition is intended, as Marx stresses, solely as an abstraction 'considered independently of any particular social form it may assume'. Human labour being, though, the prime social phenomenon, it goes without saying that it only ever occurs historically within particular social forms.

There is, however, a point that I would raise additional to Marx's exposition, concerning the knowledge of nature presupposed in any labour process on whatever level and changing along with the changes of production. As Marx does not accord this factor a particular mention he obviously treats it as an element that is implied in any production process by the fact of its successful accomplishment. This impression finds confirmation in numerous other passages throughout his writings. A 'problem of cognition' as a separate issue detached from the practice of production, such as it was put by Kant, appeared to Marx, much as it had to Hegel, as a nonsensical concern. 'The dispute over the reality or non-reality of thinking which is isolated from practice is a purely scholastic question,' he says in the second of the *Theses on Feuerbach*. But this elimination of the epistemological concern with knowledge is justified only so long as the knowledge involved in production is of a kind that is at one with the manual practice of production. The disregard of epistemology is justified, in other words, as long as we do not meet an essential division of intellectual from manual labour as a condition of production. It is, therefore, no longer justified in regard to the capitalist mode of production.

### B. SCIENCE AND LABOUR IN CAPITALIST PRODUCTION

The knowledge of nature which we call 'modern science', based on the mathematical and experimental method established by Galileo, is the

very paradigm of intellectual labour divided from manual labour in relation to nature. It takes shape and develops historically in close parallel to capitalist production itself and as an essential concomitant of it. Although the technology of production became really scientific only in the late nineteenth century, even from the beginning of capitalist production the control of the capitalist owner over the process of production would have been an impossibility if he had depended on the workers for its technology. It is an essential condition of capitalism that the technology of production be founded upon a knowledge of nature from sources other than manual labour. And how a knowledge thus defined and yet reliable, exact and objectively valid is constituted and indeed possible, is a question which must be answered, especially if we do not share the idealistic belief in the original theoretical capacities of a 'pure intellect'.

This epistemological interest in science is clearly specified historically and economically by its tie-up with the capitalist mode of production. It is not Kant's a-historical concern with the possibility of knowledge and of experience in general and as such. Still, even taking leave from Kant's philosophical apriorism, the questions he asks—how are pure mathematics and pure science possible?—look confusingly like the ones of concern to us. The reason for this similarity lies in the emphatically a-historical or rather timeless, universal character of mathematics and science and indeed of all intellectual labour divided from manual labour. While Kant's answer is in line with this character and, correspondingly, implies the perpetual necessity of the division of head and hand and, hence, the impossibility for ever of social classlessness, the answer that we require must, on the contrary, be in historical and materialistic terms. We must, in other words, find a historical and materialist explanation of the timeless-universal form of mathematical and scientific reasoning. To a mind steeped in the idealistic or positivistic tradition this must appear no less paradoxical than the demand of squaring the circle. And yet we are committed to supplying the explanation that assumes the significance of an acid test for historical materialism.

There would be no scientific approach to socialism, no 'scientific socialism', if science remained a phenomenon beyond historical-materialist understanding. The possibility of socialism presupposes the primacy of society over science. This can be theoretically established only by proving that the logic of scientific thinking originates in social history. Failing this, it would be technocracy, not socialism, we

must expect of the future. The gap is between the timeless-universal logic of science as based on mathematics and the historical mode of materialist thinking. Can it be bridged? Can the division between mental and manual labour be liquidated? Is classless society possible?

In his *Critique of the Gotha Programme*, Marx lists among the preconditions of a 'higher phase of communism' that 'the enslaving subordination of individuals under division of labour, and therewith also the antithesis between mental and physical labour, has vanished'.[4] It is indeed self-evident that the control of social production cannot lie with the workers so long as such control necessitates intellectual work beyond their scope. And if the workers do not themselves control production someone else must control the workers. It may well be that the neglect of these elementary but arduous truths has caused the Soviet attempt at socialism to become bogged down in renewed class divisions. If socialism is understood as that meta-capitalist society of transition aimed at paving the way for a classless order, the progressive liquidation of the division of head and hand should be the main standard by which to measure the socialist advance.

### C. POLEMICAL CRITIQUE OR CRITICAL LIQUIDATION OF IDEALISM?

Philosophical idealism can in the main be identified with the fetishism of intellectual labour in its division from manual labour. Spiritual values are glorified and enhanced as against all others and appraised as the substance of the value of Man. Idealism is devoted to exploring the all-round mental capacities of knowledge, of moral guidance, of legislation and political rule and at proving that these capacities possess their foundations within themselves and in the 'spirit', the 'mind', the 'intellect'. According to idealistic thinking these values would be in jeopardy or indeed destroyed if the division of head and hand or of mind and body were broken down. As long as the head and the hand have divided functions the mental functions are called upon to rule the manual ones.

Philosophical idealism is either dualistic, proclaiming the inevitable necessity of the division of head and hand, or it is monistic in the sense of assuming a possible absorption of manual into intellectual labour so that the mind unites both, the intellectual and the manual functions within its capacity. This monistic speculation has never been systematically attempted except by Hegel, in whose philosophy every aspect of being is drawn and absorbed into the 'immanence of the mind' and a

complete unity of thinking and being is achieved within the mind.

The significance of idealistic thinking, understood in this way, is not difficult to assess from a Marxist standpoint. One need only realize the close and indeed inseparable connection that exists between the division of head and hand and the social class division to recognize that the idealistic fetishism of the spiritual values as founded in the autonomy of the spirit is simply another way of pleading the social rule of the propertied classes over labour. Classical German idealism is the philosophical counterpart of political economy in England and of French political theory.

Dualism is, of course, less satisfactory than monism from a philosophical standpoint. Dualism always leaves an unredeemable and uncontrollable residue behind and is indeed self-contradictory as a theory serving the claim of intellectual labour to autonomy *vis-à-vis* manual labour. Monism would imply the complete achievement of spiritual control and the fulfilment of man's spiritual values in a world that has reached its final constitution. But idealism achieving its monistic completion falls into the complete absurdity of a class rule with nothing and nobody to rule over, of knowledge with no objects left, and of thinking as one with being to the extent of not-being. But such is the outcome of Hegel's philosophy.

Intellectual labour divided from manual labour has one common and all-pervading mark: the norm of timeless-universal logic. The clearest example of this is mathematics which is the mainstay of intellectual labour in regard to the object world of nature. Intellectual labour is divided from manual labour as timeless-universal logic is from spatio-temporal reality. On critical standards of thinking this dualism would seem indeed insuperable. For Hegel to undertake his systematic thrust toward monism he had to develop timeless logic into dialectics, the logic of timeless truth into the logic of time-bound truth, thereby changing the very meaning of truth that it ceased to be a standard of thinking, and noölogy is blended with ontology in an ambiguous twilight where the rule of mind over matter could as well be reversed into the rule of matter over mind. Marx reversed Hegel's dialectical idealism into dialectical materialism which, in common with Hegelian thinking, knows of no worse fallacy than a relapse into dualistic thinking. History is conceived as Man's own product: 'Man makes Himself'. Hegel had already reached this vision in his *Phenomenology of Mind.* Marx quotes the relevant passage in his *Economic and Philosophical*

*Manuscripts of 1844*, making Hegel a stepping-stone to his first Thesis on Feuerbach:

> The outstanding thing in Hegel's *Phenomenology* and its final outcome—that is, the dialectic of negativity as the moving and generating principle—is thus first that Hegel conceives the self-generation of man as a process, conceives objectification as loss of the object, as alienation and as transcendence of alienation; that he thus grasps the essence of *labour* and comprehends objective man—real and therefore true man—as the outcome of man's *own labour*.[5]

The labour by which man makes himself is neither one-sided manual, nor one-sided mental, labour but must be both in one, no matter how they combine. Only in this manual-*cum*-mental capacity does labour possess the creativity by which man makes his history. And this in turn serves as the assumption on which man's history also becomes understandable to himself if contemplated from a historical-materialistic standpoint. It is easy to see that this conception leaves little room for placing intellectual labour against manual labour and for considering intellectual labour in its formcast of timeless-universal logic by which it sets itself up as the self-sufficing mind of Man. Marx does not measure intellectual labour by its own inherent norms. These norms had been critically absorbed by Hegel into the dialectic and thereby subordinated to the time-bound process of Man's creation of his world, the '*Selbsterzeugung des Menschen als Prozess*' ('The self-genesis of Man as a process'). Placing himself on this Hegelian level of understanding Marx could confine himself to clarifying the differences of his materialistic thinking compared with Hegel's self-contradictory idealism. By this polemical clarification of his mind, this process of '*Selbstverständigung*'—which according to his own testimony was the main gain for himself of the *German Ideology* of 1845–46—Marx and Engels broke away from idealism in every manner and principle of thinking. But this, of course, did nothing to cut the ground from under the established idealistic positions. These did not depend on the Hegelian level of thought but fed upon the persistent support obtained from the given formal constitution of the abstract intellect in its various applications, particularly those of the mathematical sciences. In this formal constitution idealism finds an anchorage that is perfectly resistant to philosophical speculation and on which it thrives best when reducing itself to non-philosophical fact-finding among intellectual forms. This quasi-natural bedrock of idealism is left untouched by the polemical

critique pursued by Marx in the *German Ideology*. And yet this timeless formcast is, on closer scrutiny, recognizable as the hard core of all the mental and ideological phenomena discussed by Marx in terms of alienation, reification, fetishism, false consciousness, etc., as springing from economic exploitation, private appropriation and class division.

If this hard core of idealistic thinking could be accounted for by conclusive formal derivation from specific and material causes in history, then indeed idealism would have its anchorage cut away from under it. Idealism would be critically liquidated as a philosophically arguable position of thinking. Its philosophical problems would be immanently revealed as intrinsic features of intellectual labour divided from manual labour and as pointing for their remedy to a change of the social basis from which the division arises. As a result, historical materialism, or 'Marxism', from being one among a number of positions would become the only one arguable mode of thought. Marxism would assume the position of the universal philosophy or of philosophical totality. This idea would, of course, be a frightening one if applied to a world of class divisions where different classes have, and must have, different standpoints of thinking. The difference lies with the stage of social development to which Marxism is applied.[6] As regarding societies of class division, Marxism can only be a science of historical understanding, the understanding, that is, of existing history and of the differences of thinking among the social classes in the past and in the present. With this understanding Marxism serves as the theory for the practice of the class struggle. In this phase of its career Marxism is satisfactorily founded on a basis of polemical critique of idealism in its highest (Hegelian) form. The idea of its totality applies to Marxism in a different phase of development, the phase of socialist construction, i.e. of conscious transformation of class society into classless society. It is quite clear that in this phase Marxism must of necessity assume totality, and for this it requires a critical liquidation of idealism for its theoretical foundation. Marxism changes in character from one phase to another of its career. The critical liquidation of idealism has as its content the theory required for the practical liquidation of social classes divided on lines of intellectual and manual labour.

### D. THE HISTORICAL ORIGIN OF TIMELESS-UNIVERSAL LOGIC

The division of intellectual and manual labour first appears in its fully-fledged form in Greek antiquity. Its first manifestation is Greek philosophy and mathematics as represented by Pythagoras, Heraclitus and

Parmenides around 500 B.C. and a hundred years earlier in the Ionian forerunners, Thales (fl. 630?), Anaximander and Anaximenes. George Thomson[7] has convincingly argued that this novel conceptual form of reasoning, sometimes spoken of as 'the Greek miracle', emerges in close connection with the rise of commodity production at the stage where monetary relations permeate the economy of Greek City States.[8] George Thomson argues this thesis on a historical level, not on a systematical one. 'That is why I have described it as provisional. Nevertheless, enough has, I think, been said to indicate that the money form of value is a factor of cardinal importance for the whole history of philosophy.'[9] The reason why this is so lies in the fact that commodity exchange is a process of abstraction, abstraction not by thought but by action and operating in time and space. This real abstraction first discovered by Marx who speaks of it as 'the commodity abstraction' calls for an analysis in greater detail than could find room in a mere article. But an outline sufficient for the purposes of our argument here can be given. The analysis in point requires a somewhat different approach from the one followed by Marx in the opening of *Capital*. Marx starts by distinguishing use-value and exchange-value as two contrasting aspects of the commodity. I draw the same distinction, but broadened by extending it to the activities to which these aspects refer, i.e. the activities of use and the activity of exchange. I have found from experience that this approach facilitates a more penetrating analysis. The change of angle from a distinction in the 'object' to one of the human practice behind it is well within the principles of Marx's thinking as laid down in his *Theses on Feuerbach*, particularly in the first of these.

Commodity exchange requires, as a condition of its possibility, that the use of the commodities be suspended while they are subject to a transaction of exchange. Use and exchange are activities, modes of human practice, which are mutually exclusive in time and place. Wherever commodity exchange takes place it does so as an activity 'abstract' from use because otherwise it could not have happened. Therefore, exchange operates, by mere virtue of its occurrence, a factual 'abstraction' from use and thereby from all reference of the action to its historical time and locality. In and by its spatio-temporal occurrence commodity exchange produces timeless universal abstractions (*abstracta*). History, in this human practice, suffers its self-effacement. The abstractions thus produced do not spring from thought but they have the form of thought, 'pure thought'. At the time and place

where it happens the abstraction (*abstractio*) passes unnoticed. For while exchange banishes use from the action of people, it does not banish it from their minds. With their minds, they are very much on the practical purpose of their action. Abstract, in exchange, is the action only, not the thoughts of the exchanging agents. Action and thought part company in exchange, go different ways and differ in form. The action generates the institutions and categories of political economy to the extent in which it strings up to form a coherent system constituting a nexus of social life. This only develops in stages, from one mode of commodity production to the next, according to the measure at which this form of nexus works out its social consequences which it does to the full only in the capitalist mode of production. The thought, on the other hand, does not meet the abstractness of the action except, as Marx points out, *post festum* when the abstractness has taken shape in those institutions, among them foremost that of money. Money is the abstract thing which conveys to the mind the forms of pure thought contained in its abstractness. For a detailed analysis of these forms and of their reflection I must refer the reader to a book of mine where a distinct derivation of the basic categories of the abstract intellect, one by one, from the exchange abstraction can be found.[10] If this derivation proves convincing, claim can be laid to the achievement of a historical explanation of the a-historical, timeless and universal logic of the abstract intellect. This disposes of idealistic thinking by proving illusory the problems stimulating it. The problems are recognized as historical ones and the formal analyses involved open out an understanding of the course of human history in which all elements of form are ultimately interrelated. The nodal point of this interrelation is not in cognition, not in the mental sphere, as the Hegelian dialectics postulates, but lies in the social conditions of production, and more precisely speaking, as we shall show later, in the social commensuration of labour.

What was called 'use' in saying that 'exchange banishes use from the action of the people' covers the entirety of man's material intercourse with nature. For the change to which exchange is dedicated is one of the social status of things as owned property. In order to enable this change to take place in a regular and orderly fashion and in accordance with its own rules, the postulate holds sway that the commodities must be exempt from all change of their material status while they are subject to a deal of exchange. Thereby exchange is defined as an action which has no longer anything in common with animal life, an action distinctly

'human' in a novel sense. 'In stark contrast to the palpable sense-reality of the material bodies of the commodities not an atom of nature enters into their constitution as values.'[11] Use, whether for the production or the consumption of things, in commodity-producing societies is relegated to the private sphere of the commodity owners; in the public sphere of the market the material status of the commodities is congealed. A commodity marked out at a definite price is looked upon as being sealed up to absolute physical immutability throughout the time its price remains unaltered. The judicial authorities in charge of the market can see to it that this rule is not violated by human infringements. But even Nature herself is supposed to abstain from any ravages in the body of the commodities in a market and to hold her breath, as it were, for the sake of this social business of Man. Obviously, even the aspect of non-human nature is affected by this interdiction of use in the market.

But while thus postulating the physical immutability of the commodities, the act of exchange is itself a physical action which deals with physical objects in a physical way. The commodities are moved bodily from one owner to another in time and in space, even though time and space also assume a peculiar abstractness in the context of this action. Still, the movement of the commodities in the market is of no less reality than the acts of use which it rules out. It is precisely because their reality is on a par that both kinds of activity, exchange and use, are mutually exclusive in time and space. Thus the physical reality of the commodities is affirmed as well as negated, in fact, it is affirmed as negated. This is how they are referred to as 'values'. Money, in its abstractness, is the material-immaterial thing conforming to this description. The material that money is made of moves, in its process of circulation, through time and space in a way that is supposed to leave its material status unaffected. Issuing banks are pledged to replace coins, etc., which have suffered wear and tear, by new ones free of charge. Thus the sort of movement described by money in the social exchange process constitutes a kind of change which corresponds to the absolute minimum of a physical event. It can be outlined as abstract movement through abstract time and space of abstract substances which thereby suffer no material change and which allow for none but quantitative differentiation. This description has a recognziable affinity to Galileo's principle of inertia or Newton's 'first law of motion'. In classical mechanics this affords the methodological basis on which phenomena of actual motion, say, the ballistic curve, can be constructed

as composites of that elemental minimum and therefore conceived in terms of categories amenable to mathematical treatment. Hypotheses can thus be worked out and tested by confrontation with nature or rather with that carefully isolated part of nature of which the hypothesis in question contains the definition. The root of pure mathematical reasoning also is traceable to the exchange abstraction. Thus it can be seen, I think, even from these fragmentary remarks, that an adequate analysis of the exchange abstraction affords a historical explanation of the basic constitution of the exact sciences, an explanation of how objective knowledge of nature becomes possible from sources other than manual labour. We shall see later on that there is reason to limit the scope of this explanation historically to the beginning of monopoly capitalism when the social nexus is no longer exclusively carried by commodity exchange.

The transcendental constituents of pure mathematics and pure science are part of the commodity form. But the commodity form is as old as commodity exchange and goes back in history tens of thousands of years. Why then the variegated history of its effects upon the formation of the human mind? This question, again, exceeds the scope of a mere article. But why the abstract intellect and its cleavage from manual labour arises only with the beginning of commodity production can be understood from what has already been said. The explanation lies with the emergence of money. Only in the form of this abstract material-immaterial thing does the exchange abstraction reflect itself in the human mind. Money is a relatively late product of trading presupposing extended exchange relations. The first coinage can be dated 680 B.C. in the Ionian part of the Greek orbit. The introduction of coined money marks the crucial turning point in social history when commodity exchange, from being predominantly external trade, inserts itself into the social nexus. Coinage puts external and internal trade on the same keel and implements the penetration of trade into society, the beginnings of a transformation of social relations into relations of trading.[12] What enables commodity exchange to provide a social nexus is precisely its abstraction when 'polarized out' (Marx) in money. What is reflected and becomes the conceptual basis of the intellect is the socially-synthetic capacity of the exchange abstraction or is the exchange abstraction in its socially-synthetic function.[13] The intellect thinking in the forms of the exchange abstraction, in other words, thinks in the forms of the social synthesis (nexus). It thinks in social forms, thinks for society, and is, in fact, a mind socialized by

form. But to the mind itself this original nature of its formation takes on the significance of its diametrical opposite. It is easy to see how this comes about. The exchange abstraction itself is interrelational between the exchanging agents, it does not apply or refer either to the one or to the other of them, and it is precisely because of its interrelational nature that the abstraction can carry the social nexus. But the mental reflection of the abstraction takes place in the relation of the money to its owner. The reflection is, therefore, in the individual mind in its most isolated form. To the individual mind, being cut off from the genesis of it, its abstractive capacity is, of course, totally inexplicable and attributed variously to the '*noûs*', the '*intellectus purus*', the '*res cogitans*', the 'transcendental subject', etc., which are fetish concepts of money in the mind, the reification of the social nexus reified once again as the essence of abstract Man.[14] The socially-synthetic abstraction of exchange by becoming the formation of abstract thinking gives to the individual mind the logical completeness of independent reasoning. At the time when Descartes put his '*ego cogito*' to it, the carrier of the social synthesis had become capital. The abstract intellect is the independent intellect of *individual* money-owners *because* of its *social* origin. Hence its blindness to society; its socially necessary function is in relation to nature as the object world. Throughout the ages of commodity production, from its initial form of ancient slave society to its ultimate capitalist completion, the products of manual labour are private property whereas the products of intellectual labour are social property. In its division from manual labour and its exclusive reliance on thought for its relation to reality the abstract intellect requires the normative idea of 'the truth'. Hence it comes about that the idea of the truth emerges in history as the possession of false consciousness, consciousness not 'false' in a vague sense, but necessary false consciousness. It is the idea of the truth as timeless absolute, not the time-bound truth of dialectics.

This derivation of the abstract intellect from its source in a particular form of the social synthesis (or nexus) entitles us to the generalization that the socially necessary and therefore historically valid forms of thinking are always based on the constituent forms of the social nexus of their period. In regard to societies not afflicted with the estranging division of intellectual and manual labour this is plain to see for their members themselves. To prove the generalization it was necessary to establish its truth for those forms of thinking that apparently deny it.

## E. SOCIETIES OF PRODUCTION AND SOCIETIES OF APPROPRIATION

Great importance accrues therefore to the varying constitution of the social nexus and its relation to the labour process of production. Where the production of man's means of livelihood is carried on communally, that is, on the basis of a collective organization of the productive labour, the labour process itself bears out the social nexus. The production process and the social nexus are linked in inseparable unity. This I call society of production. It obviously applied to primitive communism, but it might also hold true again in future under modern conditions. In a society of production the social nexus does not rely on property relations; there is no room for a division between mental and manual activities; there is no room either for economic exploitation and therefore for any antagonistic class divisions; and production is for use. In fact, 'society of production' works out as a different term for communism, but a term indicating its objective structural condition.

The basic characteristic of commodity production, on the other hand, is the separation of the social nexus from the labour process and the essential difference of the activities they represent. The basic cause of this separation resides in the development of the productive forces. The incipient crudity and paucity of tools enforces primitive communism. At a somewhat higher stage the division of labour starts to differentiate and production begins to yield a regular surplus. Production, particularly primary production, remains collective. Superimposed upon it relations of appropriation of the surplus by non-producers take root and a stratification of classes emerges. The increase of the surplus for appropriation becomes a major instigation of advance. So long as the primary production retains its collectivity, however modified, the appropriation is collective also, and this persists to the end of the Bronze Age. Also till then trade relations in the form of exchange are mainly external relations between different communities. True, the utilization of the surplus for the maintenance of specialized crafts implies single production and a measure of exchange in these secondary industries, but exchange is not the way of transmission of the surplus from the primary producers to their exploiters. Therefore the basic class relationship is one of 'direct lordship and bondage', to use Marx's expression, not one of commodity exchange. The internal structure of Bronze Age society is marked by a duality of contrasting

modes of the social nexus. The one is based on the practice of the labour process among the primary producers, the other, superimposed upon this, is in the form of the collective appropriation of the agricultural surplus; and both structures are linked together under a theocratic headship whose authority prevails throughout. The practice of the nexus of appropriation engenders forms of intellectual labour divided from the manual labour in the nexus of production. This intellectual labour and its division from manual labour are forerunners to, but characteristically different from, those attaching to commodity production, but there is no room here for an analysis.[15]

This dual structure of the societies of the Neolithic and the Bronze Ages and answering the Marxian category of the 'Asiatic mode of production' gives way to commodity production and its unitary social nexus of appropriation as a result of the productive forces developing in the Iron Age. Thanks to their greater ubiquity and cheapness iron tools become the first metal implements commonly and generally available to the primary producers and instrumental in transforming their manner of production to individual peasant production. On this basis collective production loses its economic and social necessity and is bound to give way in time to the growing predominance of commodity production. Appropriation now becomes private appropriation with its practice changing from a one-sided relationship on a tributary basis to a reciprocal appropriation on the basis of exchange. In this form appropriation assumes the self-regulating virtue of its specific monetary 'commodity language' enabling it to serve as the exclusive mode of the social synthesis. The social nexus thereby becomes a system of property relations—private property relations—and a contradictory and obfuscating mode of transmitting the surplus from the producers to its non-producing appropriators. In the following pages the term of 'society of appropriation' is used only for the social structure on the basis of commodity production. But all societies of appropriation, including the previous dual systems, imply economic exploitation, class antagonism and a division of intellectual and manual labour.

## F. SOCIALIZATION OF MANUAL LABOUR

Presupposing the reader's acquaintance with the Marxian work, in particular with Vol. I of *Capital*, I can proceed very briefly by pointing to the fact that, as an overall historical trend of 2,500–3,000 years of commodity production, the increasing individualization of social

relations (through the increasing permeation of the social fabric by exchange relations) has gone *pari passu* with an increasing socialization of manual labour inside the processes of production.

In its incipient stages in antiquity commodity production established itself by ousting the remaining elements of collective production deriving, in the last account, from tribal communism. 'The gentile constitution is absolutely irreconcilable with money economy.'[16] 'Only such products can become commodities with regard to each other, as result from different kinds of labour, each kind being carried on independently and for the account of private individuals.'[17]

Therefore, in the initial stages of commodity production we have a clearcut and extreme antithesis between the socialization of thinking in the forms of the abstract intellect and the individualization of manual labour in the forms of slave labour. Manual labour is denied the 'human' quality. As slave labour it is reduced to the confines of the human animal body.[18] This antithesis was progressively effaced, however, as ancient society became unable to maintain its slave-labour institution and transformed itself gradually into a feudal relationship, which became its legacy to the Middle Ages. On the basis of feudalism manual labour became 'human'. In the medieval towns the producers became independent artisans. Their production started on the basis of one-man workshops, but they were the private owners of their products and of their equivalent in money. They were individual commodity producers in possession of the freedom to exploit themselves, a freedom lacking to their rural counterparts.

With the revival of monetary relations and the steady expansion of regional and international trade by the activities of the growing merchant and banking capital, the medieval economy gradually changed in all its quantitative dimensions and internal proportions. As a result the tasks facing the artisan producers soon exceeded their intellectual capacities no less than their economic resources. They fell in debt to the merchants and bankers, on the one hand, and were nonplussed, on the other, by the technological demands arising out of the invention of firearms, the growing volume of metallurgy and mining, the tasks of transportation, of town construction, fortifications, river control, ocean-going navigation, etc. While the economic evolution from the Middle Ages towards capitalism has been amply explored and analysed, by Marx himself and many followers, the intellectual implications of the change have not received similar attention to their own peculiar logical consistency. For although the economic and the

intellectual developments arise out of the same material roots both evolutions follow their own logicality and proceed parallel to each other without interlinking. They must be understood each in its own terms and in methodological independence of one another. But here again we have to cut short the pertinent examination of the intellectual trend leading up to the foundation of modern science. Suffice it to indicate in the briefest possible manner, the basic causality underlying this development.

The technological resources of individual production are tied to the producer's personal unity of head and hand, relying on trial and error and judgement by his bodily senses. The training is in terms of a knowledge of how to do things and the skill of doing them. These resources will only satisfy production tasks of a very limited scope. When, beginning with the fourteenth and fifteenth centuries, the actual tasks started to exceed these limits, requiring the employment of a growing number of hands in the workshops, the technological resources of artisanry broke down. The tasks presented problems demanding solutions on a social scale, employing the resources of a social mind. Such a mind must operate on a different level from his hands. At first this cleavage was bridged by the consultation of artisans like Brunelleschi with scholars and mathematicians like Toscanelli, the hands and the mind literally belonging to different persons. Toscanelli had never linked his mathematics with any manual tasks, Brunelleschi could not link his manual tasks with the fitting mathematics. Toscanelli's letters testify how much both enjoyed their supplementation, lost in admiration of the result. The evolution of modern science could be described metaphorically as the process in which the mathematical mind was taken away from Toscanelli and made into the methodological mind of Brunelleschi, who thereby changed to someone of the calibre of Galileo. As the medieval gap between scholar and producer was bridged, so, *pari passu*, an even wider gap opened within production. Brunelleschi, having, as it were, become Galileo, is now the scientist who devises the productive forces for a social mass of proletarian labour in capitalist employment. In the mathematical and experimental method the role of the bodily organs, i.e. hands and senses, is reduced to the 'reading' of measuring instruments that translate the sense evidence of the individual producer into the mathematics of the socialized mind and its timeless-universal logic.

Capitalist production is from the beginning production on a social scale, because it was only the social scale of production outpacing the

economic resources of the individual artisan that enforced the subordination of production under the capitalist control.

> Capitalist production only . . . begins when each individual capitalist employs simultaneously a comparatively large number of labourers; when consequently the labour-process is carried on on an extensive scale and yields, relatively, large quantities of products. A greater number of labourers working together, in one place . . . in order to produce the same sort of commodity under the mastership of one capitalist, constitutes, both historically and logically, the starting point of capitalist production.[19]

One can add that it is also no less the logical than the historical outcome of capitalist production to bring about an ever increasing amount of socialization of labour in production. Under the impact of capitalist competition the technology is incessantly revolutionized and large-scale production continuously replaced by larger-scale production. Skipping all the intermediate stages of the development—the manufactural production of the seventeenth, the industrial revolution of the eighteenth, the large-scale industry of the nineteenth century right up to the beginning of monopoly capitalism—we venture to state that the socialization of manual labour has, in modern mechanized mass production, reached a scale where it approaches the level of socialization characteristic of the intellectual labour in modern science. Manual and intellectual labour have, in present-day production, attained an analogous if not indeed a homologous state of socialization. If this statement could be substantiated it would evidently indicate a stage of social development of a truly crucial importance. A comparison of this kind, however, requires formal standards applicable to both manual and intellectual labour in their respective constitution. It presupposes in particular that the purely quantitative increase of the socialization of manual labour has, at a given point, matured to a specific structure qualitatively definable on formal standards. Such a structural crystallization of the high-grade socialization of labour in modern industrial production has indeed arisen and to analyse it we have to turn to the modern bourgeois discipline of 'scientific management'.

### G. SCIENTIFIC MANAGEMENT

The capitalist requirement for an institutional systematization of industrial management is closely bound up with the rise of monopoly capitalism. It took shape during the critical period for capitalism

known as the 'Long Depression' lasting from 1873–74 to 1895–96. The capitalist economy slumped into this epoch of almost uninterrupted stagnation in the state of a free market economy and it re-emerged from it as consolidated monopoly capitalism. Benefiting from this new formation capitalism achieved restored prosperity and, boosted by imperialist expansion, massive rearmament and incipient mass production, headed for the First World War. But during the preceding decades, under the paralysing impact of a persistently declining rate of profit, the economy had seemed to bear out the most ominous features of Marx's prophecy of capitalism heading for its doom. To save the system and to restore it to prosperity two remedies were above all imperative: one, a decisive expansion of the markets and the opening up of new territories and fields for capital investment, in other words, imperialism, and, two, a substantial increase in the rate of exploitation of the labour employed in production at home. The first of these remedies recommended itself foremost to the rich creditor nations like Britain and France, while the second was particularly pressant for the USA, then still overall a debtor country but in full sweep of industrialization and landed with the world's highest wage level. After 1918 Germany was thrown into the position of a highly industrialized debtor country with little choice but to enhance the exploitation of her national labour-force by internal 'rationalization' in order to work her way back into world competition. The weakened European victor countries from World War I then followed suit in this development as reluctant modernizers, while the USA now came into the position of combining both remedies to become the dominant capitalist world power. But although both remedies, the outward and the inward one, have since World War II welded into inseparable unity we have nevertheless to distinguish them for purposes of theoretical analysis. Moreover, they present themselves to the onlooker in the blatant institutional duality of imperialism and 'scientific management'. But whereas the first one has occupied a galaxy of Marxist writers from Hilferding, Rosa Luxemburg and Lenin to Henryk Grossmann, Sweezy, Magdoff and many others, the structural revolution within the labour process of modern production has largely escaped Marxist attention and been left almost entirely to the bourgeois experts and students of the new managerial science. And yet, spectacular as are the dramatic developments of imperialism, it is questionable which of the two lines of changes carries the greater weight for the transformation of capitalism at its centres.

In order to arrive at an appraisal of the true significance of 'scientific management' I want to ease my task by a terminological aid. I understand economics in a Marxist conception as *œconomia formans* and economics in a bourgeois conception as *œnocomia formata*. The first term denotes the economic causality to which a given historical system of social production relations owes its existence, while the second refers to the various aspects in which this system presents itself to the individuals or groups and classes of individuals pursuing their economic interests. The *œconomia formans* is the determining necessity or 'basis' underlying a social formation and its incessant surreptitious transformation as a coherent structure; it comprises therefore the 'essence' of the historical developments, this term understood in the Marxian and Hegelian sense. The *œconomia formata* renders the appearance of things in the eyes of the economic agents and may therefore be highly deceptive. Bourgeois 'scientific management' is a flagrant example of *œconomia formata*, which we have to study in order to discover the *œconomia formans* contained and concealed in it. Such a study, in the Marxian language, is called 'critique'.

The critique of 'scientific management', then, has to start from the cornerstone of this discipline, which is variously known as work or job analysis or as time and motion study. This method was first elaborated by Fred W. Taylor, the acknowledged founder of 'scientific management'. 'What the writer wishes particularly to emphasize is that this whole system rests upon accurate and scientific study of unit times, which is by far the most important element in scientific management.'[20] It is this method that structured the socialization of labour. This truth, however, does not become apparent from the use that Taylor himself made of his method. Taylor norms individual operations, and the normalization of an operation does not by itself constitute its socialization. Taylor did the groundwork, but to bring it to its fruition was not his achievement but the exploit of engineer-industrialists like Ford and Swift. These evolved and introduced transfer mechanisms linking up entire series of consecutive operations which were thereby subjected to compulsory synchronization according to a unified measure of time. As a result, the work of, say, 500 workers was done like the synthesized labour of one compound-labourer operating with 1,000 hands. The Marxian notion of the '*Gesamtarbeiter*' (compound-labourer) has ceased to be a metaphor and has become a functional, mathematically calculable reality.

## H. THE NECESSITY FOR A COMMENSURATION OF LABOUR

To understand the full importance of this structural change in the labour process, marked by the continuous-flow methods of modern mechanized mass production, I wish to quote from a famous letter of Marx to Kugelmann of 11 July 1868, shortly after the first appearance of *Capital*, when Marx was irked by the lack of comprehension of one reviewer:

> The unfortunate fellow does not see that, even if there were no chapter on value in my book, the analysis of the real relationships which I give would contain the proof and demonstration of the real value relation. The nonsense about the necessity of proving the concept of value arises from complete ignorance both of the subject dealt with and of the method of science. Every child knows that a country which ceased to work, I will not say for a year, but for a few weeks, would die. Every child knows too that the mass of products corresponding to the different needs require different and quantitatively determined masses of the total labour of society. That this *necessity* of *distributing* social labour in definite proportions cannot be done away with by the *particular form* of social production, but can only change the *form it assumes*, is self-evident. No natural laws can be done away with. What can change, in changing historical circumstances, is the *form* in which these laws operate. And the form in which this proportional division of labour operates, in a state of society where the interconnection of social labour is manifested in the *private exchange* of the individual products of labour, is precisely the *exchange value* of these products.[21]

The natural necessity and law that animal life is subjected to is comprised in the ecology and the biology applying to the species and varieties in question, without historical change. In application to human existence the same necessity is converted to economic law owing to the labour by which man provides for his own means of livelihood. This labour is subjected to changing historical circumstances chiefly because of the development of the productive forces. But whatever their stage of development, the economy of social existence must contrive the necessary apportioning of the total labour available to society to the existing requirements. This apportionment of social labour, this necessity of distributing social labour in definite proportions, according to the existing historical circumstances involves the formal

need for a commensuration of labour which is the main essential element determining the economic system upon which society must rely for its existence. I regard the commensuration of labour as the basic form element peculiar to human existence; all other form problems appearing in human history, including those of the mind, are ultimately traceable to this one root. The commensuration of labour can change, but not *ad lib.* Its potential of change coincides with the main difference between societies of production and societies of appropriation. In societies of production where the organization of the social nexus is by the labour process, the commensuration of labour is direct, is conscious, and is related to labour in action, 'live labour' as Marx calls it. Here the labour is collective and social production communal. 'Primitive communism' may be thought of as that initial stage of human history in which these basic conditions, i.e. labour itself, the invention and use of tools, speech and social co-operation, were as yet in process of formation.[22] The completion of this stage is followed by incipient surplus production leading to the millennia of exploitation by one-sided appropriation while primary production retains some form of collectivity. Only with the breaking up of this collectivity and the beginning of commodity production in the Iron Age does the necessity for a commensuration of labour present itself under the radically new condition of the clearcut separation of the social nexus from the labour processes of production. In the analysis of this form of a social nexus, we have pointed out, 'action and thought part company, go different ways and differ in form' (p. 52). We have examined the formation of the thought but ignored the consequences of the action beyond the mere mention that it generates the institutions and categories of political economy. We must take up this thread and cast at least a quick glance on the foundation of Marx's critique of political economy or, in other words, on the *œconomia formans* of commodity production in its developed capitalist stage. Although they do not interlink, there is close correspondence between the field of thought and the field of the economy under conditions of this set of historical circumstances.

The question regarding the *œconomia formans* of bourgeois society is, in a wording close to Marxian formulations: how do mere exchange relations set live labour in motion? Or more fully: how can a social nexus consisting of nothing but exchange relations run and rule social production? Marx's answer is based on the discovery that commodity exchange, by virtue of its principle of equivalence, implies a commensuration of the labour embodied in the commodities equated as 'values'.

> . . . whenever, by an exchange, we equate as values our different products, by that very act, we also equate, as human labour, the different kinds of labour expended upon them. We are not aware of this, nevertheless we do it.[23]

The exchange abstraction causes an abstractification (*abstractio*) of labour, not directly, but indirectly and as a result of the complete social circuit of exchange. The labour thus abstractified is the 'dead labour' expended upon the commodities, the labour embodied in them. Labour having lost its direct socializing virtue in its own, now individualized reality of creating use-values, exercises an indirect and purely functional and blind effect upon the social nexus by lending substance to the exchange equation of commodities in terms of 'value'. 'This twofold nature of the labour contained in commodities . . . is the pivot on which a clear comprehension of political economy turns.'[24] It explains indeed the vital link between exchange and production. The labour commensurated by means of exchange is not 'live labour', but the 'dead labour' incorporated in the commodities, labour as the quantified substance of value. But live labour, when it becomes subjected to the commensuration of dead labour, i.e. to the accountancy automatically made the agency of producing surplus-value. By being condemned, as it were, to produce its products as 'values', crystals that count as quantities of abstractified dead labour, it produces more 'value' than it 'costs' depending on its productivity achieved by the productive forces employed in its process. All that is needed for the subjection of live labour to the commensuration of dead labour is the institution of wage-labour. People deprived of all means for producing any product whatsoever are compelled to sell their labour-power itself as a commodity in terms of 'value' to the owners of the means of production. Hence it comes about that money, the universal agency of exchange, does set live labour in motion by its use as capital, that is, its use for buying in the markets the entirety of the means required, including the human labour-power in all its necessary capacities manual and mental, to enable live labour to produce surplus-value for the capitalist. Thus the miracle is achieved that a social network forming a closed system of nothing but acts of private appropriation actually runs and rules its opposite, the reality of social production. The bourgeois consciousness and the immanence of its world is all in terms of the exchange abstraction, with live labour transcending it as the 'thing in itself' beyond its grasp. To sum up, the commensuration of labour by the exchange value

of its products is: (1) seated in the value-nexus of capital (the *Verwertungsprozess* of capital), (2) effected indirectly, (3) unconsciously, (4) by way of the total social circuit of exchange, (5) and above all applying to dead labour.

The fourth of these characteristics is of importance also because it carries the presupposition that commodity exchange must be capable of providing the form of a social nexus. In Marx's analysis this presupposition is merely implied. It is brought into the open by the change-starting point of my analysis [see note 11]. It is by way of working out this presupposition that my analysis inserts itself into the Marxian without cancelling it and without affecting its economic implications. My analysis merely complements the Marxian. While Marx exposes the economics of the capitalist class antagonism that disappears when private capital is abolished, my analysis focuses on the division of mental and manual labour, which is another aspect of the same class antagonism, but one that does not disappear by the abolition of capital, but which remains to be consciously liquidated by the progress of socialist construction. One may question whether it has ever been focused upon in the Soviet Union, whereas it is indeed the central focus of socialist construction in China since the victory of the proletarian cultural revolution.

Returning now to F. W. Taylor, we must seize upon his method of accurate and scientific study of unit times, which he calls 'by far the most important element in scientific management'. Taylor analyses the various manual operations occurring in a particular labour process with the following ends in view: (1) how they can be carried out in the least time and with the least effort and fatigue, (2) to then draw them up as composites of strictly repetitive standard parts, (3) to reduce these parts further to smallest particles or 'units' of motion, homogeneous in all operations, (4) to time these units down to fractions of a second, (5) and finally to establish the definite time norms allowed for the various operations by adding up the unit times of which they are composed. The practical purpose to which all this is put, is a reorganization of the workshops concerned on serial principles; this involved not infrequently a recasting of operations, the invention of new tools and alterations of old ones. But, as said before, the practical consequences came fully to a head only in the creation of modern mechanized mass production. Our chief interest here is with the method of time and motion study itself. For it leads to the result that operations of different qualitative description can be expressed as different multiples of each

other in terms of labour time. We have here, in other words, a systematic quantification of labour on standards of uniform time measures and thus a commensuration of labour, in the literal meaning of it, over a range of operations which since Taylor's days has expanded to one industry after another and even into agriculture. But if we compare this mode of labour commensuration with the one established by Marx we can see at a glance that both are diametrically opposite to each other in every vital characteristic. Taylor's mode (1) is rooted in the labour process whereas the other was seated in the '*Verwertungsprozess*', (2) it is direct where the other was effected indirectly, (3) it is carried out by conscious method while the other was the blind effect of a functional causality, (4) it is performed for single operations, building up in stages to entire labour processes and to the nexus of interrelated labour processes of one or more than one industry, and (5), most important of all, it applies itself to labour in action, 'live labour' in its productive function. Obviously, this is a kind of labour commensuration by which the social nexus could be based directly on the labour processes of social production and thus satisfy our definition of a society of production. After all, how else would one describe a communist order than as an organized social synthesis of live labour?

We have reached a juncture from which a host of contradictions and questions opens up in almost every direction. Within the limited space of this paper we must confine ourselves to indicating a few of them in the abbreviated form of theses.

1. Time and motion study can be viewed as a method of speeding labour (*œconomia formata*) or as a method of commensurating it (*œconomia formans*). Under the first aspect it is part of the class antagonism of capital and labour in the particular conditions of monopoly capitalism; under the second aspect the same feature points beyond capitalism and characterizes monopoly capitalism as a society of transition (Lenin).

2. By effecting a new commensuration of labour the structural socialization of labour in the form of mechanized mass production has, unknowingly and unintentionally to the capitalists, created a new economy. It is an economy of direct proportionate timing of all part-processes and events involved in production. This new *plant economy*, as I shall call it, is independent of, and irreconcilable with, the continuing *market economy*[25] within which it has sprung up.

3. Monopoly capitalism is in the throws of a duality of contradictory economics. The new plant economy renders production inadaptable

to the regulatives of the market and therefore deprives the market economy increasingly of its regulative power while retaining it as a system of private appropriation.

4. The plant economy is indifferent to the use-value of the product. So long as there is not a revolutionary class which, after the overthrow of capitalism, determines what is to be produced, the plant economy must use the remaining shambles of the market economy as a foil for its compulsory production.

5. The structural socialization of labour in modern industry does more than unify the measure of timing only of the human movements. The determining element is the technology involved. It is the compound machinery of an assembly line, etc., that organizes labour as synthesized or compound labour, establishing in so doing an identical unity of measurement of both human and machinery functions. This unity of measurement of labour and machinery in their productive application I consider to be, potentially, the operative law of the *œconomia formans* of a socialist mode of production.

6. This principle contains, as a formal postulate, a promise of unity of intellectual and manual labour. But at the same time it allows the crucial alternative either of subordinating labour to the compound machinery controlled by management or, conversely, of subordinating the machinery to compound labour acting with the full consciousness of its socialization. The first alternative makes for technocracy, the second for socialism.

7. This raises the question of proletarian class consciousness, which is complicated by the fact that it poses itself in terms of the market economy and in terms of the plant economy. For instance, the institution of material incentive wages and the struggle on the wages front within the class system of private appropriation militates against a proper awareness of the structural potentialities of plant economy. There is a wide discrepancy between the workers' hands doing synthesized labour and the worker's mind concerned with individual earnings. Both ought to meet in the communal mode of production of socialism.

8. What we called the operative law of socialism emerges under conditions which make for the utter contrast to socialism, in particular the extreme abstractness of labour and its enslavement to managerial control by its subordination to the technology of production. The plant economy under managerial control marks the final consummation of the division of head and hand. Manual labour is reduced to its absolute dregs, the worker having lost control over his own bodily

movements. Everything that can be squeezed out of labour by way of intellectual ingredients is taken care of by management. Management acts as the keeper of the castle in which capital monopolizes the fruits of intellectual labour for profit-making.

9. The revolution has to break that bastion in order to open the road to socialism, and every advance on this road is marked by the workers gradually re-appropriating what has been alienated from manual labour. The Chinese Cultural Revolution has paradigmatic significance for this process. In its further stages the process entails the absorption of technology and science by the workers.

10. While management has emerged with monopoly capitalism and has developed as the tool of monopoly capital, the revolution can dispose of capital, but management will, at first, remain in existence. The peculiar dialectics of plant economy, therefore, continues under a socialist regime, and the alienation of labour and the division of mental and manual labour which forms the managerial legacy from monopoly capitalism must be liquidated in order to institute step by step the production relations of socialism. The unification of mental and manual labour is the standard by which to measure the socialist advance towards a classless society.

11. If the market economy could be ousted and the economy of fully socialized labour (allowing for automation) be permitted to unfold its potentialities, a modern society of production could be established bearing the characteristics of 'communism'. In such a society the socialized mind of intellectual labour could be matched by an equally socialized body of manual labour. On the universal level of global society intellectual and manual labour would link like the body of a person.

12. In conclusion I define monopoly capitalism as capitalism pregnant with the embryo of socialism. I venture this definition because I think I know how to diagnose this embryo: by a new mode of the commensuration of labour. This diagnosis assumes an understanding of how to distinguish the essential social formations by the relationship between the social nexus and labour. This understanding, in turn, draws upon the explanation of the division of mental and manual labour in commodity production.

13. The social conditions in which capitalism generates the embryo of socialism are the diametrical opposite of the conditions needed to make the embryo into socialism. Only a social revolution can bring about the required change of conditions. Failing this change the same embryo could well change into the monster of Fascism.

# Notes

1 *The German Ideology*, London, Lawrence and Wishart, 1942, p. 7.
2 For a satisfactory exposition of this initial stage of human history see George Thomson, *The First Philosophers*, London, Lawrence and Wishart, 1955, especially the first chapter.
3 *Capital*, I, ch. 7, London, Allen and Unwin, 1943 (my translation in places).
4 *Selected Works*, II, 566.
5 K. Marx, *Economic and Philosophic Manuscripts of 1844*, trans. Martin Milligan, Moscow, 1961, p. 151.
6 What marks the totalitarian standpoint of Fascism is the suppression of the 'freedom of thought' in a society of class division. Fascism retains the existing class antagonism but suppresses the class struggle.
7 *Op. cit.*
8 See F. Engels, *The Origin of the Family*, etc.
9 *Ibid.*, p. 301.
10 *Geistige und körperliche Arbeit, zur Theorie der gesellschaftlichen Synthesis*, Frankfurt, Suhrkamp, 1970.
11 My translation. 'Im geraden Gegenteil zur sinnlich groben Gegenständlichkeit der Warenkörper geht kein Atom Naturstoff ihre Wertgegenständlichkeit ein.' *Capital*, I, p. 15.
12 F. Engels has given an impressive description of this in his chapter on 'The Rise of the Athenian State', *op. cit.*
13 I use the word 'synthetic' only because there is no adjective to nexus. The affinity to the Kantian concept of 'synthesis' is incidental although nevertheless not insignificant.
14 When I first suggested this idea to Walter Benjamin he expressed it in a typically Benjaminian formulation: 'If I understand you correctly, you mean to say that the transcendental subject is the head stamped on the back of our coins?'
15 Cf. Sohn-Rethel, *op. cit.*, pp. 99 ff.
16 F. Engels, *ibid.*, p. 123.
17 Marx, *Capital*, I, p. 9. The last six words are an extrapolation of the translator by which the statement is made to beg the question. A more literal translation would be: 'Only products of private labour carried on independently come up against each other as commodities.' The statement is matched by one on p. 43.
18 Diodorus Siculus relates that slaves employed in large masses as in the mines were frequently selected for their differences of language to keep them more easily isolated from each other.
19 *Capital*, I, p. 311.
20 Taylor's main writings are: *A piece rate system, being a step towards partial solution of the labor problem*, a paper read to the American Society of Mechanical

Engineers in 1895, with an important discussion adjoining; it was the first public reference to his major work *The Art of Cutting Metals* (1906), a most meticulous piece of research, subdivided into 119,848 sections and supplemented by 24 folders of charts. This work has fallen into unmerited oblivion and has become a rarity. Further there are two more popular books, *Shop Management* (1903) and *Principles of Scientific Management* (1911).

21 Cf. Marx–Engels, *Selected Correspondence*, London, Lawrence and Wishart, p. 426.

22 George Thomson's presentation in the work and the chapter quoted in (2) has the merit of explaining precisely this formative process.

23 *Capital*, I, p. 45.

24 *Ibid.*, p. 8.

25 The use of the bourgeois term 'market economy' requires a reservation. I do not thereby adopt the bourgeois view that the market dominates production in capitalism. The opposite is the case. But the market provides the mechanism of the social nexus thanks to which the necessities of production can make themselves felt upon the course of social development. The commensuration of labour takes place in the 'crazy form' of the exchange-value of the products. While this is only the peculiar 'form' in which bourgeois society—and any society based on commodity production—satisfies the necessities of the natural law (evoked by Marx in the letter I quoted), the peculiarities of 'form' assume prominence when one is treating of mental and manual labour. What causes the underlying developments of production and of the productive forces to mark different epochs of society is the fact that, at a given point, it necessitates a change in the mode of the commensuration of labour, a change from the indirect mode via the value equation of dead labour to the direct one of live labour by its synthesization in continous flow-production. To denote this difference the distinction of market economy and plant economy is acceptable if due care is taken of the necessary reservations.

One more note of clarification may be appropriate. How far is the new, direct commensuration of labour conscious (as against the blindness of the indirect commensuration)? Or how far is it achieved by the time and motion study done by Taylor and how far by the synthesization of the labour process done by Ford? The commensuration of live labour must be seen as the structural socialization of labour—in fact, as its formal aspect and definition. And this was not achieved by Taylor's normalization but by Ford's synthesization of labour. The commensuration of live labour is achieved the moment when different operations are subjected to an identical measure of time, and this takes its course when the conveyor-belt (or other transfer mechanism) is switched on and begins to move, not before. Taylor's time and motion study—or for that matter any linear programming of the labour process—is no more than a necessary preliminary to this, and while it is a conscious performance it carries, of course, no consciousness of its effects in terms of *œconomia formans*. The establishment of the new and direct commensuration of labour has, therefore, the same degree of reality (and indeed of facticity) as has the indirect commensuration of labour by the function of commodity exchange. The former really counteracts the latter or, as the case may be, may finally supersede it.