We can either argue that the Russian revolution was not a suitable setting on which to test the validity of Marx's theory that 'the bourgeois relations of production are the last antagonistic form of the social process of production' and that, therefore, the experiment was not conclusive. Or we can declare ourselves satisfied that the result is at least sufficiently conclusive to send us back to look into our hypothesis again. This second conclusion is the one chosen in the present article. We hold on to the standpoint of historical materialism as founded by Marx, but we believe that Marx's theory of class society has an essential deficiency. The reading of the new class society which has emerged in the Soviet orbit, the rule of bureaucracy over labour, is that it is conditioned in an essential, although not readily apparent way by the existing divisions of intellectual and manual labour. The antithesis between mental and manual labour must be counted among the fundamental traits of all forms of class society. Marx saw the instance of this phenomenon, but he has not given us the means to understand it. We believe that without such understanding our knowledge of the fundamentals of class society is not sufficiently complete to allow us to aim at its abolition.

By what causality is the division of mental and manual labour connected with the social class division? This is the question which the enquiry in the following pages purports to answer. It is also one of the central questions involved in the developments in China. The Cultural Revolution there is devoted to the effort of forestalling the new social class divisions which have emerged in the Soviet orbit. The systematic narrowing and eventual closing of the gap between intellectual and manual labour is recognised in China as one of the essential prerequisites for the achievement of a classless society. Therefore, our analysis in these pages is intended as a theoretical enquiry serving that revolutionary practice.

The success or failure of the Cultural Revolution is gauged in China by the transformation of the superstructure that is achieved. How do we have to draw the confines of the superstructure as seen from the angle of the division of head and hand? Above all, does science form part of it, or does it not? Where Marx discusses the phenomenon of the superstructure, in the exposition already quoted, he gives an enumeration of 'ideological forms', but he does not mention science. Wherever he mentions science, in Capital or elsewhere, he seems to treat it as a given entity. There is no pronouncement, to my knowledge, in all Marx's and Engels's writings, where the genesis of scientific thinking and the position of science relative to the material or to the ideological superstructure, is explained. Engels's discussion of matters of science is on a different level and does not reach up to this question. But can our understanding of the superstructure, and indeed of the base, be sound without a historical materialist understanding of the phenomenon of science? Can our historical materialism itself be sound if we are left to remain idealists as regards the theory of science and of logic?

To explore the roots of the division of mental and manual labour demands a historical materialist enquiry undertaken on independent systematic foundations. Such an enquiry cannot be grafted on to Marx's economic theory. It implies the critique of philosophical epistemology and occupies a place alongside the critique of political economy. An enquiry of this kind may seem a wearisome and time-consuming task compared with the burning urgency of contemporary concerns. But the uncertainties felt in the face of these, not infrequently leading to the doubting of Marxism altogether, may well be due to the fact that our theory does not reach deep enough and our theoretical equipment is not adequate. The new social divisions connected with the antithesis between mental and physical labour are everywhere, in the advanced capitalist as well as in the Soviet world, gaining an impact rivalling, if not indeed

Intellectual and manual labour
An attempt at a materialist theory
Alfred Sohn-Rethel

Introduction

Scientists learn from experiment, provided that they do not carry this out by trial and error, but as the test of a theoretically well-founded hypothesis. Mankind could learn from its great social revolutions if it knew the hypotheses to which they were to be subjected; the class instinct of intellectuals, not even the philosophers, who make history.
exceeding, the importance of the more familiar issues of economic exploitation. The forging of an equipment better fitted to keep pace with modern development should be worth the additional effort in this article we shall have to confine ourselves to the bare essentials of the theory and will have to telescope even these in places.

1 Abstraction other than by Thought

The essential theoretical difference between Marxist thinking and all other standpoints ultimately centres upon a contrasting conception of form, and that means also of abstraction. If we assume, in common with all accepted philosophical thinking, past and present, that abstraction is the work of thought and of thought only, there is no possibility of steering clear of idealism. On the basis of this assumption it is impossible to revere the essential historical materialist belief that 'it is men's social existence that determines their consciousness'.

The difference between distinct modes of consciousness resides in the concepts peculiar to them. Therefore if we are to account for a given mode of consciousness from the underlying social base, it is concepts that we must derive from that base. And derivation, here, means formal as well as material derivation, creation of a specific concept from the abstraction of which it is the result. If a particular concept is believed to be 'determined' by a particular social base, then the abstraction product must be believed to be part of this social base. Unless we can attach this precise significance to it, historical materialism is robbed of the meaning on which its revolutionary consequences hang, and it will dwindle into a matter for social psychologists and empirical sociologists to dis­embody between them. The derivation of a concept from its roots in social existence is truly Marxist only in the sense of the place 'for deduction' in the sense of the Kantian Analytic. In the social derivation of a concept, historical materialism includes what empirical sociology excludes: the form that makes it a concept.

The crucial question therefore is: Can there be abstraction other than by thought? No modern thinker except Marx has answered this question in the affirmative. He is the only one who has specified which spatio-temporal process it is that has abstractive force. Thereby the materialistic thesis that conceptual form is a historical product, has become a scientific proposition. Marx's answer is contained in his analysis of the commodity in the two opening chapters of Capital. Hence the singular importance that attaches to these chapters. The Marxian answer is the central part of what he termed 'abstraction' which he shows to be the source of the abstract key concept of political economy, the concept of value, or the 'value abstraction', as it is also called.

Commodity abstraction is a process which takes place, not in the minds of people, but in their social existence, a process of action, not of thought. This action is the action of commodity exchange. The historical fact that this action produces the 'value abstraction' is unknown to the agents. 'They do not know it. But they do it'. It happens 'behind their back'. Thus, the Marxian analysis shows the social process of commodity exchange to be a spatio-temporal reality in history which has of itself abstractive force. The category of value which it produces is a socially valid concept with no existence elsewhere than in people's minds. It exists in their minds but it does not spring from their minds. It represents the case of an ideal abstraction springing from a real abstraction. On this discovery hinges the entire Marxian 'critique of political economy'. For the critique that applies to value extends further to all other basic categories of bourgeois society (economic (economic, capital, interest, profit, wage, rent, etc.). Revealing the determination of these categories from social existence, Marx is able to expose the truth which is hidden by these same categories when they are accepted at their fetishistic face value as pure ideal abstraction.

Owing to the fact that Marx's discovery of real abstraction is given in reference only to matters of political economy and not to the theory of knowledge, the epistemological and fundamental significance of the discovery fails, in the whole of Capital, to become explicit. This becomes different, of course, when the Marxian proposition is made as the basis for a study of the division of intellectual and manual labour. We maintain that the roots of the clear-cut division of head and hand and indeed of the conceptual formation of purely intellectual work are to be found in the commodity abstraction. Our contention is, in other words, that Marx by asserting the existence of a process of real abstraction operating in social existence can be borne out as a proposition of epistemology.

The difference between our subject matter and that of Marx entails a difference in the starting point of the analysis. While Marx starts with exchange-value and use-value as the two essential aspects of every commodity, we start from the two activities which give rise to these aspects, the activities of exchange and of use. Accordingly I shall abandon the Marxian term 'commodity abstraction' and speak of 'exchange abstraction'. This will secure complete independence for our understanding, so that it may be judged entirely on its own intrinsic merits without leaning on Marx's authority.

2 Analysis of the Exchange Abstraction

Commodity exchange is abstract because it excludes use. During the time that a commodity is subject to a transaction of exchange it must remain exempt from use. But while making exchange-value from the actions of people, it does not banish it from their minds. The minds of the exchanging agents must be occupied with the purposes which prompt them to perform their deal of exchange. Therefore, while it is necessary that their action of exchange should be abstract from use, there is also a necessity that their minds should not be. The action alone is abstract. The abstractness of their action of exchange will, as a consequence, escape the minds of the people performing it. In exchange the action and the thought of people part company.

Our task is, first of all, an analysis of the exchange abstraction in itself. This may demand some time and patience, but the phenomenon to be analysed is so clear and elementary that, with sufficient care, reliable results should be obtained. The task is helped by the fact that we analyse, not the minds of the commodity owners engaged in exchange, but their action. How the form of their action will then indirectly affect their way of thinking, in other words, how the exchange abstraction may 'determine their consciousness', will occupy us in the second place.

(a) Exchange abstraction and social synthesis

In a society based on private property the social nexus depends on exchange only, a special action, unique among all others. While other actions are engaged with things in the sense of changing them materially and changing in the process, exchange is nothing but a mutual property transfer. It is concerned with a change of the social status of the commodities, their status as owned property. To make this change of ownership possible, in its own rules, the material status of the commodities must be assumed to remain unchanged while the transaction is performed. The change it performs is comprehensible only in social terms, regarded as a purely natural event, it makes no sense. While a commodity is on offer at a set price, for instance, no physical change at all, either man-made or caused by nature, is expected to take place in its body. Nature is supposed to be at a standstill, so to speak,
while exchange holds sway.

Where production has become private production, consumption private consumption, that is to say, where practically all use of commodities has become activity in private, as distinct from activity in common, the social function becomes tied to the rules of exchange. It is this function which demands, as a postulate, the standstill of material change in the commodities and the separation of exchange from use. In other words, its social function is the cause of the abstractness of exchange. Therefore, to ask whether the exchange abstraction is enabled to form a functioning totality, that is, to be a society at all. If this analysis should amount to an enquiry into the way in which a society based on commodity production is formed from the word 'nexus', the abstractness of exchange. Therefore, an analysis of the exchange abstraction is to be able to identify the identity of the exchange abstraction with the basic logical forms of intellectual labour (including science) as something separate from manual labour, then this would obviously have far-reaching epistemological significance.

We shall therefore carry out our analysis of the exchange abstraction in answer to the question: How is it possible for commodity exchange to serve as a means of social synthesis?

The term 'social synthesis', here, is used as a synonym of 'social nexus' but given preference to it for three reasons. The first is that no adjectival form can be formed from the word 'nexus'. In German the term would be 'Vergesellschaftung', for which there is unfortunately no English translation; the word denotes the formative property of society. The second reason is the use of 'synthesis' in speaking of 'synthetic' materials as against 'natural' ones. Marx calls primitive tribal societies 'natural communities' (natürliche Gemeinschaften) because of consanguinity (Nabelschnur ihres natürlichen Gattungszusammenhangs). By contrast, exchange society, with its nexus entirely man-made (into which nature does not enter), could appropriately be called 'synthetic society', the first, indeed, of all man's synthetic products (and the deepseated condition of all further ones). The third reason is the reference of the term to Kant's phantasmagorical construction of a 'transcendental synthesis a priori' as the normative and/or genetic root of our theoretical faculties (Verstandesvermögens). Our use of the word 'synthesis' suggests an argument that the effective genetic (i.e. historical) and normative root of our purely intellectual faculties is the social synthesis by means of commodity exchange. Our question regarding the possibility of the latter would thus supersede and preserve (aufheben in the Hegelian sense) the leading questions of Kantian epistemology. In this sense, an analysis of the exchange abstraction could be read as a 'critique of philosophical epistemology' (as founded by Kant) akin to Marx's 'critique of political economy' (as founded by Adam Smith). Both Smith and his colleague, the famous Gagnon (1776) and Kant in his Critique of Pure Reason (1781), argued the perfect normalcy of bourgeois society, the one on the ground that it was in the nature of human labour to produce 'value', the other on the basis that it was in the nature of the human mind to do intellectual labour (by a faculty a priori) as something separate from manual labour.

Our enquiry, then, is devoted to establishing the socially synthetic function of commodity exchange.

(b) Practical solipsism

At first glance it appears paradoxical that commodity exchange should indeed be capable of serving as the means of social synthesis in a society divided by the rule of private property. For commodity exchange is itself a relationship entirely ruled by the principles of private property. A deal of commodity exchange is an exercise in mutual exclusion of ownership between the contracting parties in regard to two lots of commodities. Commodity exchange is a relationship of appropriation, regulated by reciprocation. Every move in the contest, every proposition made by one party and countered by the other, articulates the principle: mine - ergo not thine; thine - ergo not mine. What is reciprocated is the exclusion of ownership. The agreement upon which the parties settle signifies a delimitation of their separate realms of property at this particular point of their copious activity. Thus, there seems to be nothing but segregation at work in the exchange between the owners. How, then, does this relationship effect a social synthesis?

Referring to the question, the fact of the mutual dependence of people for the use-values they require, does not help to answer this question. This dependence is manifest in full force throughout every slump of the modern exchange society. The slump is caused by a breakdown in the exchange nexus, and the facts of the material interdependence of all the divided parts of the society have no force to knit them together again. A commodity producing society is a nexus, not by division of labour, but by exchange, and the conditions that make the nexus possible have to be found in exchange and nowhere else. Thus we raise the question where we left it: Where is nothing but segregation at work between the commodity owners, how can exchange operate the social synthesis?

The term 'social synthesis' should not mislead us into believing that the synthetic function of exchange represents some compensating virtue coming from balancing its segregation effects as a reconciling virtue making for social harmony is a romantic illusion. The socially synthetic function of exchange acts through the specific conditions that are the segregating contrary to the synthetic capacity of exchange. For this purpose we have to pursue the segregation right into the subjectivity of the exchanging owners. Commodity exchange impels solipsism. Solipsism, the doctrine that one's consciousness (i.e. self) can exist as only a philosophical formulation of the regulative principle of exchange. What the commodity owners do in an exchange relation is practical solipsism irrespective of what they think and say about it. The practical solipsism of commodity-exchanging owners is nothing but the practice of private property as a basis of social relations. And private property is a basis of social relations not by the choice of people but by the material necessity of the stage of development of their productive forces.

Essentially, commodity exchange is, as Marx says, a relation between strangers (ein Verhältnis wechselseitiger Fremdheit); it opposes people to each other as strangers. All that matters in it is that, in the end, two commodities change hands between their owners. The outcome is a change of ownership, a change in the commodities, not materially, but an equally factual one, in their social status as owned property. Commodities cannot do this, it is the commodities change hands? In what form, precisely, are commodities exchangeable between separate owners?

(c) The Form of Exchangeability of Commodities

Commodities are exchangeable between their private owners precisely in the capacity in which they are the objects of a mutual exclusive ownership on the part of their owners. This capacity should, plainly, be the one that makes it impossible for a commodity to be owned simultaneously by two people independently of their ownership. The answer seems too simple and too trite to put down on paper: it is that every commodity is one as against the rivaling claims of two owners wanting to own it.

However, we have to be careful how we define this oneness. Is it really the commodity that is one? The feature in question does not, of course, require the indivisibility of the commodity body. Goods traded as materials, for instance, are divisible down to any fraction of a quantity. The reason why a given object cannot be separately owned by different people has nothing to do with the nature of the object; it is neither its physical oneness or indivisibility nor
its uniqueness in kind, its irreplaceability. If we probe into the matter with sufficient care it is not difficult to see that it is not the nature of the commodities at all that is important, but the uniqueness of their existence - the fact that the commodity is not, like its use-value, the exclusive property of a solipsistic self, but belongs to a single world which is common to all the private selves. Although the perception of a thing is as multiple as the people perceiving it, its existence is one. If the existence of an object were divisible, the object could not be owned simultaneously by separate owners. Each owner could not only experience the world as his 'private datum' but own it as his exclusive property. Everybody could own the world as Robinson Crusoe does his island, and then there would not in the least be recognisable in its origin. Our analysis is concerned with the necessary formal structure which makes commodity exchange the social inter-relationship that is.

The form of exchangeability of commodities has its paramount importance in the socially synthetic function it imparts to commodity exchange. At the state of development where commodities become the dominating form of the social nexus - a stage first reached in Ionia in the 7th century BC - the form of exchangeability is given separate expression in the shape of coined money. The one essence of existence that is part of its functional properties conveys to the institution of money its essential unity. There can be only one money in the world. There can be many currencies, of course, but so long as these do effective monetary service within their own orbit, they must be interchangeable at definite rates.

(d) The Postulate of Equality in Exchange

The form of exchangeability of the commodities is not the whole exchange abstraction but only one element of it, which constitutes the postulate of the exchange equation and which I shall call 'the pattern of the exchange abstraction'.

Exchange contains a postulate of the equality of the commodities that are exchanged. One could ask: How do we have to define this equality? The equality is not the identity of the commodities since different commodities are exchanged for each other. Nor are they equal in the evaluation of the exchanging agents, as it would reduce their action to an absurdity if they did not see an advantage to themselves in performing it. Moreover, evaluations are comparable only within one person's consciousness, between persons they are incomparable. But the essence of this postulate of equality in exchange is precisely that it cuts across the gap of experience that separates the owning owners. The postulate of equality in exchange does not spring from their experience at all. It attaches to the peculiar inter-relation between them and is not based on any measure applicable to the commodities as such. It is the act of exchange which, by the fact of its performance, so to speak, equates the two lots of different things. The act results from a barter in which each of the agents haggles for 'more' to take and 'less' to give. True, commodities are traded in lots measured in dimensional qualities of tons or gallons or acres etc. But the comparatives of 'more' and 'less' in the act of exchange do not imply a quantitative comparison between, say, tons of coal and reams of paper, or of acres of land and yards of linen. The inter-relational equation posited by an act of exchange leaves all dimensional measurements behind and establishes a sphere of measurement without cardinal numbers, with nothing to define it but the relation of greater than (?) or smaller than (<) or equal to (=) some other qua•ity as such. In other words, the postulate of equality in exchange abstracts quantity in a manner which constitutes the foundation of free mathematical reasoning.

The contradiction between the postulated equality and the empirical difference of the commodities is such that it could not be handled without the invention of the term 'value' so that the equality can be denoted as 'equivalence' related to exchange. But 'value' does not create the equality, it only applies to its post festum. The term by itself, as value in exchange, has no thought content of its own, no definable logical substance. It simply articulates social relations uniformly by quantitative differentiation of things according to the facts of exchange.

The 'pattern of the exchange abstraction' describes the act of exchange as such, that is, of the action of transfer of the commodities between their owners as a result of an agreement to exchange. It was stressed earlier that the exchange abstraction springs from the fact that the action of exchange effects a change only of the social status of the commodities as owned property and postulates that, while it lasts (and even while it is being negotiated), the material status of the commodities remains unaltered. The pattern of the act of exchange is therefore describable in these terms: abstract movement through abstract (and continuous) time and space of abstract substances which thereby experience material change and allow for none but quantitative differentiation (which makes the pattern amenable to mathematical treatment). It is not difficult to recognise in this pattern the foundations of mechanistic thinking, whether it take the shape of conceptual constructions of the universe as a whole, as, for instance, in Descartes but also in Democritus, or whether it serves to define the minimum physical event as in Galileo's and Newton's principle of inertia or 'first law of motion'.

On the other hand, if, in the formulation of the 'pattern', we replace the words 'abstract substances' by 'pieces of money' (i.e. coins, or notes, or cheques), we obtain a description of transactions of exchange, that is, of part or all of the circulation of money in an exchange society. In this altered version, the pattern is the exchange abstraction, that is, a formally synthetic function, whereby acts of exchange form the chain of a social nexus uncontrolled by its participants and ruled by economic law. If we now ask the question of the two postulates of the 'pattern' the correct one in terms of the analysis of the exchange abstraction, the answer must be: the first one, of course. The exchange abstraction is the result of action and its reference is to action. The exchange abstraction must be incorporated in things, and, if given separate representation, the representation takes the shape of coins or notes of money. But the formal analysis of the abstraction contains no reference to 'coins', not even to the term 'value'. On the other hand, the things that become the carriers of the exchange abstraction, and of its socially synthetic function, thereby acquire that peculiar quality to which Marx gave the overall name of the 'fetish character'.

To avoid confusion, a reminder is perhaps required at this point on the fact that we are not concerned here with the analysis of thought and thought processes in philosophy or science, but purely with an analysis of commodity exchange. In the course of this analysis we have found commodity exchange to possess an abstractive force and to contain forms which have always been believed by the philosophers to be the exclusive prerogative of thought, or of that ill-defined mental faculty called 'reason'. Thus we have confirmed the surmise, voiced earlier, that this analysis would carry 'far-reaching epistem-
logical significance'. The significance is that a close analysis of commodity exchange, with regard to its socially synthetic capacity, lends reality to the Kantian speculation of a 'transcendental synthesis a priori'. But instead of proving that this synthesis is a property of the mind and thereby implying the timeless necessity of a division between head and hand, we find that 'the transcendental synthesis' has the historical, spatio-temporal reality of the social exchange process. In other words, it is the 'commodity abstraction' discovered by Marx. Far from proving the normalcy of bourgeois society, the realisation that the nature of the 'transcendental synthesis' opens up the perspective of a future historical liquidation of the division of head and hand and of the social class divisions which it involves.

3 Independent intellectual labour

The truth which our discussion has so far served to establish is that the exchange abstraction is not thought, but has the form of thought. This statement holds equally for intellectual labour as divided from, and independent of, manual labour. The forms which make up the conceptual equipment of the theoretical intellect are not derivative, not superstructural; they are an integral part of the social base in the Marxian sense of this term. They are the constituents of the commodity form. They are a priori principles in a truer and more distinctive sense than the one understood even by Kant himself who, after all, attributes their source only to the mind. They are in the nature of principles because of the normative character they derive from the fact that they answer to postulates; the postulates of exchangeability, of the exchange equation, of the material immanence of commodities in exchange. None of these are facts, all of them are non-empirical. How then can they be principles of knowledge and carry objective validity? How can they, in other words, serve as the logical basis of intellectual labour as divided from manual labour?

The terms of the exchange abstraction are readily intelligible to people engaged in exchange. But they are not intelligible to my dog, when I take with me when I go to the butcher. He is very knowledgeable about his master and his habits, about the accent of everybody around him, about the use of meat, besides other important things. But the sense of the exchange abstraction and of the things I hand to the butcher before we can go home with the meat, escapes him. These terms spring from social reality, are of the human mind only. How can they be of use, then, in regard to the world as known to my dog, the world of nature which is also mine?

First of all, to what extent are these terms creations of the exchange abstraction and to what extent are they not? To start with the 'pattern'; movement as such, time and space, and that which corresponds to the notion of 'substance' are not by exchange. They are elementary features of nature. All that the exchange abstraction does is what its name says, it abstracts them. The same goes for the concept of exclusion. The only exception is the postulate of equation and the logic of free mathematical reasoning.

The explanation of the objective validity of the term of the exchange abstraction as the epistemological basis of science lies in the paradoxical fact that an action of purely social, non-physical significance (into which Nature does not enter) is itself a physical event. Exchange and use exclude one another in place and time because (i) exchange concerns the social status, not the material nature of the commodities, and because (ii) both actions are on a par as regards their reality as physical, spatio-temporal events. Thus the physical reality of the act of purchase is a very peculiar one. While it is undoubtedly a physical, spatio-temporal event, the 'physi' of the event is one of purely social make, devoid of sense reality and strictly unmeasurable to mathematical treatment. It occurs in emphatic exclusion of any natural event in the nature of the objects, structured though it is in its elementary features. Seen as a physical event, it can only be described as the absolute minimum or the abstract residue of what it is a physical event, since it occurs as a physical event in the absence of physical change, as part of a purely social physi as against natural physi, as Nature in the abstract against Nature in the concrete. Nature in pure thought which in the human mind - the mind of a Greek philosopher, or of a mediaeval universalist, or of a Galilean scientist - encounters real Nature, the Nature of sense reality, and does so in complete adequacy of the basic terms. These terms bear no trace of any historical or geographical specificity, show nothing but timeless universality, yet they are found only in the mind of a citizen of a society based on commodity production. To such a mind the world is - as an epistemological potentiality - objectively knowable in mathematical terms in conformity with the exchange abstraction, and more precisely, in conformity with what we called 'the pattern of the exchange abstraction' which, in the seventeenth century, found definition as inertial notion.

The division between intellectual and manual labour is tied up with the contrast between socialised mental labour and individual manual labour. By his specialised thinking intellect becomes a superstructural, a plenipotentiary of society. His individual work is done for the whole of society. It has universality. The manual worker cannot do likewise. His labour is individual in its scope as well as in its performance. If a manual task is of more than individual scope, say, the building of an irrigation dam in ancient Egypt, or of a temple on the Acropolis, or of an Austin Mini at Longbridge, it must be done by an association of workers co-operating in numbers. But any odd individual doing intellectual work of universal style can rise to the comic-opera confrontation of Man face to face with Nature, to the tune of traditional epistemology.

What then, is the root of these fetichistic concepts of the 'subject of cognition', the 'universal', the 'mind', of 'Nature' from which man withdraws himself so as to make it the pure 'object world', and other concepts of this kind that provide the furniture of the world inhabited by pure intellects? The explanation lies in the fact, which we repeat, that the categories of the independent intellect are the socially synthetic functions by which a commodity-producing society forms a social collective. Therefore, any individual who thinks in these terms, thinks for society, and only for this reason is his thinking endowed with intellectual independence and rationality. But the independent intellect does so by its very nature on this background. It only presents itself without its background: it is, by its root, cut off from its root.

The forms in which the exchange abstraction offers to consciousness for reflection are in the shape of pure universals of the highest possible grade of abstraction. Together with the entire empirical reality of use, all trace of their origin is effaced from these universals. They bear no mark of any particular place, no sign of a particular time. Nor is an awareness of the root of the abstraction possible at its point of origin, i.e., in the practice of exchange, where people are, and must be, absorbed with their existential issues.

Thus it is an accurate description to say that the independent intellect is cut off from its root, at the root, and by its very nature. What the thinkers then seek by way of explanation of the forms they contemplate, has always already happened behind their backs. And they cannot step out of their light to see it. What they reap as a result is the curse of the insoluble dichotomies of philosophical thinking. The ideology of thinking is torn from the reality of the phenomena to which it refers, the norm from the fact, essence from existence, the mind from the body, etc.
of which independent intellectual labour is founded, are the direct ones of the commodity form itself, the other of these forms arises, when, and where such consciousness arises is a matter for historical enquiries to explore and lies outside the scope of this article.\(^9\) We are here exclusively concerned with the linking of intellectual labour which show similarities as well as differences compared with the independent intellect subsequently arising in ancient Greece, similarities and differences that must be correlated with the similarities and differences in the formal structures of appropriation (one-sided as against reciprocal in parts) and its socially synthetic function (partial as against total). Only iron-age technology allowed for the break-up of primary production and the possibility of a social unity of head and hand and for the social nexus finally based totally on reciprocal appropriation. Here, as we have seen, we have the birth of a monetary economy and the independent intellect.

European history proper begins with individual production and with the producers losing in possession society and classless society is understood in terms of the relationship of head and hand, their division or their unity. Nevertheless, different and separate from the labour process of production, we have of necessity a division between intellectual and manual labour. Where those two processes are one, where the essential character and independence from manual labour it is his own. Where the kind of work is done by slaves, as it was in antiquity, the unity of head and hand may have to rely on another person designing and directing the work. This does not make for a division of head and hand, but for a division between art and production, again as in antiquity.

...
of their instruments and basic conditions of production, therefore with peasant and artisan production based on an individual unity of head and hand. But superimposed on this, and based on nominal property in land, was the feudal order of appropriation which, as Marx convincingly argued, had to be unilateral, and based on political, not economic, coercion. This feudal nexus makes for the intellectual activity of scholars and literatiere within the ruling classes (consisting entirely of non-producers) and divided, not from manual labour, but from the producing classes. Out of the feudal order grew in time an astounding expansion of international as well as local commerce, with results which in less than two centuries had entirely changed the existing practice of production. By the tasks now facing them, the individual producers were not only outclassed economically, but also non-plussed intellectually. At the level of the individual unity of head and hand, there could be no solution of the problems involved in the technique and effects of fire-arms, in the rebuilding of towns and harbours, the re-casting of mines and arsenals, etc etc. Brunelleschi, the craftsman-architect, consulting the scholar and mathematician Toscanelli (on problems relating to the construction of the cathedral dome in Florence early in the 15th century) bridged the medieval gap between producers and scholars and with it, pari passu, opened up a new gap within production itself. Two hundred years later, in the achievements of Galileo, the process of transition, which had led by way of the rise and flowering of Renaissance art, was in essence completed. With the foundation of the mathematical and experimental method of modern science the modern bourgeois division between intellectual and manual labour had come into being.

Classical physics - if by this name we designate Galilean/Newtonian science - supplies exact knowledge of recurrent events in social terms, terms that is, reaching far beyond the organic limitations of man's physical capacities. It is formulated in abstract, mathematical concepts going beyond all sense perception. When it was founded in the first third of the 17th century, it answered questions which transcended the individual unity of head and hand - questions which Leonardo, Piero della Francesca, Dürer, among others, had groped for - and it contained potential answers to questions which were as yet far from being asked. For production was then only beginning to be capitalist, only beginning, that is, to be on a social scale, employing human labour in a co-operative form. But there is no intermediate scale of logic between the individual unity of head and hand and the social, i.e. 'universal', logic of abstract quantifying science, except the practical experiment- ing of artists and craftsmen turned (pre-scientific) engineers. This practical empirical science was sufficient for solving most technological problems of capitalist production for a further two hundred years. Not until the end of the last century did capitalist industry achieve a sufficient scale of socialisation of labour in its productive processes to enable it to utilise the services which modern science was capable of providing. However, where will progress in the socialisation of labour lead mankind? Could it reach a stage where it would be on a level with the universality of science, that is, the universality of the socialised intellect which has hitherto had to be divided from manual labour into too low a scale? This would open the prospect of a disappearance of the division between intellectual and manual labour because they could (potentially) be united on a common social scale, the scale of potential universal man which loomed in the vision of the early Marx as he tried to fathom the meaning of communism. At the time this was perhaps utopian. But if our analyses in the foregoing pages have any worth, they afford us a definition of the underlying material pre-requisite of communism: It is a structure of production such that it yields the principles of a social nexus. A case can be made that such a structure of production is in existence now.

NOTES

1 A revised and much expanded version of the argument of this essay can be found in the author's recently published book Geistige und Körperliche Arbeit.


3 'In stark contrast to the palpable materiality of the commodities as physical bodies not an atom of Nature enters into their composition as values' (my translation, S-H). Marx, Capital, 7, p14, (Marx-Engels Werke)

4 'Motion is the mode of existence of matter. Never anywhere has there been matter without motion, nor can there be. Motion in cosmic space, mechanical motion of smaller masses on the celestial bodies, the vibration of molecules as heat or as electrical or magnetic currents, chemical disintegration and combination, organic life - at each given moment each individual atom of matter in the world is in one or other of these forms of motion, or 'several forms of them at once.' (F Engels, Anti-Dühring, Moscow 1969, p75)

5 Kant defined Nature as 'the existence of things in accordance with laws' (natural laws); the blind necessity reigning in a fully-fledged exchange society (which can only be a capitalist one) could be defined as the existence of human subjects in accordance with laws (economic laws).

6 The fact that the a priori categories of science are by origin the socially synthetic functions of commodity exchange must not be misunderstood as meaning that there is any parallelism operating between science and the economy. The use made of these categories in science has nothing to do with the economy, either logically or methodologically. The development of science follows its own independent principles, even though the economy throws up many, if not most, of the tasks which the scientists are engaged in solving. The categories of the economy and the categories of science have no term in common; they are totally disparate. A businessman knows iron by its price, a scientist by its atomic weight. The activities of the one are not translatable into the occupations of the other. This logical inconvertibility of economics and science is part and parcel of the constitutive blindness of commodity producing societies, societies of appropriation.

7 B. Hessen in 'The social and economic roots of Newton's Principia' (Science at the Crossroads, International Congress of the History of Science and Technology 1911, 2nd edition Frank Cass London 1971), Stephen F. Mason in 'Some historical roots of the scientific revolution' (Science and Society Summer 1950), and others have tried to associate the rise of scientific mechanics in the 17th century with the occupation of that age with problems of transportation, on land and on sea. Theirs are the most interesting studies for the wealth of factual analyses they bring to bear on the subject, but their explanatory intentions I regard as misconceived. In itself transportation is no more abstract a physical activity than any other
economic practice. What gave its peculiar abstract connotation to it in that particular age was its significance it assumed of transpor-
tation of commodities and commodity values (and not, say, of tithe). This aspect, however, is overlooked by most historians of science.
They do not give sufficient attention to the social production relations as the determinants of forms of thought. It is an illusion to think that concepts can grow out of physical activities or out of mechanisms. After all, it is science that helps to build machines, rather than the machines hatching out science, even mechanistic science. Mechanistic thinking flows from the exchange abstraction and extends to classical antiquity, which had little to do with machine construction. But this common basis of mechanistic thinking allows for vast differences in significance and specific forms of thinking. Under conditions of slave labour mechanistic thought was not required for the sake of production, but there was necessity for it in the class struggle of the money owning and slave-
holding class. It was part of their claim to rule, that they were the class of the independent intellect.

8 Some of these dichotomies, such as thinking and being, mind and matter, immediacy and transcendent-
ence, still linger in our contemporary materialist thinking as, for instance, in the theories of reflexion.

9 A brief sketch of the link can be found in my article 'Historical Materialist Theory of Knowledge' in Marxism Today, April 1965, p.120. But the pioneer work on the historical genesis of ancient philosophy on a Marxist foundation as understood in terms of this article in George Thomon's book The First Philosophers, London 1955. In a way, my analyses of the commodity abstraction can be regarded as the systematic complement to his historical approach (cf.l.c.p. 301).

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10 One of the most searching attempts known to me at such understanding is Jean-Toussaint Desanti's study of the philosophy of Spinoza in his Introduction à l'Histoire de la Philosophie (Paris 1956) where he shows the vital connec-
tion of this philosophy with the role of the Bank of Amsterdam and of the party of de Witt in the 1660s and '70s. At the same time, this study also illustrates the frustrating limitations to which such undertakings must be subject in the absence of the systematic re-establishment of the essential categories.

11 c.f. Marxism Today, April 1965. It should be noticed that the order of things in our deduction in these pages is roughly the reverse from Hegel's. The formalism of the subject, with which we end, is Hegel's starting point and the social epoch, from which we start, is the idealised ending of Hegel's Philosophy of History. This reversal is a true expression of Marx's 'turning right side up' of the Hegelian dialectic. The systematic sequence of derivation which we have tried to establish, linking the oneness of the world (in existence) via the oneness of money to the logical unity of rational thinking, suggests a natural explanation by means of historical materialism. Here, again, Hegel has the reverse: that Logic becomes Nature.

12 Capital III, p.917ff.

13 See Marx on these organic limitations in Capital I, pp.318 and 369.

14 'The simultaneous employment of a large number of wage-labourers in one and the same process ... forms the starting point of capitalist production ... Co-operation ever constitutes the fundamental form of the capitalist mode of production.' Marx, Capital I, p.326.