

## EDITORIAL

This is the first issue of *Capital and Class*, the new *Bulletin of the Conference of Socialist Economists*. The new format means that we can more than halve its price, and so increase circulation by making it available on public sale as well as on subscription. The new title reflects the widening interests of the CSE. When it began in 1970, the CSE was envisaged (quite correctly) as a forum for developing the Marxist critique of bourgeois economics then under way. Now, five years later, the internal debate among economists has given way to a wider discussion - the beginnings of the materialist analysis of capitalism as a whole.

Through *Capital and Class* we want to develop our understanding of capital, not just by giving a wider *circulation* to papers we think are interesting, but by stimulating the *production* of collective, international work, as part of an ongoing debate. There is already a basis for this in the established work of the CSE: the annual conference, the network of regional groups and groups working on specific topics, organising day-schools and circulating papers. We have a large number of overseas members, and links have been set up with friendly organisations and journals abroad. Building on this basis, we have invited representatives of CSE groups here and of groups with similar aims both here and abroad, to join the Editorial Board. As well as realaying ideas and guidelines to the smaller Editorial Committee which does the day to day work on *Capital and Class*, we hope that this Board will itself enable us to generate the collective and international production of theory that is now our aim.

We believe that theory cannot be short-circuited in the socialist movement. And again it is found that struggles around concrete issues, - housing, under-development, housework, state expenditure cuts - have deep implications at the

most abstract level. Differences at this level are reflected in differences in concrete analysis and political line. But this does not mean that we can find the 'correct' position on value, say, and then simply read off solutions to concrete political problems. What it does mean is that abstract understanding must be confronted with everyday events, and a concrete analysis developed from this confrontation. Our commitment to theory, then, includes the analysis of particular concrete situations and issues, as well as abstract theory. It is the collective production of this kind of analysis that should enable us in future to make our work of much more immediate relevance to the labour movement, and to the struggles against sexism and racism.

This issue begins with three papers produced for the CSE conference on the Labour Process in July 1976. All are concerned, in different ways, with questions of capitalist control over workers in the process of commodity production. The article by the Brighton CSE Labour Process Group considers, at an abstract level, how the production of use-values is transformed into an adequate material basis for the self-expansion of capital through the development of a specifically capitalist labour process. Friedman, disagreeing on several points with the Brighton group, discusses the effect of worker resistance on capitalist management strategies. Summerfield, in a historical analysis, examines sexism in the labour process and the relation between discipline in the labour process and family responsibilities outside.

We also publish three contributions from abroad. Rakowski's iconoclastic survey, from the inside, of Soviet and Eastern European societies merits a wider audience in the English-speaking countries. It contends that, while *radical* opposition within these societies can only be sustained from marxist perspective, the traditional categories of marxist analysis are of no use. The article by the Dutch marxist, Anton Pannekoek, was first published in 1934, yet its political and theoretical relevance remains undiminished in the current crisis. In limpid style, Pannekoek presents a powerful critique of the influential theories of capitalist breakdown of Luxemburg and Grossmann. The third, by Tortajada, attempts to recast the terms of the debate on the reduction of complex to simple labour, begun in the CSE *Bulletin* by Bob Rowthorn and Alessandrio Roncaglia. This debate has wide implications, both for the use of Sraffa-type models to analyse the capitalist mode of production, and for the concept of value.

## THE CAPITALIST LABOUR PROCESS

*"Just as commodities are, at the same time, use values and values, so the process of producing them must be a labour process, and at the same time, a process of creating value". (Marx, Capital, I, p. 181).*

### INTRODUCTION

The ultimate material basis of politics in the capitalist mode of production is in the dual dominance of capital over labour: in the form of ownership of the means of production on the one hand, and the form of real control over the process of production on the other. Or, as it is sometimes put, in the appropriation by capital of the product and of nature. This dominance is never definitively established once and for all. The very movement of capital accumulation, (which changes labour markets, labour processes, geographical distribution of production, products new conditions of ideological and political class struggle, and so on), ensures that this dual dominance is always having to be re-established in new conditions. Its reproduction is a process which is conducted by class struggle, and to each form of dominance there corresponds a specific terrain of class struggle.

Until recently Marxist analysis of the dominance of capital has been remarkably one-sided. It has concentrated on capital's appropriation of the product, analysing the contradictions of capitalism at the level of value, while neglecting capital's appropriation of nature, the level of use values. The recent interest in the labour process, (e.g. Braverman, Gorz) is clearly a major step forward, but in our view further progress depends on the development of an adequate theory of the *capitalist* labour process, through which capital appropriates nature.

In order to develop such a theory we believe that it is essential to go back to basic theoretical concepts and to elaborate their content as clearly and as rigorously as possible. The present paper is clearly no more than a small step in

this direction, with the limited aim of defining the inherent structural relations between labour and capital with the capitalist labour process (CLP). It is a necessary first step towards other aims, aims which we do not pursue here. We do not deal with labour processes which are not *directly* under the determination of the law of value (e.g. in education, in medicine); and we do not deal with labour processes which do not *directly* rest on wage-labour (e.g. domestic labour processes of reproduction of labour power). It is also important to note that our analyses are not concrete. We do not deal with the concrete development of labour processes historically in different branches of industry, but only with the underlying limits, tendencies and forces within which these developments take place. And our analyses are not conjunctural. But we do claim that the concepts developed here are essential to any such concrete analyses, whether our interests and purposes be primarily historical or political or both. This abstract theoretical work matters. It matters because it adds to our power to grasp the concrete - concrete developments in the CLP, concrete conjunctures. It thereby adds to our power to understand and to intervene in *class struggles*.

## 1. THE LABOUR PROCESS AND THE RELATIONS OF PRODUCTION

*Capitalist production is both a labour process, "human action with a view to the production of use-values", (Marx, Capital, I, p. 179) and a process of the production of self-expanding value, of valorisation. In every society there have to be labour processes, but valorisation is a process specific to capitalism. It means that capitalism is a social system in which a given quantity of abstract socially necessary labour time (value) has the property of being able to activate and socialise yet more labour time, and thus create additional, surplus, value.*

The production process of capital in its fully developed form takes place within two sets of capitalist relations of production. On the one hand there are the relations of production in the sphere of exchange (Marx sometimes calls them "economic relations"). Capital in the form of money can buy the commodities that it needs to assemble in order to initiate the production process; this implies there are available on the market means of production and labour power as commodities. The relations of production involved here ("free labour", wages, exchange value etc.) were historically developed long before the appearance of the capitalist relations of production in the sphere of production itself. These exchange relations are themselves reproduced by the production process in that the product takes the form of commodities which must be exchanged for money (e.g. by the "free labour" which has no other access to means of subsistence) in order for the circuit to recommence. However, for the generalisation of these "economic" relations of production and for their expansive reproduction there must *also* have been developed the relations of production within production. The latter are the various aspects of the control of the labour process by capital. In order that the capitalist mode of production be hegemonic, capital must establish its own specific form of control over labour within production; i.e. it must develop specific forms of coercion.

Whereas the existence of labour power as a commodity implies the *separation* of labour from the means of production, the labour process brings them back together again.

"(In the labour process) labour re-establishes its union with the objective conditions which are the matter and organs of its creative activity. The hide tanned by the worker is treated by him simply as the object of his productive activity and not as capital. It is not the capitalist's hide he tans". (Marx, *Un chapitre inédit du Capital*, p. 171, cf. *Capital I*, Penguin, p. 1007).<sup>2</sup>

But now they are together on terms that are set by capital and in order to pursue the objectives of capital. Capital assembles means of production and labour power and sets them to work, but it does so in a way that is determined by the objective of valorisation, of maximising surplus-value production and as far as possible eliminates all other potentially conflicting objectives. Capital *needs* real control of the labour process precisely because the formal separation of labour from the means of production is cancelled in reality by the material form of labour process in which labour and materials and instruments combine. Capital needs to have control over the form of this combination, because whatever the instruments and materials (e.g. whatever the technology) there is always more than one way of effecting the combination and there is always the possibility of the process being informed by some objective other than that of valorisation and potentially in conflict with it, (e.g. the objective of healthy and safe working conditions, or of a socially useful product). The unity of the process of valorisation and the labour process in capitalist production is not simply to be grasped in terms of exploitation. Exploitation requires sufficient control over the amount of work done, and the length of the working day, to ensure that the workers produce a value greater than the value of their labour power. But unless there is a specific historical development of an adequate objective and subjective basis in the labour process itself, in the material, technical and social organisation of the labour process, there will be a *non-correspondence* between the relations of production at the level of value and the relations of production at the level of use values. There will be a non-identity between formal, judicial economic subjects and material economic subjects. Marx talks about there being a *conflict* between economic relations and relations within the labour process; and about the material and social form of the labour process not allowing the "capitalist relation to be realised in an adequate manner, (Marx, *Un Chapitre inédit du Capital*, p. 222. *Capital I*, Penguin p. 1037). A development of the labour process is necessary so that

"this foundation of the material form constitutes the basis for the development of capitalist relations, which require therefore a definite level of development of the

productive forces in order to take on their adequate form ...

*Use-value*: here capital must conform to the nature of the labour process. But it is precisely here that labour does not merely belong to and become incorporated with materials and means of labour, but, also *social combinations* of labour and the corresponding development of the means of labour". (Marx, *Un chapitre medité du Capital*, pp. 222-252, *Capital I*, Penguin pp. 1037, 1056).

It is important to note here that when Marx talks of the development of the productive forces he explicitly does not refer solely to the development of the *technical* basis of production. The development of the productive forces that is the basis for the real subordination of labour to capital is a development of both the objective conditions of labour, and of the social combinations of labour. The capitalist labour process cannot be specified on the basis of its technological components. But also note that it cannot be specified on the basis of the relation established within it between the *individual worker* and the instruments of production. It can only be specified as a *particular form of social organisation of labour*, a form which is a specific form of coercion and the realisation on an adequate basis of the objective of valorisation.

Thus it is not simply a matter of capital specifying the length of the working day, and the amount of work to be done. The real labour process' itself must be transformed into a specifically *capitalist* labour process, the inner structure of which expresses the objective of valorisation without mediation.

"The process of production is the *immediate* unity of the labour process and the process of valorisation, just as its immediate result - the commodity - is the *immediate* unity of use-value and exchange-value". (Marx, *Un chapitre medité du Capital*, p. 145, *Capital I*, Penguin p. 991)

*So the capitalist labour process is the unity of the processes of valorisation and the real labour process on the adequate basis of a specific form of social organisation of labour.*

We shall now discuss just what this involves and how it is realised in concrete labour processes.

## 2. FORMAL SUBORDINATION

When the labour process is only formally subordinated to capital there is production of surplus value and its appropriation, but the objective and subjective conditions of labour are such as to provide a material basis for continual resistance to the imposition of valorisation as the unique objective of the production process. Real control of production is not yet firmly in the hands of capital. There is still a relationship between labour and the conditions of

labour within production which provide labour with a degree of control and hence with a lever with which to enforce its class objectives which may, of course, be different from those of the fully developed proletarian labour of the mature capitalist mode of production. They may be objectives of artisanal labour, craft prerogatives over recruitment into the trades and over the content and performance of work, and so on.

This kind of non-correspondence was general in the historical period in which simple cooperation was still the dominant form of the social organisation of the labour process; but it survives to some extent in social formations in which the mature capitalist mode of production is dominant (for example in parts of the construction industry). It can even reappear within brand new spheres of production in the fully developed CMP. Consider for example Michael Chanan's analysis of the labour process in the production of film: he identifies as the principle contradiction of film production for capital precisely this non-correspondence between the objective of valorisation and the basis of production in specific skills which tend to be beyond the reach of the rigours of capitalist control (Chanan, 1976).

The forms which constitute the basis of formal subordination are: wage-labour (labour with no access to the means of subsistence except via sale of labour-power); means of production in the form of commodities; means of subsistence in the form of commodities; the product, in the form of commodities.

Note that although this subordination is *formal* it nonetheless *is* a form of subordination, of *compulsion*. The forms of coercion in precapitalist modes of production were directly political and social. In the transitional phase (and the existence of formal without real subordination is a *definition* of a phase as transitional - cf. Bettelheim on transition to socialism, (Bettelheim, 1975)) compulsion takes for the first time an *economic* form - the compulsion to sell labour-power in order to live. This economic power of capital over labour allows capital, even on the basis of unchanged technical means and methods of production, to coerce from labour a degree of intensity, duration and continuity of production quite unlike that to be found in the previous forms of production (independent artisan, peasant farming), i.e. it allows capital to extract absolute surplus value. It also allows, in fact even necessitates, an increased *scale* of production. This increased scale is, says Marx, the real basis on which the specifically capitalist mode of production develops as soon as the historical conditions are favourable.

The importance of this analysis of formal subordination, its power to clarify and organise historical investigation can be very well illustrated by reference to the widely read paper by Stephen Marglin, "What do bosses do?: The origins and functions of hierarchy in capitalist production". It is a very good example of the unnecessary confusion that can be produced by the absence of Marx's theoretical concepts. Marglin very usefully documents the development of factory discipline and supervision under capital *prior to* the development of machine-based production. It shows how the class struggle waged by capital to impose its dominance on labour constituted the development of capitalist

relations of production before the development of those forces of production associated with manufacture. (On the importance of this argument about the link between the relations and the forces of production in the establishment of a mode of production see the comment below on the "Scientific and Technological Revolution"). Unfortunately, however, Marglin does not work with the marxist concepts which we use in this paper and which would have enabled him to grasp this historical phase theoretically (specifically the concepts of formal subordination, absolute surplus-value, labour power, labour time, forces and relations of production). His thesis, with which we agree, is that hierarchical organisation of work was imposed on labour not by technological innovations (as is argued by most bourgeois historians of "the industrial revolution") but by capital and its need to accumulate. But this position is based on the argument that supervision and discipline, while reducing costs, did not increase technical *efficiency*, as if capital could be "motivated" *either* by accumulation *or* by technical efficiency, but not both. This conceptualisation effectively prevents Marglin from being able to contribute anything to the analysis of the general tendency, in the CMP, to the *continual revolutionising* of the instruments and social organisation of production, a tendency in which "efficiency" in some sense clearly plays a part. The whole problem, however lies in being able to provide an adequate concept here. Marx's analysis is that formal subordination resulted, among other things, in an increased *intensity of labour*. Thus even though there was no decrease in the absolute amount of concrete labour required for the production of a given commodity, there was nevertheless a decrease in the amount of *labour power* that had to be bought in order for this commodity to be produced. The prosority of the working day was decreased; the labour time for the production of a unit commodity decreased as a proportion of the working day; necessary labour time decreased; and absolute surplus-value increased. The labour process was, therefore, more efficient *as a process of valorisation*, and only this concept of efficiency can make sense of the aims of capital *both* in the period of formal subordination *and* in the period of revoutionised forces of production and real subordination.

Formal subordination is a specifically capitalist organisation of the social forms of compulsion, and this change in the organisation of material production forms the basis on which develops the specifically capitalist mode of production (the forces of production and the capitalist relations of production). It is worth emphasising these points by quoting at length from Marx's exposition of them in a chapter which he originally intended to place at the end of Vol. 1 of *Capital*, but which remained until very recently unavailable in English.

"I call *formal subordination of labour to capital* the form which is based on absolute surplus-value, because it is distinguishable only *formally* from the anterior modes of production on the basis of which it spontaneously springs up (or is introduced) . . .

The only thing that changes is the form of *coercion*, or the method employed to extract surplus labour. Formal *subordination* is essentially:

1. the purely monetary relation between the appropriator and the supplier of surplus labour. Subordination is a consequence of the *specific content* of the sale and is not anterior to it as it is when the producer is in some relation other than the monetary one (i.e. other than a relation between possessors of commodities) to the exploiter of his labour; for example by virtue of a relation of political coercion. The seller is only in a relation of economic dependence on the buyer because the latter owns the conditions of labour: it is no longer a fixed political and social relation which subjects labour to capital.

2. the fact that the *objective conditions of labour* (means of production) and the *subjective conditions* of labour (means of subsistence) confront labour as capital and are monopolised by the buyer of labour-power: it is from this that the first point follows, because if it were not for this the worker would have no need to sell his labour power. . .

At the beginning there is no innovation in the mode of production itself: the *labour process* is carried out exactly as before except that it is now subordinated to capital. Nevertheless, as we have already shown, there develops in the production process: (a) an economic relation of domination and subordination; because the capitalist is henceforth the consumer of labour-power he is therefore the supervisor and organiser of it. (b) greatly increased continuity and intensity of labour, as well as a greater economy in the use of the conditions of labour, because everything is put to work in such a way that the product contains no more than the *socially necessary labour time* (and, if possible, less); . . .

On the one hand the capitalist mode of production. . . gives a different form to material production, on the other hand this change in the material form constitutes the basis for the development of capitalist relations, which thus require a specific level of development of the productive forces in order that they (capitalist relations) can find an *adequate form*". (Marx, *Un chapitre inédit du Capital*, pp. 202, 248. *Capital*, I, Penguin pp. 1025, 1035).

### 3. REAL SUBORDINATION: VALORISATION IN COMMAND

Capital must create capitalist labour process. It must have power in the very heart of production itself so that it can have a solid material basis for its overriding objective: *Valorisation in command!* This it achieves on the basis of a series of linked and mutually inter-dependent developments:

- the extraction of relative surplus value
- the employment of machinery
- the conscious application of science and technology
- the mobility and replaceability of labour, (the formation of the reserve army)
- large scale production.

These are the material bases for *new relations between capital and labour*, relations that enforce real subordination.

“Real Subordination of Labour to Capital or the Specifically Capitalist Mode of Production’ ... we have shown in detail that with the *production of relative surplus-value*, the whole of the real form of the mode of production is modified, so that we are now concerned with the *specifically capitalist* mode of production (from the point of view of technology also). It is on this basis - and solely as a consequence of it - that are developed relations of production which are in correspondence with the *capitalist process* of production, relations between the various agents of production, in particular between capitalist and wage-labourer. As the forces of production of society develop, (or the productive power of labour) they are socialised and become directly *social* (collective), as a result of cooperation, the division of labour within the workshop, the use of *machinery*, and, in general the transformations which the production process undergoes as a result of the conscious *application* of the natural sciences, of mechanics, of chemistry etc., applied with definite technological objectives, and as a result of everything that is involved in labour conducted on a *large scale*, etc.” (Marx, *Un chapitre inédit du Capital*, p. 199 *Capital*, I, Penguin, p. 1024).

In *Capital* Marx analyses the stages of this development of real subordination from simple cooperation through manufacture to machinofacture. The introduction of machinery is a culmination of this development because it allows capital to break through the limits within which, under simple cooperation and manufacture, it could effect a real command over the labour process.

But what exactly are these *new relations* between the agents of production that become possible with the use of machinery? And how exactly is it that this technical basis allows these new relations to be formed? What, in other words, is the connection between machinery and the real subordination of labour to capital? Marx’s answer involves four main concepts. (We will only be concerned with the first two of these).

1. The *real separation* of constant from variable capital, of labour from the conditions of labour.
2. The *objective organisation* of the *collective worker* replacing the subjective organisation.
3. The *fetishism* of technology/fixed capital.
4. *The reproduction of the relations of production* (the labour process becoming the site of this reproduction).

Real separation is partly a matter of scale, a consequence of the fact that

production is now large scale production and requires a certain large minimum of capital for it to be put in motion. In small scale production it was, as far as the individual labourer was concerned, an accident and not of the essence that he lacked the means of production. This is still true of some forms of manufacture. In a sweat-shop garment factory the girl (usually) who works the sewing machine could easily own such a machine herself. The scale of capitalist production based on manufacture may make it difficult for new individual capitalists to arise out of the ranks of the working class; but it does not make it impossible. There is still a certain fluidity between capital, artisanal groups, workers etc; and it is not necessary to the actual labour process itself that it be supervised by some agent of capital. Inasmuch as it is, this is a consequence of an economic compulsion and not a technical one. Capital is, from the technical point of view, redundant. On the other hand with machinofacture it is essential that there be *some* agency, over and above that of each individual worker, which assembles the means of production prior to the purchase of labour power. (*Fetishism* arises from the tendency to see it as a necessity that this agency be *capital* rather than some other transindividual economic subject). Because production is now collective, on a large scale and machine-based, capital can appropriate to itself all the functions of specification, organisation and control, and perform them independently of labour. It can therefore impose its objectives on the labour process so that labour, even when it is brought into real association with the conditions of labour, does so in an antagonistic relationship. Of course this relation of capital to labour is not a static one, but is constantly reproduced in new conditions. It is a site of constantly renewed class struggle. The dominance of capital is reproduced because capital has both the power and the necessity to continually revolutionise the forces of production. This is the "fundamental thesis" of a book by A. D. Magaline. He says:

"In the capitalist mode of production the principal site of the reproduction of the relations of production is the class struggle in production, a class struggle in which the capitalist bourgeoisie has the dominant role, and which is expressed in the continual upheaval in the technical and social organisation of the labour process, i.e. in the continual revolutionising of the forces of production. And here we can recall a thesis of the *Communist Manifesto*: the bourgeoisie, in contrast to all preceding exploiting classes, has a revolutionary basis, and its domination is based on the continual upheaval of the mode of production". (Magaline, 1975, p. 60)

Under real subordination, labour serves the machine and not the machine labour. For some, particularly skilled, workers real separation comes to this, that they *cannot* do their work except in a large-scale collective labour process which exists prior to and independently of their being brought into it by its owner/controller. Compare the man whose skill is monitoring a console in a power station with those remnants or imitators of pre-machinofacture labour such as chippies, plumbers, domestic appliance repair men and so on, who move into and out of relations with capital in ways that depend on *economic* rather

than apparently *technical* compulsion.

With machinofacture capital now has power over constant capital; it can now be designed and organised without reference to the traditional skills and crafts. The whole point of machinery is the speed with which it can effect mechanical transformations. From now on capital breaks through the limits represented by the speeds with which labour could perform these functions. Being no longer dependent on them the labour process is designed around the performance of the machine, and the worker has to perform in accordance with its needs rather than vice-versa. Capital controls this process because it can assemble all the knowledge and materials stored up in machinery, knowledge and materials which themselves develop under the sway of capital and from which labour is entirely separated.

How does capital use this real power of control to achieve valorisation? Or what is it about machinofacture that allows capital to use this power to promote valorisation to the dominant objective of the process? It is that there is now a *particular* form of collective worker. Any collective worker requires organisation and supervision. The collective worker of machinofacture allows the imposition of the authority of capital. That is because capital can monopolise the knowledge required to design and enforce the way in which each individual worker functions as an appendage to a machine, i.e. the interfaces between machine functions and labour functions; and also the integration of the various partial processes into a whole. There are two things worth emphasising here since they are often forgotten. Machinofacture transforms not only the work of each individual labourer but also their articulation into a system. In addition, the power of capital is represented not only in its power to design and organise machine systems but also in its power to enforce the labour discipline required to keep that machine system in effective (from the point of view of capital) operation. Real subordination is a matter of both the kind of instruments of labour that are employed and also the form of social combination that is imposed on labour, the realisation of the power of capital in the form of factory discipline. These are all aspects of what Marx calls the "rational" or "objective" organisation of labour (rational and objective from the point of view of capital and its aims, that is) and which he distinguishes from the "subjective" organisation to be found in manufacture.

In manufacture each worker or group of workers still has some degree of control over the content, speed, intensity, rhythm, etc. of work; and the integration, the balancing or harmonising of the collective work is still empirical. It is still worked out on the basis of observation of actual work rather than calculated beforehand on the basis of knowledge of the machine functions. Compare the job of a line supervisor in balancing an assembly line with that of a machine shop supervisor allocating and distributing jobs in his shop on the basis of information coming to him from progress chaser, production engineers, stock demands etc. What we have here is the calculability of the process based on a standardisation of machine functions, compared with the non-standardisable, merely inductively calculable progress of work in manufacture. With the development of machinofacture capital attempts to give the same *form* even to

jobs that retain a non-machine basis. Parks and gardens workers, gas fitters and other tool users are brought within a similar formal framework of standardised rates for the job, standard times for the job and so on, even though the technical basis for this is lacking because each job will confront the worker with many unpredictable non-standard contingencies. Under manufacture capital does not have the knowledge or control to rigorously impose cheapness of labour, intensity, economy of materials and so on.

*Thus the capitalist labour process is that specific form of the collective worker based on machinofacture in which capital, having a monopoly of knowledge and power over the relations between labour and the means of production, uses this power, this real domination, in order to enforce the objective of valorisation.*

#### 4. VALORISATION AND CAPITALIST MANAGEMENT

Valorisation is the objective of capitalist management. Machinofacture is the material basis which allows capital to take power over the labour process and to there translate this objective into a system of concrete production relations. It allows capital to design the labour process so as to achieve to the maximum degree possible on the basis of a given level of development:

speed of performance of tasks;

intensity in the performance of tasks (i.e. decreasing the gaps between successive operations);

maximal precision, predictability and quality of transformations being worked on the object of labour;

continuity of production (i.e. eliminate holdups, bottlenecks and risks of breakdown or disruption);

cheap labour and labour functions such that labour is easily replaceable (i.e. minimise dependence on specific and scarce labour skills);

economy of raw materials, energy, etc.

The power that capital has to pursue these objectives is in part, *but only in part*, the power of capital to select, design or develop machinery and other aspects of the technology involved in the labour process. Capital also has, and must have, the power to design and operate the social organisation of production within the enterprise. It must therefore organise not only the machines and their integration but also a system of *power relations* the function of which ultimately is to define and enforce the discipline of the labour process. In addition it must organise a system of *information* production, diffusion and processing, which will be a presupposition of the correct functioning of the machine and discipline systems. Of course this information system will itself involve the design, selection and operation of technical equipment of various kinds (telephones, typewriters, computers etc. etc.). Let us call these aspects of the labour process: (i) material transformations (ii) discipline (iii) information.

The question of whether technology is or is not neutral is now easy to answer within this limited frame of reference. Consider the production technology (responsible for material transformations). It is clearly not neutral in one sense,

since it has been chosen or designed by capital in the interests of valorisation. Since other technical solutions always exist to perform any particular material transformations, and to the extent that these might be chosen if objectives other than valorisation were taken into account (employing particular kinds of labour available locally, workers' health and safety, reducing pollution effects, or whatever) then to that extent the technology reflects the objectives of capital. On the other hand *given* a certain production technology (say an imported machine-system in China), then that very technology *can* always be used for objectives other than valorisation. The important point is to design the discipline and information systems, and the way in which labour is brought into relation with the machinery so as to advance other objectives (different *job* definitions, different division and rotation of jobs, different system of power-politics in command instead of valorisation). In this situation, of course, there may be a non-correspondence between the form of the labour process and the relations of production, which necessitates a permanent struggle in production against the effects of this non-adequate material base. But you don't have a capitalist labour process simply by virtue of having an automatic spinning jenny and self-acting mule.

Obviously this brief comment is not meant to be a solution to all the complex problems concerning the exact relationship between the development of technology and capitalist relations of production, and the extent to which technology itself actually embodies these relations in material form. It is only meant to emphasise that concretely the CLP always functions as a combination of the material instruments of production and a social organisation of power, and that the latter is not *determined* by the former. Our position is not some kind of technological determinism. The relations of production are not determined by the instruments of production. There is clearly a great deal more work to be done on the problem of the extent to which and the ways in which the detailed technological bases of production do correspond to specifically capitalist objectives and would be different if these objectives were overthrown. But such problems cannot meaningfully be raised at this abstract level. The point is not to conflate the proposition that the CLP reflects the objectives of capital (which is what we argue in this paper) with the proposition that the technology of production corresponds to those objectives. The article by Andre Gorz, "Technology, technicians and class struggle"<sup>1</sup> makes a useful contribution here, even if it is not without ambiguities. We would certainly agree with Gorz's points that "the division, specialisation and separation of jobs in industrial production" are functions not of *technical* imperatives but of the imperatives of *capital*, and that the transition to socialism will certainly require a revolutionising of the *forces* of production (and in particular of the kinds, range and distribution of skills). But concretely much material production will have to take place, in the transitional period, on the basis of given technologies and machine systems. A new generation of "socialist machinery" will not spring into existence overnight. The focus and emphasis of class struggle within production will be (as it is in China today) on the questions of organisation, control and power, i.e. on the question "Who dominates whom?".

How, concretely, does capital take such machinery and use it as the basis for its own forms of coercion? *Capital* designs the jobs to be done around the spinning machinery - the machinery doesn't do it. There doesn't *have* to be the machine operator, the assistant and the piecer, a little group of three workers with a well defined internal power and discipline structure. *Capital* integrates the work of this little group with that of other groups and other departments - the engineering department which controls the speed of the shaft which delivers the power to the spinning machine, and which also has the power to switch on and off - the despatch department where the output of the spinning team is measured and graded. This means that there is a basis for a system of payments and penalties - bonuses, and sanctions for poor quality; norms which have to be met and can only be met if the machine minder imposes a fierce discipline and intensity of labour on the piecer who even has to risk his body to get his tasks performed while the machine is in motion. (Catling, 1970, especially chapters 9-11).

In general, forcing speed, intensity and continuity of production on the workers is achieved by capital by virtue of its power to calculate and then to impose norms for job performance and rates for the job, quality standards and sanctions for failing to meet them. This means implementing systems of supervision and of payment and penalty which depend on: (i) the knowledge capital has of the objective properties and potentialities of the machine systems; (ii) the power that it has by virtue of the replaceability of labour; (iii) the information that capital has which allows it to continually operate this power (information about workers' outputs in terms of both quantity and quality). The fascinating thing is that this whole network of capitalist power and control is almost totally invisible to academic researchers into the sociology of work, job satisfaction and so on.

To consider just one example of this blindness one could look at a paper called "Job enlargement: a case study" by Biggane and Stewart. This paper examines a case in which line-organised assembly was replaced by individual bench assembly, so that the worker was no longer paced by the line. What, then, controls the worker who sits alone at his bench and works without any direct supervision? "The employee is, in effect, in business for himself; he may take personal time at his own convenience, and may accelerate or decelerate his work pace without being affected by or affecting others". In fact, of course, this worker is not "in business" at all. He is a wage earner. And if he *really* paced himself according to his own convenience (and went off to a football match when he wanted to, and worked nice and slowly so as to avoid backache, and stopped for a chat with his shop steward about how to overthrow capital) then he would immediately be forcefully reminded that it is not the job of a wage earner to take this talk of his own convenience too seriously. He would fall below the norms for the job (which were no doubt determined "objectively" by some "technical experts" without his convenience having been taken into account), and he would fail to make a decent wage, or he would be sent to some other department as a punishment or simply get the sack. He cannot afford to be blind to all this power that capital has over him, even though those who study him, of course, do

not bother to mention it. As for quality: every completed unit is put by the worker himself through an automated testing routine. If it's not up to scratch he has to do it again. Of course no supervisor is standing there to force him to do it again. But if he doesn't, then he doesn't get paid, and the computer is keeping an eye on the results of these quality control tests. It is the eyes and ears of capital, enforcing discipline. One way of interpreting this case of "job enlargement", then, is to say that the worker can find out "whether or not the job is done correctly", and that "this is a matter of pride of workmanship". Of course, another way of putting it is to say that he only gets paid for work which passes the test, and that management has both the power to withhold payment and the informational means to exercise his power. This increase in the efficiency of the power of capital is interpreted by the authors as an increase in the worker's "sense of responsibility". They even have the effrontery to suggest that such "job enlargement" has "genuine significance in the light of the fact that the level of education continues to rise", and that there is also "an increasing need to make work meaningful".>

Any academic discussion of job-satisfaction, alienation or the effects of automation, which fails to describe the system of power by which capital defines and enforces the limits within which labour is compelled to operate, can be thrown straight in the waste paper basket; for instance, if it fails to mention the system of payment that a so-called semi-autonomous group is working under, or if it "forgets" to describe the system of norms and penalties, and the automated information system making them operative in the case of some "enlarged" job. Capital does not always need to control labour by specifying the tasks and rates for an individual, rather than a group. And it does not need to exercise its power via a system of direct face-to-face power relations (foremen etc.). The fact that, instead, it is a computer docking your pay or sending you to another department as a punishment, or generally keeping an eye on the intensity and quality of your labour, does not mean that the labour process has ceased to be capitalist. What is it that makes it capitalist? Abstractly, the criterion for a capitalist labour process is that it is a process in which valorisation is in command. Concretely, this is translated into the power to design and operate systems of material transformation, discipline and information.

*The capitalist labour process is the transition of the objective of valorisation into a concrete social organisation of production; that is where the design and operation of systems of physical plant, information processing and factory discipline are the materialisation of the power of capital to enforce its objectives on labour.*

## 5. THE IMMANENT LAWS OF THE CAPITALIST LABOUR PROCESS

The three basic structural features of the capitalist organisation of the labour process are: (i) the division of intellectual and manual labour; (ii) hierarchical control; (iii) fragmentation/deskilling of labour. But it is very important to work out the precise theoretical content of these concepts, to know what is and

what is not essential to them and what are their limits. This is because it is very easy for them to be totally trivialised, as indeed they usually are by bourgeois "social scientists". The latter think that one renders a concept rigorous by "operationalising" it, by giving it a precise empirical definition. However, if one gives these concepts empirical definitions in terms of the theory of the capitalist labour process, one produces utterly trivial and arbitrary concepts in terms of which one can prove anything one likes. For example, one can prove by reference to the job of monitoring dials in an oil refinery that the days of manual labour are over; one can prove by reference to some "enlarged" assembly job that the days of unskilled, fragmented labour are over we are entering a new epoch; or one can prove by reference to "semi-autonomous groups" that the hierarchy of control in production is dissolving, that there is a trend to democracy on the shop floor.

(i) *The division of intellectual and manual labour.*

A division between *conception* and *execution* is immanent in the capitalist labour process: and in that sense we may speak of an immanent division of "intellectual" and "manual" labour. It is an aspect of the monopoly that capital has on the knowledge and power over the design of production systems. Only by having and reproducing that monopoly can capital impose its objectives. Seen in this light (which is very obviously what Marx has in mind in *Capital*), the division has nothing to do with a division between mental and bodily functions of the human organism, taken in a purely abstract sense. All human labour involves both mind and body. Manual labour involves perception and thought. No work is so utterly routinised that it can be performed without having any conceptual organisation of it whatsoever. Equally, all mental labour involves bodily activity which is in many cases a vitally important aspect of it. Above all, from our point of view, it should be noted that the production of science and technology are material practices which involve "manual labour", and of course Marx knew this very well. Clearly, then, from the point of view of the theory of the capitalist labour process the important division is that between those who produce or apply scientific and technological knowledge in the design of production systems and in day to day problem solving involved in the operation of the system, and those whose relationship with the production system is calculated, standardised and specified in advance by capital in the interests of producing an output which is known with precision in advance. workers whose jobs consist *simply* of monitoring the function of continuous flow processes are in no way an exception to this division. "Manual" labour has always performed such monitoring tasks. The only differences, from the present point of view, are that: (a) these tasks are now performed without manual operations on the system being performed, (or rather without human interference with the transformation process being performed) and (b) that these tasks are now just as standardised, routinised and predictable, and hence under the control of capital, as traditional labour functions are.

(ii) *Hierarchy*

This is immanent in the capitalist labour process by virtue of its inherently antagonistic nature. Discipline is essential so that capital can allocate jobs, enforce speeds and intensities, sanction poor quality and so on. This is not a *psychological* thesis. Regardless of the extent to which a worker may resign himself to, or adapt to, the demands made on him by capital, (that is, regardless of the psychological strategy of the worker), it remains true that labour *always* has a wider range of needs and aspirations than capital can allow itself to take into account in its design of the labour process. Capital is *forced* to treat labour as *subjective* (that is, in the interests of efficiency, to take note of the specificity of labour as distinct from machines - you don't penalise machines, or pay them or send them home at some period of the day or night to sleep). But it is also forced to confine its relationship to labour within very severe limits - limits defined by the wage-contract in the sphere of exchange and by the objective of valorisation in the sphere of production.

What is essential to capitalist hierarchy is that it is ultimately capital that gives instructions within the labour process. It is capital that allocates tasks, that specifies rates and norms, and that enforces penalties for failure. It is *not* essential that the *personification of capital* always take a particular form. The traditional form of hierarchical control (management- supervisor- foreman- group leader) can be very expensive. It has been instituted because information is required at all times about the performance, in terms of quantity and quality, of each individual worker. You can't rationally allocate rewards and punishments (bonuses etc.) unless you have this information. It has also been instituted where the work of a particular shop has to be continually re-allocated so as to integrate the output of that shop with the changing needs of other processes "down-line", with varied customer requirements, and so on, (Edwards, 1971). This is particularly true in machine shops making a large variety of components.

Capital determines the form that its personification takes. With the automation of information processing and diffusion systems it becomes possible for capital in some cases to dispense with some of these traditional and expensive features of control. In effect it can automate control of labour. Taylor developed the control routine of starting the day in the machine shop by giving each worker a job slip with written instructions about his tasks. Nowadays there are shops where the day starts by the workers receiving computer printouts specifying their work allocations and schedules. No doubt the same computer receives information during the day about the extent to which each worker is doing his job.

It is not essential that the instructions be given to each individual worker rather than to groups; but one can see now how "semi-autonomous groups" are possible only within very severe limits. They are possible to the extent that capital can control, verify, specify and monitor the functions and work of the group so rigorously that the group has no margin at all for interposing into its organisation of labour its own objectives. "*Autonomy*" is only possible on the

*basis of an increase in the material basis of capitalist power* - a paradox for bourgeois empiricists to loose sleep over. To put it in theoretical terms: this use of automation, far from introducing a *non-correspondence* between capital's formal subordination of labour and the material basis of its relations to labour in production, on the contrary provides an even more solid foundation to its real subordination of labour. Of course this real subordination is totally invisible to bourgeois science. One can read whole libraries of articles on "semi-autonomous groups" without coming across an analysis of the systems of norm-setting and penalties within which the work of the groups takes place.

### (iii) *Fragmentation/Deskilling*

Deskilling is inherent in the capitalist labour process because capital must aim at having labour functions that are calculable, standardisable routines; because this labour must be performed at the maximum speed and with the minimum of "porosity"; and because capital wants labour which is cheap and easily replaceable.

It is quite difficult to spell out what is essential to the notion of deskilling. There are three aspects: (a) First of all, there is the replacement of the relationship between labour and tools by the relationship between labour and machine. This comes down to the replacement of the craftsman by the machine operative. It could be that these two relationships are simply incommensurable, so that to speak of deskilling here is confusing. The notion of deskilling seems to imply a quantitative unilinear scale of some kind, whereas craft and machine-operative skills may require different scales. It may be abstract and arbitrary to argue about whether or not there is "more skill" involved in beating metals with hammers into craft artifacts or operating certain metal-working machines.

(b) Secondly, all tasks requiring some special skill for their operation are divided off as separate jobs. In as much as skill is still required it is distributed to as few, specialised workers as possible (e.g. design work, machine setting, maintenance).

(c) Thirdly, there is the tendency for the remaining unskilled or semi-skilled tasks to be separated out from one another and distributed to different jobs. This means the fragmentation of even unskilled tasks. This third aspect of deskilling, however, is only a tendency. The *extent* to which capital fragments unskilled labour (or reduces the time cycle of operations of each individual worker) is determined by the way in which those tasks are integrated with each other and with ancillary tasks. It involves such problems as physical layout of machines, material transfers and quality control. So-called job-enlargement experiments which operate entirely at the level of recombining a group of unskilled tasks improve efficiency for capital if they solve difficult problems of line-balancing and quality control, as long as the materials flow and supervision can be performed effectively. Computers, which make it possible to automate the quality control and monitoring of individual labour performance without face to

face supervision, introduce for capital the possibility of experimenting with modified systems of assembly design. The fundamental point here is that this can only take place *given* that labour routines have been so thoroughly deskilled and fragmented that they can be recombined and yet still remain both fast, calculable and monitorable and require very little training. *Job enlargement presupposes deskilling!* It is the recombination of small numbers of calculable routines. Only in the brain of a bourgeois academic could an "enlarged" job of routine assembly operations, taking place within the strictest and most rigorous network of capitalist control, be taken to represent the emergence of a new order in which labour, no longer alienated, becomes free and human. Once again, in reality automation *increases* real subordination of labour to capital.

## 6. THE EXTENSION OF MACHINUFACTURE

We can investigate changes in the labour process both in relation to changes in their technical basis and in relation to changes in the management of control, although these are clearly interdependent. In relation to the former one might look, for example, at continuous flow processes, numerical control machine tools, other aspects of automation and of mechanisation of information processing, etc. In relation to the second one might focus on the ideology and practise of "Job Design", of the "humanisation of work" movement and so on. Some innovations in labour processes are such that this (rather arbitrary) distinction would have no relevance (e.g. the cellular organisation of small batch machine shop production). Our general thesis with respect to such changes is that they have indeed taken place within the limits conceptualised in the theory of the CLP, as more and more processes come more and more perfectly to exemplify its capitalist character. It has been an expansion of capitalist machinofacture and thereby of the real subordination of labour to capital.

It is worth pointing out some implications of this thesis. It would follow that we see no "fourth era", no break with machinofacture which would constitute a fourth term in the series simple-cooperation/manufacture/machinofacture. It follows also that we see no emergence of a non-correspondence with the CLP, no basic change of production relations at the level of use value that would leave these relations in conflict with the capitalist production relations at the level of value. We do not see the labour process itself, in its internal structure, as the site of a new contradiction between the exploitation of labour on the one hand and its supposed technical command of the process on the other. Developments in the labour process such as high-speed continuous flow mass production, automation, semi-autonomous groups do not, therefore, signal the emergence of a "a new era" in which all the brutalities of machine-based production would be left behind. Nor do they announce the impending overthrow of capitalist relations within production. Although we cannot develop the argument in this paper we want it to be clear that we see our position as one which would allow for a fundamental refutation of views such as those just mentioned, and in particular: