

Chapter 4

Cycles

The Red Thread

One red thread drawn from the great tangle of Marxist theory can guide us through the labyrinth of high-technology capitalism. This strand, often severed and nearly lost, yet constantly picked up by unlikely hands, goes by a variety of names. Because it traces the conflict between exploiters and exploited, it is often called 'class struggle' Marxism; because it contrasts the vitality of living labour with the dead power of capitalist command it is sometimes known as 'subjectivist' Marxism; recently, something close to this tradition has been termed 'open' Marxism, because of it shows how the insurgencies of the oppressed unseal fixed sociological categories and teleological certainties.¹ But whatever label is attached to it, the defining feature of this line of Marxism is its emphasis not just on the dominative power of capital, but on people's capacity to contest that power.

As James O'Connor reminds us, this is a Marxism that owes at least as much to the passion of Romanticism as to the scientific Enlightenment.² Theorists within this tradition understand capital's crises as arising not from the "internal barriers" to capitalist accumulation, but as a result of an "external barrier"--namely, the working class itself:

Their focus is the condition of availability of disciplined wage labour, or capital's political and ideological capacity to impose wage labour on the working class.³

This is therefore a Marxism which insists that struggle is intrinsic to the capital-relation. It contrasts sharply with what Michael Lebowitz terms "one sided Marxism" that focuses on

the activity of capital and neglects the counter-activities of workers.⁴ Instead of seeing history as the unfolding of pre-given, inevitable and objective laws, the class-struggle tradition argues that such 'laws' are no more than the outcome of two intersecting vectors--exploitation, and its refusal in the constantly recurrent eruptions of fight and flight by which rebellious subjects seek a way beyond work, wage and profit.

Clearly such a perspective has not been limited to any one group or particular epoch. Rather, it constitutes a heretical strain within Marxism which time and again has interrupted the hegemony of more mechanistic, objectivist and authoritarian versions, and, as often, been savagely extinguished. Such an intermittent and subterranean existence makes construction of a coherent lineage difficult--more a listing of outbreaks than a narrative of continuities. A fragmentary chronology would of course start with passages from the multiplicitous works of Marx and Engels. From the early 20th century, it would include certain currents within council communism and anarcho-communism, as well as moments in the work of Rosa Luxemburg and the early writings of Gyorgy Lukacs, Karl Korsch and Antonio Gramsci.⁵ Later, in the 1930s and 40s it finds another manifestation in the work of CLR James, Raya Duneyeskava, Martin Glaberman, George Rawick and others associated with the Johnson-Forest tendency in the USA.⁶ In the wave of activism of the 1960s and 70s, the incidence of this kind of Marxism intensifies, including in France the activities of groups such as "Socialisme ou Barbarie"⁷; in England, the work of EP Thompson and other radical historians investigated the "making" of class through struggle⁸; in Germany, Karl Heinz Roth's analysis of the 'others worker movement'⁹; and also various groups associated with the Italian ultra-left, to whose contribution I return in a moment. In my view there are broad thematic affinities amongst these authors and activists--similarities in their emphasis

on agency, on struggle, on self-organisation and in their repudiation of authoritarian state socialism--that warrant clustering them together.

But can this lineage yield much that is new or even relevant to the analysis of high-technology capitalism? Many of its makers lived and fought in a world that, though all-too familiar with the capitalism's command of machinery, is separated from ours by several generations of technological change--the world of the assembly line and telegraph, rather than the robot and Internet. Even amongst those closer to our times, the greatest analytic achievements are often historical and retrospective: Thompson's account of the factory-system or James discussion of the slave-plantation, while provocative in their insights about the intertwining of technology, work and power, do not speak directly to a world saturated with computers, telecommunications and biotechnologies.¹⁰ Moreover, it might be said, while there are some studies of working class battles over digital machines and electronic media from a class struggle position, these have usually not offered any theoretical perspectives beyond the neo-Luddism discussed in the previous chapter.¹¹ I would argue, however, that there is a branch of this tradition whose currency and inventiveness on issues of high technology struggle escapes such objections—the branch often called "autonomist Marxism."¹²

As described by its main English language archivist and chronicler, Harry Cleaver, autonomist Marxism has a genealogy that is deep and wide, stretching out to touch several of the figures I have already mentioned.¹³ But of particular centrality is a cluster of theorists associated with the "autonomia" movement of Italian workers, students and feminists of the 1960s and 70s, including Raniero Panzieri, Mario Tronti, Sergio Bologna, Romano Alquati, Mariarosa Dalla Costa, Francois Berardi, and Antonio Negri.¹⁴ In the late

1970s, autonomia was destroyed in one of the most ferocious yet least-known episodes of political repression in the recent history of metropolitan capital. The work of this group of intellectual-activists was violently interrupted by exile and imprisonment. Their brand of Marxism, anathema to neoliberals, Eurocommunists and social democrats alike, came to constitute a largely clandestine tradition.¹⁵ Yet over the political winter of the 1980s and 90s it has continued to develop, undergoing new mutations and making fresh international connections.¹⁶ At a moment when all the accepted verities of the left are in confusion, heresy can make a regenerative contribution. Transgressing the conventional limits of Marxist thought, but built on the foundations of Marx's work and extending it into the contemporary world, autonomist Marxism proposes not an 'ex-Marxism' or a 'post-Marxism' but a "Marx beyond Marx."¹⁷

To pit autonomist Marxism against information revolutionaries is no arbitrary juxtaposition. Groups within the orbit of autonomia were among the first to analyse the post-industrial restructuring of capital as a weapon aimed against social dissent. Since that time certain autonomist theorists, most notably Negri, have devoted increasing attention to the vast new informational apparatus of contemporary capitalism. What makes their perspective peculiarly notable is that it grasps the new forms of knowledge and communication not only as instruments of capitalist domination, but also as potential resources of anti-capitalist struggle. While autonomists are by no means alone in raising these possibilities, the inventiveness and scope of their analysis has been massively overlooked.

I therefore read autonomist Marxism (and it is worth emphasising that this is indeed a reading of the autonomists' work, just as theirs is an active, inventive reading of Marx) as

a subversive counter-interpretation of the information revolution, contributing to the reconstruction of a twenty-first century communism capable of confronting computerised capitalism with a radically alternative vision of community and communication. This chapter outlines some basic autonomist concepts, and then suggests how they open a way to understand the information revolution as a moment in an ongoing cycle of struggles.

The Perspective of Autonomy

At the heart of autonomist analysis lies Marx's familiar analysis of the relation between labour and capital: a relation of exploitation in which workers, separated from the means of production, are compelled to sell the living labour power from which the capitalist extracts surplus value. In elaborating this account, however, most Western Marxisms have tended to emphasise only the dominant and inexorable logic of capital, to a degree such that its accumulative logic, unfolding according to ineluctable (even if finally self-destructive) laws, figures as the unilateral force shaping the contemporary world. The autonomists' re-discovery--startling enough that Yves Moulier terms it a "Copernican inversion" in post-war Marxism--was that Marx's analysis affirms the power, not of capital, but of the creative human energy Marx called "labour"--"the living, form-giving flame" constitutive of society.¹⁸

As Tronti put it:

We too have worked with a concept that puts capitalist development first, and workers second. This is a mistake. And now we have to turn the problem on its head, reverse the polarity, and start again from the beginning: and that beginning is the class struggle of the working class.¹⁹

Far from being a passive object of capitalist designs, it is in fact the worker who is the active subject of production, the wellspring of the skills, innovation and Cupertino on which capital depends.²⁰ Capital attempts to incorporate labour as an object, a component in its cycle of value extraction, so much labour power. But this inclusion is always partial, never fully achieved. Labouring subjects resist capital's reduction. Labour is for capital always a problematic `other' that must constantly be controlled and subdued, and that as persistently, circumvents or challenges this command. Insofar as workers, rather than being organised by capital, struggle against it, they constitute the working class.

This distinction between labour power and working class was originally Marx's.²¹ But by reviving it, the autonomists opened a way beyond the sterility of much subsequent Marxist class analysis. For by saying that "the working class is defined by its struggle against capital," they shrugged off elaborate taxonomies circumscribing the `real workers' as some (usually diminishing) fraction of collective labour--manual, industrial, or `blue collar.'²² Rather, they opened a perspective which could see tendencies to incorporation within capital (as labour power) and independence from capital (as working class) as opposite polarities or contending potentialities that permeate the entirety of capital's labour force, understood in its broadest scope. In this view, working class struggles are the insurgencies of subjects capital `classes' only as human resources against that categorisation--what Cleaver has recently termed "struggles to cease being defined as either a class or as a working class."²³

To analyse such struggles autonomists use the concept of class composition.²⁴ As Cleaver points out, this is a striking instance of their "inversion" of classical Marxist

categories.²⁵ Marx had referred to the way technological change results in a change in the "composition of the collective labourer."²⁶ But his original account of the "organic composition" of capital focused on the power of capital to direct production through the accumulation of machines. In autonomist theory, however, this emphasis is reversed: the analysis of class composition is aimed at assessing the capacity of living labour to wrest control away from capital.²⁷ It starts from workers' struggles: how they arise, how they are connected or divided, their relation or lack of relation to `official' workers' organisations, and their capacity to subvert capitalist command.²⁸ It measures the "level of needs and desires"--expressed in political, cultural and social organisation--which constitute the working class as what Negri terms a "dynamic subject, an antagonistic force tending toward its own independent identity."²⁹

Class composition is in constant change. If workers resisting capital compose themselves as a collectivity, capital must strive to decompose or break up this threatening cohesion. It does this by constant revolutionising of the means of production--by recurrent restructurings, involving organisational changes and technological innovation that divide, deskill or eliminate dangerous groups of workers. But since capital is a system that depends on its power to organise labour through the wage, it cannot entirely destroy its antagonist. Each capitalist restructuring must recruit new and different types of labour, and thus yield the possibility of working class recomposition involving different strata of workers with fresh capacities of resistance and counter-initiative.

The process of composition/ decomposition/ recomposition constitutes a cycle of struggle.³⁰ This concept is important because it permits recognition that from one cycle to another the leading role of certain sectors of labour (say, the industrial proletariat), of

particular organisational strategies (say, the vanguard party), or specific cultural forms (say, singing the Internationale) may decline, become archaic and be surpassed, without equating such changes, as is so fashionable today, with the disappearance of class conflict. Rather than being made once-over, the working class is, as Negri puts it, perpetually "remaking" itself again and again in a movement of constant transformation.³¹

Indeed, in a crucial autonomist formulation, Tronti suggested that it is actually workers' struggles that provide the dynamic of capitalist development. In Capital Marx had observed that the initial impetus for capital's intensifying use of industrial machinery came from proletarian movements demanding the shortening of the working day. Building on this, the autonomists argued that capital does not unfold according to a self-contained logic, spinning new technologies and organisations out of its own body. Rather, it is driven by the need to forestall, coopt and defeat the 'other' that is simultaneously indispensable and inimical to its existence, fleeing forward into the future in what Tronti termed "successive attempts of the capitalist class to emancipate itself from the working class."³²

In this process capital is driven to successively wider and deeper dimensions of control--toward the creation of a social factory. Marx had written of capital's tendency to "subsume" not only the workplace but also society as a whole into its processes.³³ Extending this analysis Tronti, writing in the 1960s, argued that capital's growing resort to state intervention and technocratic control had created a situation where "the entire society now functions as a moment of production."³⁴ To understand these conditions required moving away from the traditional Marxist focus on the immediate point of production (usually the factory) towards the wider perspective suggested by Marx when he wrote of

capital as a circuit comprising not only the moment of production but also of distribution and consumption.

This concept was then elaborated by the feminist wing of autonomist Marxism. Mariarosa Dalla Costa and Selma James, anticipating themes now popular in feminist political economy, argued that within the social factory, the reproduction of labour power occupied a crucial but unacknowledged role.³⁵ Without the--to male theorists--invisible labour process of child-bearing, child-raising, cooking, shopping, education, cleaning, caring for the sick, emotional sustenance, in short, 'housework,' labour power would not be ready for work each morning. This vital reproductive labour, traditionally female and "unwaged," was subordinated to the traditionally male breadwinner.³⁶ Thus the wage, mediated by patriarchal authority, commanded and disguised unpaid labour time not only in the workplace but also outside it. Other autonomist theorists applied broadly analogous analysis to the situation of other unwaged groups--e.g. students, or, in an international context, peasants--within the social factory.

In developing this analysis, Dalla Costa, James and other autonomists emphasised that the potential unification of workers produced by the universalising logic of capital has to be understood as cross-cut by a contrary tendency, which Marx recognised, but did not analyse so deeply--namely capital's drive to divide workers along lines of nationality, gender and race. As James puts it "In capital's hands, the division of labour is first and foremost the division of labourers, on an international scale."³⁷ This systemic organisation of "difference as division" was imperative for capital, precisely in order to forestall the unified class movement Marx predicted.³⁸ Therefore anti-capitalist movements, rather than simply mobilising a unity pre-given by the structure of production, faced the far more

complex task of organising across difference in order to challenge a capitalist totality founded on fragmentation and division.

By extending the analysis of class composition to include reproductive as well as productive labour, and unwaged as well as waged work, autonomists opened up Marxism to radically new theoretical and organisational horizons. For, unlike the Frankfurt School theorists, they did not find the scope of the social factory grounds for despair. If capitalist production now requires an entire network of social relations, these constitute so many more points where its operations can be ruptured. However, autonomists recognised that all of these involved different subjects (factory workers, students, housewives) with specific demands and organisational forms. No longer was the undermining of capitalism the operation of Marx's singular "mole" --the industrial proletariat--but rather of what Sergio Bologna termed a "tribe of moles."³⁹ The 'autonomy' of autonomist Marxism thus came to affirm both labour's fundamental otherness from capital, and also the recognition of variety within labour. This in turn leads away from vanguardist, centralised organisation, directed from above, toward lateral, polycentric concept of anti-capitalist alliances-in-diversity, connecting a plurality of agencies in a circulation of struggles.

Autonomist Marxism thus sees class conflict moving in what Tronti termed a spiralling "double helix."⁴⁰ Working class composition and capitalist restructuring chase each other over ever widening and more complex expanses of social territory. As long as capital retains the initiative, it can actually harness the momentum of struggle as a motor of development, using workers' revolts to propel its growth and drive it to successively more sophisticated technical and organisational levels. The revolutionary counter project, however, is to rupture this recuperative movement, unspring the dialectical spiral, and

speed the circulation of struggles until they attain an escape velocity in which labour tears itself away from incorporation within capital--in a process which autonomists refer to as autovalorisation or self valorisation.⁴¹ For behind the perennially renewed conflict of capital and labour lies an asymmetry of enormous consequence. Capital, a relation of general commodification predicated on the wage relation, needs labour. But labour does not need capital. Labour can dispense with the wage, and with capitalism, and find different ways to organise its own creative energies: it is potentially autonomous.

The autonomist tradition has more often been stigmatised and ignored than given rigorous theoretical examination. But some significant criticisms have been made. Werner Bonefeld, while praising autonomists for breaking with the rigid stasis of structuralist Marxism, suggests that their emphasis on the potential independence of labour from capital can result in a tendency to present workers' as entirely external to capital--a sort of pure, uncontaminated revolutionary force.⁴² Although this is not the case with the best of autonomist analysis, which clearly depicts such struggles as occurring both in and against capital, it undoubtedly can manifest in a certain romanticism that underestimates the depths and pervasiveness of hierarchical divisions and ideological assimilation within the working class, and sees every rebellious swallow as a spring of revolution.

Other critics have suggested that the autonomists' focus on the capital/labour contradiction ignores the competitive conflicts and fractures within capital itself.⁴³ Within autonomist writing one certainly finds relatively little discussion of the rivalries between different sectors of the ruling class, or of the divergence in immediate aims that can occur between sectors such as, say, financial and industrial capital. Moreover, some autonomist analysis seems to suggest that corporate power operates with a single, consciously

masterminded battle-plan. High levels of planning by transnational organisations such as the IMF and G7 can make it appropriate to speak of such a capitalist 'strategy.' But often the anonymous and aggregated nature of the world-market's operations make a more impersonal and less intentional term, such as "the logic of capital" used by Michael Lebowitz, preferable.⁴⁴

The autonomist emphasis on capital as a totality with certain over-riding systemic imperatives is, however, consonant with the approach of Marx himself, who always emphasised the importance of understanding "capital as a whole" before analysing the activity of "individual capitals." And this is the only way to perceive what is really at stake in the war against class: people's attempt free themselves from a structure of alienated and ultimately quite inhuman power, a process-without-a-subject-but-with-a-purpose, to whose relentless accumulative drive individual capitalists, with all their smart manoeuvres and internecine squabbles, are merely petty functionaries.

Interweaving Technology and Power

Autonomist analysis understands capitalism as a collision between two opposing vectors--capital's exploitation of labour and worker's resistance to that exploitation. Its perspective on technology, correspondingly, has two aspects. The first is an analysis of technoscience as an instrument of capitalist domination--a rereading aimed at shattering scientific socialism's myth of automatic scientific progress. The second, however, looks at the situation from the other side, and analyses the ways in which struggles against class can overcome capital's technological control.

In an early essay that established the direction for later autonomist critique, Panzieri broke decisively with left views of technoscientific development as 'progress'.⁴⁵ Rather, returning to the pages in Capital on the early introduction of machinery, he re-proposed that capitalism resorts to incessant technological renovation as a "weapon" against the working class: its tendency to increase the proportion of dead or 'constant' capital as against living or 'variable' capital involved in the production process arises precisely from the fact that the latter is a potentially insurgent element with which management is locked in battle and which must at every turn be controlled, fragmented, reduced or ultimately eliminated.⁴⁶

Faced with "capital's interweaving of technology and power," simply to ratify technological rationalisation as a linear, universal advance--as the dominant forms of official, Soviet -influenced Marxism did--was to ignore that what it consolidated was a specifically capitalist rationality aiming at the domination of labour.⁴⁷ To believe that the relations of production (property relations) were simply a "sheathing" which would fall away once the forces of production had been sufficiently expanded was an illusion.⁴⁸ There could, Panzieri concluded, be no question of assuming that socialism would arrive as a by-product of scientific advance: emancipatory uses of machines were possible, but only to the degree that working class revolt assumed a "wholly subversive character."⁴⁹

Panzieri's perspective was formed in the industrial factory, witnessing the way the Taylorist division of labour and Fordist automation were used to break down worker solidarity. But his analysis of technology as capitalist weaponry has subsequently been applied to situations not only of waged but unwaged labour. Thus, for example, Harry Cleaver has analysed the so-called Green Revolution as capitalist counter-revolutionary

strategy.⁵⁰ In the context of widespread communist insurgency in Asia, Cleaver argues, the sponsorship by U.S. development agencies of new plant stocks and agricultural techniques was aimed primarily at breaking down the traditional village structures. This had a two fold aim--to eliminate the communities within which guerrillas moved like fish in the sea, and to allow the creation of an industrial proletariat, fed off the countryside, a prerequisite for capitalist modernisation. Agricultural technology served as the civil side to counter-insurgency warfare.

However, autonomists also emphasise that waged and unwaged workers are not just passive victims of technological change, but active agents who persistently contest capital's attempts at control. This contestation can take two forms.⁵¹ The first is sheer refusal. This is the theme of the most famous, and most reviled, of autonomist texts, Negri's Domination and Sabotage.⁵² Writing in the context of the Italian industrial struggles of 70s in the giant Fiat plants and elsewhere, Negri proposes that, confronting the introduction of huge systems of semi-automated technological control, there could be no question of accepting the necessity of modernisation, as official trades unions insisted. Instead, workers should stop the innovations used against them--if necessary, by sabotage.⁵³ This emphasis on the possibilities of sabotage is an important part of the autonomist tradition, and puts them close to the neo-Luddite authors discussed in the last chapter, some of whom in fact draw on their work.⁵⁴

However, there is another side to the autonomist analysis that gives it a greater dynamism than outright neo-Luddism. This aspect (which Negri develops in his later work) affirms the possibility for workers to use their "invention power"--the creative capacity on which capital in fact depends for its incessant innovation--in order to

reappropriate technology. This possibility arises because, in its attempt to technologically control labour, capital cannot avoid creating new types of technologically capable, scientifically literate workers. As Cleaver observes, "The struggles of these workers vis-à-vis their own working conditions as well as vis-à-vis larger social issues can . . . constitute a serious obstacle to successful capitalist planning."⁵⁵

An early instance of this line of thought can be found in the work of Francois Berardi--an activist in the network of politicised 'pirate' radio stations that played a crucial role in the Italian autonomia movement.⁵⁶ Berardi argued that in the course of developing the "technoscientific intelligence" it needed for the control of living labour, capital was unavoidably creating an increasingly "intellectual" workforce.⁵⁷ With the appearance of this new, scientific form of labour power also emerged the possibility of a "worker's use of science" that would transform machinery from an "instrument of control and intensification of exploitation into an instrument of liberation from work."⁵⁸ This manifested in two ways: in workers' insistence on claiming as their own the surplus time created by automation, and in the increasing popular capacity to reappropriate communication technologies, "subverting the instruments of information" and "reversing the cycle of information into a collective organisation of knowledge and language."⁵⁹

Resistance and reappropriation, sabotage and invention power, are, in autonomist analysis, both parts of the repertoire of struggle--although different authors, at different times and contexts, may put more emphasis on one than another. Unlike scientific socialists, autonomists find no inherently progressive logic in technological development. But unlike neo-Luddites they do not perceive only a monolithic capitalist control over scientific innovation. Rather, their insistence on the perpetually contested nature of the labour-capital

relation and the basic independence of human creativity tends away from attribution of fixed political valencies to machinery and towards a focus on possibilities for counter-appropriation, refunctioning, and "detournement."⁶⁰ If machinery is a "weapon" then it can, as Cleaver says, be stolen or captured, "used against us or by us."⁶¹ Or--to use Panzieri's perhaps richer and less instrumental metaphor--if capital "interweaves" technology and power, then this weaving can be undone, and the threads used to make a different pattern.

This need not imply a crude 'use and abuse' concept of technology of the sort that neo-Luddites have rightly criticised. We can accept that machines are stamped with social purposes without accepting the idea that all of them are so deeply implanted with the dominative logic of capital as to be rejected. For if the capital relation is to its very core one of conflict and contradiction, with managerial control constantly being challenged by counter-movements to which it must respond, then this conflictual logic may enter into the very creation of technologies.

Thus, for example, automating machinery can be understood as imprinted both with the capitalist's drive to deskill and control workers, and also with labour's desire for freedom from work--to which capital must respond by technological advance. Similarly, communication technologies have often--as in the case of radio and computer networks--evolved in the course of very complex interaction between business's drive to extend commodification and democratic aspirations for free and universal of communication. Along the way communication technologies have been shaped by both forces. This is not to say that technologies are neutral, but rather that they are often constituted by contending pressures that implant in them contradictory potentialities: which of these are realised is something that will only be determined in further struggle and conflict.⁶²

In the very course of class conflict, workers will not only, repeatedly, halt and sabotage machines, but also challenge capital's unilateral ability to implant its logic in technology--and instead bend, twist and even detach part of the process of technological development to move it in quite different directions. Instead of understanding Marx's `negative' and `positive' visions of machine-use in a linear, before-and-after progression--with the same machines that were repressive before communism becoming magically emancipatory afterward--autonomist analysis allows us to reconceive the process of deconstructing and reconstructing technologies as itself part of the movement of the struggle against capital.

From the Professional Worker to the Crisis of the Social Factory

To understand these ideas more concretely, however, we need to look at the three major cycles of struggle which autonomists identify in the twentieth century: those of the professional worker, the mass worker and--at least by some accounts--the socialised worker. Such a sweeping account will necessarily be highly schematic. As Moulier has emphasised, sensitive use of the cycles of struggle concept demands allowance for unevenness, overlap, regional and national variation, and so on.⁶³ Nonetheless, the very broad-brush version offered here does provide the framework for an analysis of the information revolution that situates it not as the product of ineluctable scientific progress, but of social conflict. In order to clarify this overall dynamic I will proceed through all three of the cycles, moving swiftly at first, but then deepening the analysis as we approach the more recent periods.

The era of the professional worker--or what might more generally be recognised as the craft worker--is regarded by autonomists as running from the mid-19th century to World War I. It is so termed because of the strategic position occupied by skilled workers, now absorbed within a mechanised factory system but still in possession of craft knowledges and technical competencies. Such workers are the main protagonists in struggles focused on control of the production process and the preservation of the dignity and value of work. Outside of the factory, capital's subsumption of society remains relatively rudimentary. The state's activity, other than in projects of imperial expansion, is generally limited to policing the operation of the free market, which is characterised by disastrous economic cycles of boom and bust arising from the difficulties of co-ordinating production and consumption.

Socialist programs in this period are built around the concept of worker's management of industrial production. The role of productive factory labour as the agent of emancipation is unquestioned. Left parties tend to reflect the technical composition of the professional worker insofar as they have a mass membership but an avant-garde leadership--trained cadres of political 'experts.' Revolutionary organisations constructed on this basis include not only the Leninist parties but also council communist movements based largely amongst skilled technical workers--such as those of the German metal industries.⁶⁴ In the first quarter of the 20th century such organisations present a mounting threat to capital. With the victory in 1917 of the Bolshevik vanguard party, this threat seems about to attain catastrophic dimensions.

To save itself, capital undertakes a drastic organisational and technological restructuring. This is aimed at decomposing working class power, by destroying the technical base of the professional workers' power and cutting them off from the growing

mass of industrial labour. On the shopfloor the chronometer and the clipboard of Taylorist scientific management are deployed to break craft worker's control of production. This deskilling, at first attempted primarily through organisational innovation, is subsequently mechanically embedded in the Fordist assembly line. At the same time, in the face of the socialist threat, the first tentative steps are taken toward a more interventionist role for government in social and economic affairs, aimed at stabilising business cycles and pacifying unrest.

However, this restructuring unintentionally forges the matrix for the emergence of a new working class subject--the mass worker. The Fordist factory--typified by the huge auto plants which come to form the hub of the advanced economies--spatially concentrates huge bodies of dequalified labour subjected to the brutality of continuous automated machine pacing. In doing so, it creates the conditions for an unprecedented form of class solidarity. With craft skills increasingly eroded by Taylorism, the mass worker fights not to uphold the dignity of a trade, but to make capital pay for lives vanishing meaninglessly down the assembly line. No longer able to control production, he can still stop it. The vulnerability of the assembly line to interruption and sabotage, and the cost to management of idling the increasingly expensive accumulation of fixed capital provide the points of attack. In a cycle of struggle that finds its paradigmatic North American moments in the 1937 Flint sit-down strikes, the mass worker finds increasingly effective ways of converting the mechanised factory into a bastion of resistance.

To contain this new working class strength, capital is forced to further innovation. Here the productivity deal, in which management maintains shopfloor control by negotiating with trades unions regular pay raises tied to increases in output, becomes a

crucial factor. Although initially only grudgingly concede, this arrangement was eventually assimilated by business as a way of harnessing working class strength to accumulation. The link between productivity and pay served to both propel technological innovation and pacify worker resistance. Alongside this institutionalisation of 'industrial relations' emerge ever more comprehensive plans of social management. Again as a result of working class struggle, the factory wage is increasingly supplemented by a social wage of state-controlled payments and amenities--welfare, unemployment, pensions, health insurance, and medical, educational, and recreational facilities. And again capital recuperates these concessions within a new structure of accumulation, as a means to forestall social discontent and guarantee the markets for the volume of commodities pouring off the mechanised lines.⁶⁵ Out of this complex interaction of opposition and incorporation there gradually comes into being what the autonomists know as the Planner State, in which government supports capitalist activity through Keynesian economics and welfare programs.⁶⁶

As John Merrington has noted, autonomists never understood the era of the mass worker as simply a 'factory' phenomenon.⁶⁷ Rather, they saw it as the moment of emergence of the social factory. Capitalist organisation now requires the synchronisation of the factory, where surplus value is pumped out on the assembly line, with the household, where the punishing force of such work is repaired, displaced and hidden, and the pay packet translated into purchases of standardised domestic goods. The gendered division of labour and the pairing the male mass worker--whose life is to be slowly obliterated on the assembly line--with the female housewife, whose lot is to tend the wounds, take the abuse, do the shopping and raise the next generation of labour power in the isolation of the home--

becomes a conscious concern of capital's social managers.⁶⁸ The labour of the female housewife, whose 'consumerist' schedule is organised largely through new organs of mass communication, such as radio and television, starts to become as much the object of a corporate planning as the productivity of her male partner on the shopfloor--for it is through her activity that the pay increases won by the mass worker are translated into the consumption necessary for a virtuous cycle of continual capitalist growth and stability.

At the end of the Second World War, it seems as if capital in North America and Europe has successfully stabilised itself. The threatening presence of the mass worker is contained in management-union deals, subjected to an increasing weight of mechanical control, and kept ready for work by female reproductive labour in the home. Ethnic minorities and immigrants provide a reserve army available for jobs outside the large scale industry or in its most antiquated, dangerous sectors. Young people are processed through an expanding educational system that sorts and trains personnel for the increasingly elaborate techno-administrative apparatus required by the Planner State and ever more mechanised production. The threat of the Soviet Union, now turned under Stalin into a ghastly caricature of revolution, is cordoned off with nuclear weapons and a perpetual state of war-readiness. On the basis of this carefully segmented but society-wide mobilisation, capital secures its golden age of uninterrupted growth.

But then things start to come apart. In the inhuman conditions of the assembly-line factory, the productivity deal always rested on a razor-thin balancing of capitalist profits and worker anger. In the mid-60s the tightrope trembles. Mass workers increasingly refuse to restrain wage demands within limits functional to capitalist growth or to tolerate conditions accepted by their unions. Management responds to wage pressures with attempts

to intensify the pace and intensity of work, thereby precipitating further resistance. A wave of wildcat strikes, slowdowns, sabotage, and absenteeism--which the autonomists christen "the refusal of work"--sweeps across Europe and North America, concentrated initially in the crucial automobile plants, but spreading to other sectors, rendering factories from Detroit to Turin to Dagenham virtually unmanageable.⁶⁹

Even more alarming for capital, these industrial conflicts start to reverberate with problems elsewhere in the social factory. Students who have flooded the universities to escape a destiny as line workers or housewives refuse to confine their intellectual activities within the limits of the 'knowledge factory' and burst into campus revolt. Black and immigrant communities explode against their situation as ghettoised reservoirs of cheap labour. Women, who had in increasing numbers already been abandoning their designated household role to seek paid work, begin a new wave of feminist rebellion against domestic subordination. All these outbreaks are in turn coloured by the unexpected challenges in Vietnam and Cuba to advanced capital's global dominance which generate powerful anti-war and international solidarity movements.

Understood in the light of autonomist analysis, these diverse eruptions, while distinct, are not disconnected. Rather, they appear as a broad revolt by different sectors of labour against their allotted place in the social factory. The new social movements of the era can be understood not as a negation of working class struggle, but as its blossoming: an enormous exfoliation, diversification and multiplication of demands, created by the revolt of previously subordinated and super-exploited sectors of labour. The swirling social ferment which results certainly involve struggles within and amongst labour, as those sectors at the bottom of the wage hierarchy--unpaid women, unemployed minorities--assert

their equality with those above them--usually white, male, unionised labour. But they also involve a destabilisation of the entire capitalist organisation of society as a mechanism of surplus extraction.

Complex ricochet effects come into play as demands for improvement in the social wage threaten corporations with higher tax levels and diminished profits, thereby intensifying conflicts over the factory wage. Even more alarming for capital, the multiple outbreaks of dissent begin to be consciously linked with or inspired by one another--as in the interaction of students and workers that occurs briefly in Paris in 1968 and over a longer period of time in Italy; the meeting of labour and anti-racist struggles in Detroit and elsewhere; or the rekindling of feminism out of the civil rights and student movements. The result is a circulation of struggles which starts, at multiple points, to threaten the whole intricate balance of the social factory.

Imposing Cybernetic Command

The response can only be counterattack. In a shift which is usually identified with Reaganism and Thatcherism but whose origins the autonomists date back to the early 1970s, capital begin another drastic restructuring.⁷⁰ In the realm of government, the "Planner State" is replaced by the "Crisis State"--a regime of control by trauma in which "it is the state that plans the crisis."⁷¹ Keynesian guarantees are dismantled in favour of discipline by restraint; unions hamstrung by changes in labour law; monetary policies exercised to drive real wages down and unemployment up; and welfare programs brought under attack. At the same time, corporate managers take aim at the industrial centres of turbulence, decimating the factory base of the mass worker by the automation and

globalisation of manufacturing. Dismantling the Fordist organisation of the social factory, capital launches into its post-Fordist phase--a project, which however, must be understood as a technological and political offensive aimed at decomposing social insubordination.

It is in the context of this offensive restructuring that the work of the 'information revolutionaries' can be situated. As we saw in Chapter 2, the first formulations of post-industrial theory by Bell, Drucker, Brzezinski and Kahn--intellectuals closely affiliated to the nexus of state and corporate power in the most powerful capitalist centres--corresponds precisely to this moment. At that time, George Caffentzis, writing of the apocalyptic calls for a "complete change in the mode of production" issuing from such theorists, observed:

They are "revolutionaries" because they fear something in the present mode that disintegrates capital's touch: a demand, an activity and a refusal that has not been encompassed.⁷²

The post-industrialists' futurological reports thus fall into place alongside the infamous report by Samuel Huntington and others on the "excess of democracy" as part of capital's assessment of what is required to reassert command of a deteriorating situation.⁷³ In the name of irresistible progress and objective prediction, the information theorists propose a program and a legitimisation for a great technological deployment whose glittering sheen disguises old and cold objectives: annihilation of the bases of working class power, reduction of wages and social wages, restoration of social discipline.

For Collettivo Strategie, a group within the orbit of autonomia, what the new informational doctrines demonstrated was "a militant and revolutionary behaviour on the part of capitalism."⁷⁴ Analysing the projection by Zbgniew Brzezinski--President Carter's US National Security Advisor and a founding member of the Trilateral Commission--of an imminent "technetronic revolution" based on "new technologies, new sciences, microelectronic computers and new means of communication" it noted:

This process is nothing other than a confirmation of the power of capital, as Marx asserted, to impose itself as a force which changes technology or which strikes it down and destroys it violently, thus revealing itself as the least conservative force possible . . .⁷⁵

In fact, Collettivo suggested, the emergence of eminent state officials such as Brzezinski from the culture of think tanks and futurological research institutes indicated that capital had gone "Leninist."⁷⁶ Just as the socialist vanguard party was the "organised and theoretical form for seizing power" so,

. . . in the same way capital tries to organise its vanguards into institutions which take the form of a party oriented not toward the destruction but rather the maintenance of power.⁷⁷

The project of these informational "vanguards" of capital was a reorganisation of production based on "new models of universal communication," launching a new phase of development characterised by the "creation of uomini merce (humans who have become commodities)" subject to manipulation through "control over the flows of information"--a project Collettivo referred to as the imposition of "cybernetic command."⁷⁸

The military metaphor should not be taken lightly. For what occurs from the mid 1970s onward is that computer and telecommunications devices, developed since the end of World War II primarily as military instruments for the containment of international communism, are transferred for internal application as the 'command, control, communications and intelligence' system for the reestablishment of capitalist discipline and productivity. In a classic instance of what Paul Virilio terms "endocolonisation," the security apparatus, nominally facing outward to defeat external foes, is turned against the 'enemy within.'⁷⁹ In the United States, a boosting in Pentagon funding, which eventually culminates in the gargantuan Star Wars project, is central to generally speeding the rate of informatic research and development, and, in some cases, to highly specific injections of new technology into the war against labour. The US Air Force, for example, plays a central role in fostering the computerised automation systems aimed at achieving a workerless factory.⁸⁰

Electronic networking, originally developed as part of nuclear war fighting preparation, receives its first large-scale civilian application in the emergency management systems used by the Nixon administration to monitor its wage-price freeze and picket line violence in a truckers strike.⁸¹ More generally, there is an accelerated adoption by both the corporate sector and the apparatus of government of technologies previously nurtured by

the military in its quest for battlefield control--microelectronics, computer mediated communications, video recording, expert systems, artificial intelligence, robotics--now adapted and diffused to provide a similar scope of overview and precision intervention in the workplace and civil society.⁸²

Thus the neoliberal transition from "welfare state to warfare state" is supported by a whole new level of intensity and sophistication in the governmental use of information technologies.⁸³ Mass media and new communications techniques are deployed in depth to measure, massage, poll and propagandise public opinion preparatory to policy change. Computerisation automates and disperses state sector jobs, providing crucial leverage in attacks on public service unions--such as the Reaganite assault on US air-traffic controllers--and creating 'lean' institutions attractive to privatisation. The same technologies are applied to streamline social programs shaved to levels that monitor, rather than support, and to scapegoat perpetrators of welfare fraud. Last, but by no means least, informatics equips paramilitary security forces with a full arsenal of surveillance devices, electronic intrusion measures, cross-referenced data banks and field communications for a series of domestic 'wars'--on terrorism, on crime, on drugs--which beat down on civil disorders.

The aggressive use of informatics is even more pronounced in the corporate restructuring of work. If the chronometer and the assembly line were the weapons of managerial assault on the professional worker, the robot and the computer network play an equivalent role in the attack on the mass worker. In manufacturing plants, factory wide systems of computerised flow control--Flexible Manufacturing Cells (FMC), Flexible Manufacturing System (FMS), Management Resource Planning (MRP), Computer Aided

Process Planning (CAPP) and Just-in-Time (JIT) systems--permit management to sever the solidarity of the assembly line by cutting it into competing `work teams' supplied by robot servers, shrinking the labour force, and in some cases approaching the `lights out' scenario of fully automated factory production. The strategic advantage afforded capital by this disaggregation and downsizing is then reinforced by telecommunications systems which permit the centralised co-ordination of dispersed operations, making feasible the transfer of work from hot-spots of instability either to domestic `greenfield' sites uncontaminated by militancy or to offshore locations--the first steps toward what would soon be known as `globalisation.'

On all these fronts the deployments of new information technologies and the restructuring of capital converge so closely that neither is practically distinguishable from the other.⁸⁴ The effects on class composition are devastating. In a series of critical industrial confrontations, informational innovations give capital a winning card, as Italian car workers find their industrial strength destroyed by the total-automation systems of Robogate and Digitron, British miners are undercut by the Minos robot drill, remnants of craft work strength in London's printers unions are annihilated by computerised type setting, and the striking clerical workers in the US health insurance industry find their pickets lines overleaped by telematics.⁸⁵ Such defeats set the scene for an overall neoliberal attack not only on the wage but also on the social wage, realised through the dismantling of the welfare state.

In the face of this attack, the other movements that had shaken the social factory in the 60s and 70s are themselves increasingly thrown onto the defensive. The most militant--like the Panthers in the US or autonomia in Italy--are destroyed by assassination,

imprisonment and direct repression. But others--such as the student movement--are sapped by insecurity, lack of resources and time and confronted at every turn by the ideological claims of restraint, globalisation and deficit reduction. In the face of cybernetic command, the incipient circulation of struggles disintegrates into a series of atomised rearguard actions.

The effects of this convulsion on Marxist thinking have been devastating. As Caffentzis remarks, "The very image of the worker seems to disintegrate before this recomposition of capital."⁸⁶ As Fergus Murray argues, in an analysis drawing on autonomist categories, extensive computerisation in the factory seems to mark a decisive "decline in the mass collective worker."⁸⁷ By permitting centrally controlled, comprehensive factory automation and the splitting-up of the production cycle, management can now reduce and disperse workers once concentrated together so they are "scattered territorially, socially and culturally, in different conditions of work and often invisible from one another."⁸⁸ In such a situation, Murray observes, "the problem of uniting a single workforce, let alone the class, is daunting."⁸⁹ There is now widespread acceptance even on the left that aspirations for proletarian autonomy have met a technological nemesis--that capital may indeed have succeeded in achieving its age-old goal of emancipation from the working class.

Socialised Worker . . . ?

To stop here, however, would be to omit the most provocative proposal in autonomist thought. For some of its theorists suggest that out of capital's informational restructuring is emerging the subject of a new cycle of revolutionary struggles: the

"socialised worker." This term, first used by Romano Alquati in his analysis of student revolt in the 1970s, has been primarily associated with the work of Negri, who describes it as "an innovation in the vocabulary of class concepts" attempting to express the transition from,

that working class massified in direct production in the factory, to the social labour-power, representing the potentiality of a new working class, now extended through the entire span of production and reproduction--a conception more adequate to the wider and more searching dimensions of capitalist control over society and social labour as a whole.⁹⁰

Over two and a half decades, from the time of Negri's involvement in the Italian struggles to his exile in France, he has progressively deepened and amplified this idea.⁹¹

The socialised worker is, according to Negri, the subject of a productive process that has become coextensive with society itself. In the era of the professional worker, capital concentrates itself in the factory. In the era of the mass worker, the factory is made the centre around which society revolves. But in the epoch of the socialised worker, the factory is, with the indispensable aid of information technologies, disseminated out into society, deterritorialising, dispersing and decentralising its operations to constitute what some autonomists term the "diffuse factory" or the "factory without walls."⁹² "Work," says Negri "abandons the factory in order to find in the social, a place adequate to the functions of concentrating productive activity and transforming it into value."⁹³

This diffusion of work unfolds through what he terms "flexibilisation, tertiarisation and socialisation."⁹⁴ As the traditional centres of production are automated, enterprises reorganise around flexible models based upon a small core of permanent employees surrounded by a periphery of contingent workers: part-time, temporary and casual work, dependent subcontracting operations, 'black' work, informal work, outwork and teleworking proliferate. Wage labour is deconcentrated, spatially and temporally dispersed throughout society, and interleaved with unpaid time in new and irregular rhythms.⁹⁵

Simultaneously, as capital reduces its industrial workforce, it seeks out new sources of labour in the so-called service or tertiary sector. This process embraces the large-scale conversion of female domestic labour into fast food, homemaking, day-care, health care, and surrogate motherhood businesses; an extraordinary diversification of cultural industries, turning knowledge, aesthetics, and communications into materials for an explosion of media, music, entertainment, advertising, and fashion industries; and an array of other experiments from massage parlours to management consultancies. This expansion of waged work marks a new order of magnitude in the commodification of human activity.

However, the most radical aspect of this socialisation of labour is the blurring of waged and non-waged time. The activities of people not just as workers but as students, consumers, shoppers and viewers are now directly integrated into the production process. During the era of the mass worker, the consumption of commodities and the reproduction of labour had been organised as spheres of activity adjunct to, yet distinct from, production. Now these borders fray. In education, schooling is explicitly reconstituted as job training, life-long learning as requalification for technological change, and universities as corporate research facilities. In consumption, the integration of advertising, market research, point-

of-sale devices, just-in-time inventory control and flexible specialisation systems makes the monitoring of the consumer as integral to the production cycle as that of the worker.

Work, school, and domesticity are re-formed into a single, integrated constellation

The world of the socialised worker is thus one where capital suffuses the entire form of life. To be socialised is to be made productive, and to become a subject is to be made subject to value--not only as an employee but as a parent, shopper and student, as a flexibilised home worker, as an audience in communicative networks, indeed even as a transmitter of genetic information. The demarcation between the production, circulation and reproduction of capital is impeached in a "network of various, highly differentiated, yet confluent mechanisms" which "mixes, in new and indefinite labour, all that is potentially productive" so that "the whole of society is placed at the disposal of profit."⁹⁶ "Productive labour," says Negri, "is now that which produces society."⁹⁷

In this situation, where the spatial location of exploitation is no longer the factory but the network and its temporal measure not the working day but the life-span, Negri observes that we have indeed "gone beyond Marx."⁹⁸ Marx's original concept of "real subsumption," the swallowing of society by capital, has been realised and exceeded. Indeed, says Negri, it is this apparent co-extensivity of capital with the social which obscures the "contours of the totality," allowing business to "disguise its hegemony . . . and its interest in exploitation, and thus pass its conquest off as being in the general interest."⁹⁹ Facing such an expansion of capital's calculus beyond the point of production we might, he says, now choose to speak of socialised labour power not as a worker but as an operator or agent. Yet, by retaining the traditional Marxist epithet, he emphasises "an antagonism

which has never ceased to exist"--a conflict between the imperatives of capital and the needs and desires of the subjects on whose activity it depends.¹⁰⁰

For, Negri argues, this intensifying fusion of capital and society has unexpected consequences. Capital `socialises' itself in order to escape the factory-centred conflicts with the mass worker. But the exploitative relation from which that conflict arose--the extraction of unpaid activity from labour--persists. Now, however, it radiates out to inform the extended networks of social activity. Capital persists in paying only for a tiny segment of the life activity it expropriates. But this logic manifests not only in roll-backs and speed-ups on the shop floor, but in cut backs to the social wage, the erosion of the welfare state, and the off-loading of the costs of environmental damage. These practices are of course not new. But the intensified integration of capital's circuit sharply highlights the inadequacy of the wage to acknowledge the web of relationships that sustain social production.

The result, Negri says, is that class struggle, transmuted but not eliminated, reappears, refracted into a multiplicity of points of conflict. In a world where capital has insinuated itself everywhere, there is now no central front of struggle, which instead snakes through homes, schools, universities, hospitals, and media, and takes the form not only of workplace strikes and confrontations, but also of resistance to the dismantling of the welfare state, demands over pay equity, child care, parenting, and health care benefits, and opposition to ecological despoliation. In the newly socialised space of capital, a fractal logic obtains, such that each apparently independent location replicates the fundamental antagonism that informs the entire structure--capital's insistence that life-time be subordinated to profit.

The crucial issue therefore becomes whether the scope of socialised labour will manifest as division or alliance, segmentation or linkage. Negri observes that struggles by multifarious subjects at the many sites of the factory without walls--factory workers, welfare mothers, students--each manifest their own specificity, their own "concrete autonomy."¹⁰¹ Yet all encounter a barrier in capitalism's subordination of every use value to the universal logic of the market. Consequently,

It's either/or: either we accentuate the antagonisms and competitions in the concrete cases or we construct a political and subjective totality dialectical of these segmentations . . . All this finds its material base if, escaping the myth of factory production you enter the truth of the process of social production and reproduction, where the functions, the consumption, the elements, the differentiation of the process are fundamental for its own operation, that is for the operation of producing and circulating wealth.¹⁰²

For Negri, the experimentation with coalitions, 'coordinations,' 'rainbows,' 'rhizomes,' 'networks,' 'hammocks,' and 'webs' which has been a salient feature of anti-capitalist movements in the last decade denotes the search for a politics adequate to "the specific form of existence of the socialised worker," which "is not something unitary, but something manifold, not solitary, but polyvalent" and where "the productive nucleus of the antagonism consists in multiplicity."¹⁰³

The concept of the socialised worker is in fact a conjugation or synthesis of 'old' working class theory and analysis of 'new' social movements.¹⁰⁴ Negri argues that the new

subject arises at the intersection of "two fundamental axes."¹⁰⁵ One of these runs "from society toward the world of labour" and transmits into the workplace the concerns "of feminism, of ecology, of young people, of anti-racist struggle, of social activism, and, in general, a radical cultural modification and a perspective of irreducible grassroots autonomy."¹⁰⁶ The other runs "from the world of work to society" and carries with it not only a critique of capitalist restructuring, of "exploitation aggravated and distributed throughout the most diverse strata of society," but also a demand for increased power in the shaping of the economic order.¹⁰⁷ Out of the fusion of these currents appears the possibility of a "reunification of the traditional components of the class struggle against exploitation with the new liberation movements."¹⁰⁸

Indeed, Negri argues that from the 1980s there have appeared the first signs of a new cycle of struggles. Focusing mainly on the European context, he and his colleagues look at a series of movements--amongst nurses, media workers, students--which have challenged neoliberal restructuring. In particular, they have been inspired by the successive waves of social revolt which have shaken French society, from the student protests of 1986 to the interlinked revolts of students, workers and immigrants in 1994 against proposals to cut the minimum wage to young job entrants, to the massive three week strike wave of 1996 against the neoliberal Juppe plan. These movements of the socialised worker, Negri says, take forms completely different from the factory struggles of the mass worker, and although historically linked to the first appearance of the new social movements in the 1960s, they are now entering an entirely new phase. This is characterised by:

. . . the radically democratic form of organisation, the transformed relation with the trades unions (which become more and more just transmission lines for impulses arising from below), the social dimension of objectives, the rediscovery of a social perspective by the old sectors of the class struggle, the emergence of the feminist component, of workers from the tertiary sector and of 'intellectual' labour (above all labour power in training).¹⁰⁹

Such movements "break with the purely defensive attitude to restructuring."¹¹⁰ They challenge the Crisis State's managerial control of society, are informed by an ethic that "emphasises the connections of social labour and highlights the importance of social co-operation," and express, in a diffuse but unmistakable form an aspiration that "co-operative production can be lead from the base, the globality of the post-industrial economy can be assumed by social subjects."¹¹¹

Communication Against Information

Of particular interest to this study of high-technology struggle is Negri's analysis of the role of communication and information. For he emphasises that the "factory without walls" is also the "information factory," a system whose operation depends on "the growing identity between productive processes and forms of communication."¹¹² The conflicts of the Fordist era drove capital to interlink computers, telecommunications and media in ever more extensive networks the more effectively to subordinate society. While the mass worker laboured on a factory assembly-line, the socialised worker's productivity

emerges at the terminal of fibre optic lines, as a nurse monitoring cardiograms, a bank clerk handling on-line transactions, a teacher in a computer lab, a programmer or a video technician, or, indeed, as the audience of interactive television channel or the respondent to a telemarketing survey. Her productivity depends on an elaborated network of informatic systems.

However, this technological envelopment does not, Negri claims, necessarily result in a subjugation of social labour. As the system of machines becomes all encompassing and familiar, he argues, the socialised worker enjoys an increasingly "organic" relation to technoscience.¹¹³ Although initiated by capital for purposes of control and command, as the system grows it becomes for the socialised worker something else entirely, an "ecology of machines."¹¹⁴ The "system of social machines" increasingly constitutes an everyday ambience of potentials to be tapped and explored.¹¹⁵ The elaboration and alteration of this techno-habitat becomes so pervasively socialised that it can no longer be exclusively dictated by capital.

In the era of the mass worker, Negri says, the conditions of mechanised labour, concentrated in the factory under the hand of management, led many militants to a "rejection of science." In the age of the socialised worker, however, this situation is "surpassed," as capital is obliged to both devolve and diffuse technological knowledge amongst its workforce. The increasingly social nature of the technological apparatus now makes the tactic of sabotage, crucial to the professional and mass worker, which Negri himself espoused in the 1970s, less central. Rather, expanded possibilities for refunctioning and recuperation appear. Technoscience becomes a site--perhaps, Negri suggests, the principle site--for the reappropriation of power.¹¹⁶

This might seem reminiscent of Serge Mallet's earlier concept of a "new working class" based in the skilled cadres of advanced industry.¹¹⁷ But Negri's theory differs in positing the emergence not of a select intelligentsia of technical workers but of a generalised form of labour power needed by a system now suffused in every pore with technoscience. He claims that the new communicative capacities and technological competencies manifesting in the contemporary workforce, while most explicit among qualified workers, are not the exclusive attributes of this group, but rather exist in "virtual" form among the contingent and unemployed labour force.¹¹⁸ They are not so much the products of a particular training or specific work environment but rather the premises and prerequisites of everyday life in a highly integrated technoscientific system permeated by machines and media.

Negri suggests that the complexity and scope of the factory without walls creates for capital "a specific social constitution--that of co-operation, or, rather, of intellectual co-operation i.e. communication--a basis without which society is no longer conceivable."¹¹⁹

Advanced capitalism directly expropriates labouring co-operation. Capital has penetrated the entire society by means of technological and political instruments (the weapons of its daily pillage of value) in order, not only to follow and to be kept informed about, but to anticipate, organise and subsume each of the forms of labouring co-operation which are established in society in order to generate a higher level of productivity. Capital has insinuated itself everywhere, and everywhere attempts to acquire the power

to co-ordinate, commandeer and recuperate value. But the raw material on which the very high level of productivity is based--the only raw material we know of which is suitable for an intellectual and inventive labour force--is science, communication and the communication of knowledge.¹²⁰

To secure this co-operation, capital must appropriate the communicative capacity of the labour force, making it flow within the stipulated technological and administrative channels:

Capital must . . . appropriate communication. It must expropriate the community and superimpose itself on the autonomous capability of manufacturing knowledge, reducing such knowledge to a mere means of every undertaking of the socialised worker. This is the form which expropriation takes in advanced capitalism--or rather, in the world economy of the socialised worker.¹²¹

However, to accomplish this expropriation, capital has to surround the socialised worker with a dense web of communicative channels and devices.

Indeed in a rich, if cryptic, passage Negri claims that "communication is to the socialised worker what the wage relationship was to the mass worker."¹²² This does not mean that TV programs replace pay. Rather, Negri is suggesting that communicational resources now constitute part of the bundle of goods and services capital must deliver to workers to ensure its own continuing development. Just as in the era of the mass worker

Keynesian capital institutionalised wage increases as the motor of economic growth and generalised the norms of mass consumption, so today, post-Keynesian capital institutionalises the information infrastructure by which it hopes to rejuvenate itself, 'plugging in' its socialised workforce, multiplying points of contact with the networks, furnishing and familiarising labour with a 'wired' habitat through which instructions can be streamed and feedback channelled.

But the analogy suggests more. In the Keynesian era, attempts to domesticate pay demands as part of capitalist growth plans ultimately failed and became a focus for struggle. Similarly, Negri sees the control of communication resources as an emergent arena of tension. By informing production, capital seems to augment its powers of control. But it simultaneously stimulates capacities that threaten to escape its command and overflow into rivulets irrelevant to, or even subversive of, profit. Indeed, insofar as the increasingly 'communicative' texture of the modern economy discloses and intensifies the fundamentally 'socialised,' co-operative nature of labour, it comes into friction with capital's hegemony.

This antagonism can be schematically represented as a conflict between communication and information--an opposition roughly analogous to Marx's distinction between living and dead labour: communicative activity is "current," information its "imprisonment . . . within inert mechanisms of the reproduction of reality once communication has been expropriated from its protagonists."¹²³ Information is centralised, vertical, hierarchic; communication is distributed, transverse, dialogic. Capital tries to capture the communicative capacity of the labour force in its technological and organisational forms "like a flat, glass screen on which is projected, fixed in black and

white, the mystified co-operative potentialities of social labour--deprived of life, just like in a replay of Metropolis," while the direct current of communication takes transverse "polychromatic forms."¹²⁴ Or, in a different formulation, "conflict, struggle and diversity are focussed on communication, with capital, by means of communication, trying to preconstitute the determinants of life," while, on the other hand, "the socialised worker has come to develop the critique of exploitation by means of the critique of communication."¹²⁵

Negri's analysis of this conflict remains characteristically abstract. But one example undoubtedly in his mind is the use of the Minitel computer system by French student protestors. Minitel was originally designed as a one-way videotext service transmitting government and corporate messages--phone directories, advertisements, banking information, timetables--to French citizens.¹²⁶ It was only changed when hackers converted a small in-house mail system into an open, generalised exchange, an initiative that proved so popular that it was incorporated into the official system--thereby laying the basis for an email system perhaps most famous for its erotic "messagerie rose."

In 1986, however, Minitel attained more political dimensions when students erupted in protest against neoliberal university 'reforms,' and were met with a police violence that resulted in at least one death. Frustrated by the mainstream media's hostility or indifference to their cause, the Student Co-ordinating Committee, through the daily newspaper Liberation, mounted a Minitel service for the revolt. This included information about the spreading university and school closures, demonstrations, reasons to oppose the proposed legislation changes, and a game service satirising the government updated news bulletins, appeals.¹²⁷ Interactive "enter your reactions" section received 3000 calls from across France, including questions about reasons for action, the level of student support,

the difficulties of government /student negotiations, and the on-line fees charged by the telephone company. For Negri, the significance of the student revolt is that it represents the capacity of labour in training--the emergence of a type of worker who embodies "intellectual co-operation" and technoscientific literacy, and the capacity to use this knowledge in oppositional form.

In the next chapter I give more concrete examples to support Negri's analysis. For the moment, suffice it to say that the struggles between information and communication which he has in mind would embrace the conflicts over the collective organisation of work--'team concept,' 'quality circles,' 'TQM'--in production; the expansion of alternative media activism contesting the corporate control of news and imagery; struggles in schools and universities between capital's demand for a functionally educated workforce and people's insistence in learning for their own purposes; the imposition and transgression of proprietorial control over vital medical and ecological knowledge; and the struggle in cyberspace between activists who have diverted global computer networking into an unprecedented form of collective intellect, and capital's attempt re-seize it for commercial purposes.

While the tentative nature of these oppositional projects is evident, Negri would maintain that they constitute the prefigurations of an insubordinate anti-capitalist subject whose identity is rooted in the communicative interconnections of socialised production. While neoliberalism has launched a restructuring that has fatally decomposed the traditional bastions of working class strength and imposed a historic reverse on the left, "nothing," says Negri "tells us that the journey can be concluded according to the direction established by capital." On the contrary, restructuring has also released "uncontrollable

effects . . . perverse from the capitalist point of view, but virtuous from the opposing point of view," creating the conditions for an emergence of new subjects who "even if they escape the historical continuity of the workers' movement, are nevertheless not easily reconciled with capitalist plans for the market."¹²⁸

. . . . or Fragmented Worker?

To discern such a recompositional process amidst decades most on the left reckon catastrophic is nothing if not audacious. Many consider it a theoretical whistling in the dark. Alain Lipietz--voicing what is probably a fairly widespread opinion--has accused Negri of a "headlong voluntarist flight into the future."¹²⁹ Even many of Negri's political allies dissent from his analysis, suspecting that enchantment with the 'cycle of struggles' leads him to find evidence of resurgence where little exists.¹³⁰ Several autonomists have been struck not so much by the unification and empowerment of labour in the information economy as by an intensified fragmentation and hierarchisation. They have suggested that Negri's work suffers from the defect of some many attempts to periodise class struggle--namely, that an orientation toward what is perceived as the leading-edge of struggle leads to a neglect of capital's tendency to pull together into a unified production system very different kinds of labour--in other words to overlook its dependency on what Trotsky referred to an "uneven and combined development."¹³¹

Thus in an analysis which extends the work of James and Dalla Costa, George Caffentzis argues that capital's decomposition of the mass worker in the mid 1970s has been accompanied by a redistribution of work in two directions. One is the growth of a high-technology sector focussed on the "energy/information" field of oil, electricity,

nuclear power, and microelectronics.¹³² The other is the emergence of a low-technology 'service' sector, built around an influx of women into the work force, and partially transforming traditional, unwaged reproductive labour in the home into a zone for direct exploitation.

The "energy/information" and "service" sectors are functionally complementary for capital, the former providing the cutting edge of profit-taking, the latter the mass employment necessary to stabilise the wage relation. But they differ markedly in conditions of work. While workers in the "high" sector may be technologically skilled, relatively secure and perhaps even identify with their work as part of "the brains of the operation," the "low" end service sector worker is poorly paid, insecure, untrained, deskilled.¹³³ Moreover, the sectors are differentiated by the age, race, and especially gender of their labour power--the high sector being predominantly male and white, the low sector disproportionately composed of workers who are young and/or coloured and/or female, often performing a double shift of paid and unpaid reproductive labour at work and in the home. The former gendered division between waged work and unwaged service is now displaced and recapitulated within the wage zone.

Such polarisation raises serious questions about Negri's concept of the socialised worker. It obviously affects the "organic" relation to technology he posits for his emergent subject. The grand sweep of the socialised worker thesis often seems to minimise those tendencies which separate strata of relatively well-skilled, well-paid workers--who may indeed possess strategic technical and communicational capabilities--from the larger mass of a post-industrial service-sector--janitors, fast-food operatives, and data-entry clerks--subject to all the most deskilling and isolating effects of technological domination. Since

this division of the workforce tends to fall along lines of gender and race, to ignore it is to risk universalising experiences most readily available to labour insofar as it is white and male.

As numerous feminist analyses have made clear, the traditional masculinisation of technology --formerly sedimented in the division between house and work--is to a considerable degree perpetuated within the new informational economy. While it is not unusual for women to have positions working with technology, men more often secure the jobs in which they control technology, rather than being controlled by it--while female workers experience classic deskilling effects.¹³⁴ This can be the case even in situations where workers of different genders use the `same' technology: telework, which can for some--predominantly male--professionals offer significant convenience and control, reveals a very different face in regard to the usually female data processor -- poorly paid, outside legislative protection, closely monitored, isolated and unorganised within an "electronic ghetto," Such patterns of segregation tend to be redoubled where the exclusions of race are compounded with those of gender.

If this is the case, the opportunities for technological reappropriation that Negri identifies may exist primarily for those who are most privileged--and therefore least likely to use them subversively. In not explicitly addressing this issue, the socialised worker theory invites the accusations--which other autonomists have in fact levelled against Negri's work-- of generalising the experiences of relatively privileged workers in contact with the most advanced sectors of capital and ignoring other strata.¹³⁵ Moreover, in his eagerness to identify the leading edge of working class development, Negri also sometimes seems to dismiss the continued resilience of some `old' struggles-- one thinks, for example

of the persistent, and, from capital's point of view, very untimely, militancy of coal miners in Britain, the USA, and Canada. All this suggests that the divisions within the post-Fordist workforce are more complex and significant than Negri allows. Although theorists such as Caffentzis undoubtedly share his hope for an eventual recomposition of the working class, it is with far less optimism about its immediate prospects. In the hands of non-autonomist theorists--including various Marxists and ex-Marxists--the segmentation of the informational labour force is widely adduced as evidence of a final end to class politics.¹³⁶

However, Negri's writings contain an implicit response to this charge, albeit one which deserves amplification. He in fact emphasises that in describing the recomposition of socialised labour power he not talking of "something definitive, concluded," but a "potentiality", "a political act "which has to be asserted against resistance."¹³⁷ Negri's socialised worker is conceived as an agency in process, a subject formed in a struggle that has at stake not only the relation between labour and capital, but also the relation of labour to itself. The counter-tendency against which this recompositional movement asserts itself is, precisely, capital's segmentation of the labour market along lines of gender, race, and age, which tends toward a "South Africanisation" of society, splitting socialised labour into isolated segments, just as Caffentzis and others have described.¹³⁸

However, Negri believes that this 'divide and conquer' strategy for decomposing the socialised worker has some serious limitations. Capital's tendencies to social apartheid, powerful as they are, are contradicted by a simultaneous tendency to subsume labour within a single, unified system dependent on a common infrastructure. Its simultaneous tendencies to 'smooth' and 'stratify' social space generate paradoxical results, unanticipated interstitialities, upward and downward mobilities and flux. The

dissemination of technical knowledges and abilities cannot be limited to safe, reliable strata of employees--who in fact often themselves feel the chill breath of insecurity--but is made catholic by capital's own frenetic processes of circulation. The socialised worker's familiarisation with and appropriation of their informational habitat is a process that squirms under and over attempts to strategically contain and stratify it. The system of segmentation leaks.

Although Negri does not elaborate on the point, it is easy to muster examples: the video counter-surveillance of police abuses in ghettoised sectors, the development of highly technical modes of politico-cultural expression, such as certain strains of rap music, the importance of community and `guerrilla' radio amongst subordinated groups, the crucial role of film, video and media in feminist and anti-racist struggle, the increasing use of computer networks--including feminist networks--to publicise otherwise invisible labour struggles; and the remarkable exploration of cyberspace as a medium for the circulation of struggles by some of the most marginalised and dispossessed sectors of the global workforce--such as the Zapatistas in Chiapas. Indeed, it is precisely as an instrument to overcome the segmentation of the workforce that the struggle of communication against information to which Negri gives so much emphasis assumes its full importance.

Realistic assessment of the current state of class composition requires taking into account both the recompositional possibilities on which Negri focuses, and the decompositional tendencies stressed by Caffentzis and other autonomists. Both are present tendencies, and their prominence in any given concrete instance varies. Negri's analysis is clearly rooted in some of the remarkable cross-sectorial linkages made in the French movements--although even there, sectoralism enormously impedes mobilisations against

neoliberalism. Caffentzis' more sombre perspective reflects the near-disastrous working class atomisation in the United States. Yet, as we will see, even in the North American context of fragmentation there are important countervailing tendencies. With both these potentialities present, digital capitalism constitutes what Negri calls "an enormous node of strategic contradictions--like a boiling volcano"¹³⁹ The next chapter descends deeper into the volcano, and more closely observes its eruptions.

Notes

¹ On "class-struggle" Marxism see James O'Connor, The Meaning of Crisis: A Theoretical Introduction (Oxford: Blackwell, 1987) 52-54; on "subjective" Marxism, Russell Jacoby, Dialectic of Defeat: Contours of Western Marxism (Cambridge: Cambridge University Press, 1981); on "open Marxism" the essays in Werner Bonefeld, Richard Gunn and Kosmas Psychopedis, eds. Open Marxism: Vol 1: Dialectics and History (London: Pluto, 1992), especially John Holloway, "The Relevance of Marxism Today."

² O'Connor, 52.

³ O'Connor, 53.

⁴ Michael Lebowitz, Beyond Capital: Marx's Political Economy of the Working Class (New York: St Martin's Press, 1992). Lebowitz argues that this focus on the activity of capital, rather than workers began with Marx himself, who completed Capital, but never his projected book on wage labour. The result is a perspective in which the worker appears primarily as passive object ground between the wheels of capital's exploitative machine. This machine is, to be sure, a self destructive one--driven toward disaster by inexorable internal laws. But it runs toward breakdown on its own--until eventually, in a moment of massive reversal, the immiserated proletariat revolts. While the consequences of such a view have varied, they have been almost uniformly catastrophic, and indeed largely justify the many criticisms of Marx made by new social movement theorists. On the one hand, it has generated a teleological--and fatally misplaced--confidence in the inevitability of revolution. On the other, when it is suspected that the 'laws' of economic collapse are not manifesting on schedule, it fosters the vision of capital as an invincible

juggernaut capable of assimilating every opposition within its one-dimensional order. Further, insofar as such an account can see workers only, as it were, through the eyes of capital--as so much labour-power--it does, as so many anti-Marxists have claimed, tend toward a reductionism in which people are regarded only as the bearers of economic categories, emptied of sexuality, culture, pleasure--everything, indeed, that makes life worth living. And finally, since the only historical project visible in such an account is that of capital, it makes it difficult to imagine revolution as anything but the extension or completion of capitalist development, albeit in either faster or fairer terms i.e. 'socialism.' For the argument that at a certain point in his project of immanent critique Marx "fell into a trap baited by political economy" see E.P. Thompson, The Poverty of Philosophy (New York: Monthly Review, 1978) 62.

⁵ On this period see Peter Racheff, Marxism and Council Communism (Brooklyn: Revisionist Press, 1976), Russell Jacoby, "Towards a Critique of Automatic Marxism: The Politics of Philosophy From Lukacs to the Frankfurt School," Telos 10 (1971): 119-146, and "The Politics of Crisis Theory: Toward a Critique of Automatic Marxism II," Telos 23 (1975): 3-52, and also Dick Howard, The Unknown Dimension: European Marxism Since Lenin (New York: Basic, 1972)

⁶ For discussion of the Johnson-Forest tendency, see William Santiago-Valles, "A History of the Future: Maroon Intellectuals From the Caribbean 1925-1938," Ph.D. Dissertation, (Simon Fraser University, Canada, 1997) and Harry Cleaver, Reading Capital Politically (Brighton: Harvester, 1979) 45-49. There are now a large number of anthologies of C.L.R. James writings, including The Future in the Present (London: Alison & Busby, 1977);

Spheres of Existence (London: Alison & Busby, 1980); At the Rendezvous of Victory (London: Alison & Busby, 1984) and The C.L.R. James Reader, ed. A. Grimshaw (Oxford: Blackwell, 1992).

⁷ For materials from "Socialisme ou Barbarie" see, Cornelius Castoriadis, Political and Social Writings. Vols 1-3 Trans. David Ames Curtis. (Minneapolis: University of Minnesota, 1988-1983).and for analysis of the group, Harry Cleaver, Reading Capital Politically (Brighton: Harvester, 1979) 49-51.

⁸ E.P. Thompson, The Making of the English Working Class (London: Gollancz, 1963).

⁹ Karl Heinz Roth, L'Autre Mouvement Ouvrier En Allemagne 1945-1978 (Paris: Christian Bourgeois, 1979).Orig. Die `Andere' Arbeiterbewegung und die Entwicklung der Kapitalistischen Repression von 1880 bis zur Gegenwart.(Munich: Trikont Verlag, 1974).

¹⁰ Thompson, The Making of the English Working Class; C.L.R. James. The Black Jacobins: Toussaint L'Ouverture and the San Domingo Revolution (New York: Vintage, 1989).

¹¹The early work of Armand Mattleart, particularly his "Introduction" with Seth Sieglaub to Communication and Class Struggle. Vol. 2. Liberation and Socialism (New York: International General) which sets out valuable analytic schemas of popular resistances capitalism's informatic control, is an important exception to this criticism. But even this analysis today seems stamped with categories and concepts overtaken by the massive global restructuring that has reconfigured both capital and its subversion over the last two decades.

¹² In adopting this term I follow Harry Cleaver, Reading Capital Politically (Brighton: Harvester, 1979). This work constitutes the major English definition and mapping of the theoretical positions and historical unfolding of autonomist Marxism.

¹³ See Cleaver, Reading Capital Politically, and also The Texas Archives of Autonomist Marxism, ed. Harry Cleaver and Conrad Herold, available from the Economics department, University of Austin, Texas.

¹⁴ On the Italian autonomists see Cleaver, Reading Capital, and also Yves Moulier, "Introduction," The Politics of Subversion: A Manifesto for the Twenty First Century, by Antonio Negri (Cambridge: Polity, 1989) 1-46, and Michael Ryan, Politics and Culture: Working Hypotheses for a Post-Revolutionary Society (London: MacMillan, 1989) The articles in Marie Blanche Tahon and Andre Corten, eds., Actes du Colloque de Montreal, L'Italie: le Philosophe et le Gendarme, (Montreal: VLB Editeur, 1986) provide a valuable retrospective assessment. Important anthologies of autonomist Marxist writings are Red Notes, Working Class Autonomy and the Crisis (London: Red Notes, 1979) and Sylvere Lotringer and Christian Marazzi, eds., Italy: Autonomia--Post-Political Politics (New York: Semiotext(e), 1980). Robert Lumley, States of Emergency: Cultures of Revolt in Italy From 1968 to 1978 (London: Verso, 1990) gives a rather hostile account of autonomia in its historical context, while Nanni Balestrini, The Unseen (London: Verso, 1989) gives a vivid novelistic description of its rise and fall. My synoptic account of Italian autonomist Marxism necessarily distorts its complex history: in particular it scants the relationship of the earlier Italian operaismo or 'workerism' focussed around factory struggles of the industrial proletariat to the later currents merged in the broad social movement of

autonomia. Tronti and Panzieri belong to the former, not the latter. Indeed, Tronti split politically with theorists of autonomia such as Negri who built substantially on his work. Nonetheless, I find sufficient continuity in their line of thought to classify all as 'autonomist Marxists.' A key English language analysis of the Italian New Left is Steven Wright, Forcing the Lock: The Problem of Class Composition in Italian Workerism, unpub. Ph.D. Dissertation, (Monash University, Australia, 1988) which emphasises the difference between operaismo and autonomia and gives a fascinating analysis of the debates and struggles within the movement.

¹⁵ Readers will look in vain for any mention of autonomist Marxism in either Perry Anderson's periodic reports on the state of Western Marxism, Considerations on Western Marxism (London: New Left, 1976) or In the Tracks of Historical Materialism (London: Verso, 1983) or in the Dictionary of Marxist Thought, ed. Tom Bottomore, Laurence Harris, V.G. Kiernan, Ralph Miliband (Cambridge: Harvard University Press, 1983).

¹⁶ The main vehicle for the current work of Negri and his colleagues is the French journal Futur Antérieur. Some indication of its direction can be found in Hardt and Negri, Labor of Dionysus, and in Chapter 9 of this dissertation. Other strands of autonomist Marxism include, in the United States, the work of Harry Cleaver, and of George Caffentzis and the Midnight Notes collective--a selection of whose work can be found in Midnight Notes Collective, Midnight Oil: Work, Energy, War 1973-1992. (Brooklyn NY: Autonomedia, 1992); in Britain, by the publications of the Red Notes Collective; in Italy, by a new generation of autonomist activists, largely focussed around the formation of 'social centres,' and internationally by Selma James' organisation of the "wages for housework"

campaign. During the final stages of this book's composition, Negri returned from exile to Italy, and, at the time of writing, is in prison, while an international movements seeks a revocation of the charges against him.

¹⁷ Antonio Negri, Marx Beyond Marx: Lessons on the Grundrisse (Massachusetts: Bergin and Garvey, 1984).

¹⁸ Moulier, Introduction, The Politics of Subversion 19; Karl Marx, Grundrisse (Penguin: Harmondsworth, 1973) 361. This definition of "labour" is cited in the Preface to Michael Hardt and Antonio Negri, Labor of Dionysus: A Critique of the State Form (London: Minneapolis, 1994) 1.

¹⁹ Mario Tronti 1979, "Lenin in England," Working Class Autonomy and the Crisis , ed. Red Notes (London: Red Notes, 1979) 1. Tronti's major work, Operai e Capitale (Turin: Einaudi, 1966), from which most of the essays cited here are extracts, has never been completely translated into English. It is available in French as Ouvriers et Capital (Paris: Christian Bourgeois, 1977).

²⁰ See also Tronti, "The Strategy of Refusal," Working Class Autonomy and the Crisis 8-9: "The existence of a class of capitalists is based on the productive power of labour . . . it is productive labour that produces capital. . . . The worker is the provider of capital. In reality, he is the possessor of that unique, particular commodity which is the condition of all the other conditions of production. Because, as we have seen, all these other conditions of production are, from the start, capital in themselves--a dead capital which, in order to come to life and into play in the social relations of production, needs to subsume under itself labour power, as the subject and activity of capital."

²¹ Karl Marx. Capital: A Critique of Political Economy vol. 1 (New York: Vintage Books, 1977) 719. On this "theoretical juxtaposition of labour power to working class" see also Cleaver, Reading Capital 53.

²² Zerowork Collective, "Introduction," Zerowork: Political Materials 1 (1975): 3. This piece from a now unfortunately defunct journal, though perhaps somewhat dated, remains the best single, short, English language introduction to autonomist perspectives. It is reprinted in Midnight Notes Collective, Midnight Oil, 108-114. On defining the working class by struggle see also Marx, Selected Correspondence (Moscow: Progress Publishers 1965), 165 "The working class is revolutionary or it is nothing."

²³ Harry Cleaver, "Secular Crisis in Capitalism: The Insurpassability of Class Antagonism," Rethinking Marxism Conference, Amherst, 1993.

²⁴ For the concept of class composition, see Cleaver, Reading Capital, 112, and "The Inversion of Class Perspective in Marxian Theory: From Valorisation to Self Valorisation," Open Marxism, vol. 2, ed. Werner Bonefeld, Richard Gunn and Kosmas Psychopedis (London: Pluto 1992) 106-144; Moulier "L'Operaisme Italien: Organisation/Representation/ Ideologie: Ou la Composition de Classe Revisitee," and Bruno Ramirez, "Notes Sur la Recomposition de Classes en Amerique du Nord," both in Tahon and Corten, and Zerowork Collective.

²⁵ Cleaver, "The Inversion of Class Perspective" 113.

²⁶ Marx, Capital, vol. 1, 461.

²⁷ As Cleaver puts it, both the organic composition of capital and class composition refer to the organisation of the production process, but where Marx's original concept focuses on

on the "aggregate domination of variable by constant capital," "class composition" involves a "disaggregated picture of the structure of class power existing within the division of labor associated with a particular organisation of constant and variable capital." ("The Inversion of Class Perspective," 113). Note that such a perspective does not dismiss the interminably-debated falling-rate-of-profit tendency. But it sees this tendency as defining a line of combat. In this view, capital's drive to increase constant over variable capital derives not primarily from the exigencies of competition, but in the first instance from its need to control with automation the threat of class conflict. Equally, its ability to avoid being choked by the weight of technological innovation depends on how inventively and on what terms it can impose counter-tendencies to offset this self-asphyxiation--perhaps most importantly through manufacturing new work to replace that being eliminated by machines. In each case, what is critical to the organic composition of capital is the class composition of the labour it confronts--the degree of resistance or compliance which capital encounters in its attempts to exercise command.

²⁸ Zerowork Collective, "Introduction, 3-4.

²⁹ Antonio Negri, Revolution Retrieved: Selected Writings on Marx, Keynes, Capitalist Crisis and New Social Subjects (London: Red Notes, 1988) 209.

³⁰ As Cleaver notes, in using the concept "cycle of struggles" it is important to avoid suggesting a foreordained, quasi-Spenglerian natural 'law' of history which determines that workers' struggles spring up, die down and are renewed ("The Inversion of Class Perspective," 6.) If these conflicts do indeed recur, even after the most crushing defeats, it is because i) capital has not, to date, freed itself from the need for workers and ii) its logic

imposes on the lives of these workers constraints and limitations against which they rebel. This view does not preclude the possibility either of false starts--workers' initiatives which are suppressed within the existing structures of capital without compelling it to restructure, or, equally, worker's victories--in which capital fails to reattain control.

³¹ Negri, Revolution Retrieved 209.

³² Tronti, "The Strategy of Refusal" 10.

³³ "Subsumption" designates the degree to which labour is absorbed into capital's processes of value extraction. In the 'Unpublished Sixth Chapter' of Capital, Marx described this process in terms of successive stages. In "formal subsumption"--roughly the early stages of the industrial revolution--capital simply imposes the form of wage labour on pre-existing modes of artisanal production. But in the subsequent phase, "real subsumption," it undertakes a wholesale reorganisation of work. Science is systematically applied to industry; technological innovation becomes perpetual; exploitation focuses on 'relative' intensification of productivity rather than 'absolute' extension of hours; economies of scale and co-operation are systematically sought out; and consumption is organised by the cultivation of new needs which beckon on new industries in an orgy of "productions for production's sake." In this phase, Marx observes, the agent of production ceases to be the individual labourer and becomes the "collective worker, made up of labour power "socially combined" in all the manifold differentiated yet interdependent tasks "which together form the entire production machine." The "limbs" of this collective subject encompass both physical and intellectual activity: "Some work better with their hands, others with their heads, one as a manager, engineer, technologist, etc., the other as

overseer, the third as manual labourer or even drudge. . . And here it is quite immaterial whether the job of a particular worker, who is merely a limb of this aggregate worker, is at a greater or smaller distance from the actual manual labour." See *Capital*, vol 1. 1026-1040. Autonomist Marxism's concept of the "social factory" is the theory of this "collective worker" grown beyond a point even Marx could anticipate.

³⁴ Mario Tronti "Social Capital," Telos 17 (1973): 105.

³⁵ Mariarosa Dalla Costa and Selma James, The Power of Women and the Subversion of the Community. Bristol: Falling Wall Press, 1972.

³⁶ The concept of "unwaged" labour is particularly associated with Selma James, and has been developed by her in a series of writings from Sex, Race and Class (Bristol: Falling Wall, 1975) to "Women's Unwaged Work-The Heart of the Informal Sector." Women: A Cultural Review 2.3 (1991)267-271. Other works drawing on this analysis include Nicole Cox and Silvia Federici, Counterplanning From the Kitchen -- Wages for Housework: A Perspective on Capital and the Left (Bristol: Falling Wall, 1975), and, more recently, Leopoldina Fortunati, The Arcane of Reproduction: Housework, Prostitution, Labor and Capital (New York: Autonomedia, 1995).

³⁷ Selma James, "Marx and Feminism," Third World Book Review 1:6.(1986) 2, original italics.

³⁸ James, "Marx and Feminism," 2.

³⁹ Sergio Bologna, "The Tribe of Moles," Italy: Autonomia--Post-Political Politics, ed. Sylvere Lotringer and Christian Marazzi. (New York: Semiotext(e), 1980) 36-61.

⁴⁰ Tronti, Ouvriers et Capital 305.

⁴¹ On self valorisation see Cleaver, "The Inversion of Class Perspective."

⁴² Werner Bonefeld, "Human Practice and Perversion: Beyond Autonomy and Structure," Common Sense 15 (1994) 43-42.

⁴³ Thus in a review of Midnight Notes Collective, Midnight Oil, the journal Aufheben criticises the book for an tendency to see "capital as an undifferentiated unity imposing an agreed structure on the working class" which verges on conspiracy theory (Review of Midnight Oil by Midnight Notes Collective, Aufheben 3 (1994); 35-41). For other interesting critical analysis of the autonomist tradition see "Decadence: The Theory of decline or the Decline of Theory--Part II, Aufheben 3 (1994); 24-34" and "'Autonomist' & 'Trotskyist' Views: Harry Cleaver Debates Hillel Ticktin," Radical Chains 4 (1994) 9-17.

⁴⁴ Michael Lebowitz, Beyond Capital: Marx's Political Economy of the Working Class (New York: St Martin's Press, 1992).

⁴⁵ Raniero Panzieri, "Surplus Value and Planning: Notes on the Reading of Capital," The Labour Process & Class Strategies (London: Conference of Socialist Economists, 1976) 4-25, and "The Capitalist Use of Machinery: Marx Versus the Objectivists," Outlines of a Critique of Technology, ed. Phil Slater (Highlands: Humanities, 1980) 44-69.

⁴⁶ Marx, Capital vol. 1 563.

⁴⁷ Panzieri, "Surplus Value and Planning" 12.

⁴⁸ Panzieri, "Surplus Value and Planning" 12.

⁴⁹ Panzieri, "Surplus Value and Planning" 12. In "The Capitalist Use of Machinery," 57, Panzieri observed that "The relationship of revolutionary action to technological

`rationality' is to `comprehend' it, but not in order to acknowledge and exalt it, rather in order to subject it to a new use: to the socialist use of machines."

⁵⁰ Harry Cleaver, "Technology as Political Weaponry," Science, Politics and the Agricultural Revolution in Asia, ed. Robert Anderson (Boulder: Westview, 1981) 261-276.

⁵¹ My account here rewrites in terms familiar to English speaking audiences the distinction Negri makes in "Domination and Sabotage," Working Class Autonomy and the Crisis (London: Red Notes, 1979) 93-138, between "sabotage" and "invention power."

⁵² Extracts are reprinted in Red Notes, Working Class Autonomy and the Crisis (London: Red Notes, 1979).

⁵³ By "sabotage" Negri was in fact designating a very broad concept of refusing and undermining capitalist development. But there is no doubt that this included its most concrete and pointed applications: strikes, `direct action' and the destruction of machinery-tactics for which autonomia was to develop a formidable reputation.

⁵⁴ See for example Frank Webster and Kevin Robins, Information Technology: A Luddite Analysis. (Norwood: Ablex. 1986).

⁵⁵ Cleaver, "Technology as Political Weaponry" 264.

⁵⁶ For an account of the most famous of these radio stations, which broadcast out of Bologna, see Collectif A/Traverso, Radio Alice, Radio Libre (Paris: J-P. Delarge, 1977). Other autonomist influenced radio stations included Radios Red Wave and City of the Future in Rome, and Radio City of the Future in Venice.

⁵⁷ Berardi, Franco ("Bifo"), Le Ciel Est Enfin Tombe Sur La Terre (Paris: Seuil, 1978) 27, my trans.

⁵⁸ Berardi, Le Ciel Est Enfin Tombe 27.

⁵⁹ Berardi, cited in Radio Alice, Radio Libre 107.

⁶⁰ "Detournement" is a term deriving from the Situationists, with whom the Italian autonomia had a distinct affinity. It describes the reassemblage of elements torn out of their original context in order to make a subversive political statement; see Ken Knabb, ed. Situationist International Anthology (Berkeley: Bureau of Public Secrets, 1981) 8-14, 55-56; Guy Debord, Society of the Spectacle (Detroit: Black and Red, 1977); and, for useful commentary Cleaver, "The Inversion of Class Perspective."

⁶¹ Cleaver, "Technology as Political Weaponry" 264.

⁶² On the fluidity of technology, see Cleaver, "Technology as Political Weaponry" 268: "A given technology is never the same when it is implemented in different historical and political contexts. As an organisation of social production, technology organises the existing social relations, and those shift and change according to the changing composition of political power."

⁶³ Moulrier, "L'opéraisme italien." He stresses that the periodisation should not be taken to mean that the workers of one era vanish at the commencement of the next: professional workers persist into the era of the mass worker, and mass workers into the epoch of the socialised worker: the point is that the innovative and strategic centre of struggle shifts. For a compact summary of the three cycles described here, see Antonio Negri, "Interpretation of the Class Situation Today: Methodological Aspects," Open Marxism,

vol. 2, ed. Werner Bonefeld, Richard Gunn and Kosmas Psychopedis (London: Pluto 1992) 69-105.

⁶⁴See Sergio Bologna, "Class composition and the theory of the party at the origin of the workers councils movement," The Labour Process & Class Strategies (London: Conference of Socialist Economists, 1976). 68-91.

⁶⁵ On the social wage and the factory wage see Tronti, "Social Capital," and Negri, "The State and Public Spending" in Labor of Dionysus 179-216.

⁶⁶ See Tronti, "Social Capital."

⁶⁷ John Merrington, notes to Negri, Revolution Retrieved 200.

⁶⁸ Witness Henry Ford's obsessive concern with worker's morality and marital status. An excellent account of these developments is Stuart Ewen, Captains of Consciousness (New York: McGraw Hill, 1976).

⁶⁹ Tronti, "The Strategy of Refusal." For autonomist accounts of this crisis see Cleaver, Reading Capital, and many of the articles in Midnight Notes Collective, Midnight Oil. For a collection of non-autonomist articles on the same topic, see Colin Crouch and Alessandro Pizzorno, eds., The Resurgence of Class Conflict in Western Europe Since 1968, vols. 1 & 2, (London: MacMillan, 1978).

⁷⁰ Negri, "Interpretation of the Class Situation Today," dates it specifically to the 1971 Nixon/Kissinger departure from the gold standard.

⁷¹ Negri "Interpretation of the Class Situation Today" 87.

⁷² George Caffentzis, "The Work/Energy Crisis and the Apocalypse," Midnight Notes Collective, Midnight Oil 221-222, orig. Midnight Notes 3 (1980).

⁷³ Michael J. Crozier, Samuel P. Huntington and Joji Watanuki, The Crisis of Democracy (New York: New York University Press, 1975), 115.

⁷⁴ Collettivo Strategie, "The 'Technetronic Society' According to Brzezinski," Compulsive Technology, ed. Solominides and Les Levidow (London: Free Association Books, 1985, orig. 1978) 128.

⁷⁵ Collettivo Strategie 128.

⁷⁶ Collettivo Strategie 128.

⁷⁷ Collettivo Strategie 128.

⁷⁸ Collettivo Strategie 129 It should be underlined that this analysis was no abstract exercise: Brzezinski, an originator of information revolution theory, was also, at the time of Collettivo's writing, advising the Italian government on how to dispose of autonomia and other dissident groups, a process which was to end in arrest and imprisonment for hundreds of activists. See Brzezinski 1983. Brzezinski, Zbigniew. 1983. Power and Principle: Memoirs of the National Security Adviser. New York: Farrar, Strauss, Giroux.

⁷⁹ Paul Virilio, Popular Defense & Ecological Struggles (New York: Semiotext(e), 1990). Although Virilio has now departed on a very different trajectory, he is a theorist at one time loosely connected to autonomia---see his "Popular Defense and Popular Assault," Italy: Autonomia--Post-Political Politics, ed. Sylvere Lotringer and Christian Marazzi. (New York: Semiotext(e), 1980) 266-272.

⁸⁰ See David Noble, Forces of Production. (New York: Knopf, 1984), Les Levidow and Kevin Robins, "Towards a Military Information Society?" Cyborg Worlds: The Military

Information Society, ed. Les Levidow and Kevin Robins (London: Free Association Books, 1989) 159-177.

⁸¹ See Starr Roxanne Hiltz and Maurice Turoff, The Network Nation: Human Communication Via Computer (Reading: Addison-Wesley, 1978).

⁸² On this process, see, in addition to the sources cited above, Manuel Castells, The Informational City: Information Technology, Economic Restructuring and the Urban-Regional Process (Oxford: Blackwell, 1989); Jim Pomeroy, "Black Box S-Thetix: Labor, Research, and Survival in the (Art) of the Beast," Technoculture, ed. Constance Penley & Andrew Ross (Minneapolis: University of Minnesota, 1991) 271-294; Manuel De Landa, War in the Age of Intelligent Machines (New York, 1991).

⁸³ Negri, Revolution Retrieved 181, borrows this phrase from Herbert Marcuse and applies it specifically to the transition from Planner State to Crisis State.

⁸⁴ For ratification of this point from a non-autonomist source see Castells 29: ". . . while informationalism has by now been decisively shaped by the restructuring process, restructuring could never have been accomplished, even in a contradictory manner, without the unleashing of the technological and organisational potential of informationalism."

⁸⁵ Dave Feikert, "Britain's Miners and New Technology," Issues in Radical Science, Radical Science 17 (Free Association Books: London, 1985) 22-30; G. Santilli, "Peau de Leopard: L'Automatisation Comme Forme de Controle Social." Travail 8 (1985): 20-28. Cynthia Cockburn, Machinery of Dominance: Women, Men and Technical Know How (London: Pluto, 1985).

⁸⁶ Caffentzis 234.

⁸⁷ Fergus Murray, "The Decentralisation of Production--the Decline of the Mass-Collective Worker?" Capital and Class 19 (1983): 74-99.

⁸⁸ Murray 95.

⁸⁹ Murray 95.

⁹⁰ Negri, Revolution Retrieved 209.

⁹¹ Negri first uses the term in La Classe Ouvriere Contre L'Etat (Edition Galilee: Paris, 1978) and Del Obrero-Masa al Obrero Social (Barcelona: Editorial Anagrama, 1980.) His fullest English language statements of the position are "Archaeology and Project: The Mass Worker and the Social Worker," Revolution Retrieved 199-228; The Politics of Subversion: A Manifesto for the Twenty First Century (Cambridge: Polity, 1989); and "Interpretation of the Class Situation Today". For the context of the theory, and the controversy surrounding it, see Wright 287-339.

⁹² Negri, Politics of Subversion 89.

⁹³ Negri, Politics of Subversion 89.

⁹⁴ Negri, La Classe Ouvriere 254.

⁹⁵ For an autonomist analysis of this in the context of Fiat, see Mariella Bierra and Marco Revelli, "Absenteeism et Conflictualite: L'Usine Reniee. Crise de la Centralite de L'Usine et Nouveaux Comportements Ouvriers," Usines et Ouvriers: Figures du Nouvel Ordre Productif, ed. Jean Paul de Gaudemar (Paris: Francois Maspero, 1980). 105-136.

⁹⁶ Negri, Politics of Subversion 79.

⁹⁷ Negri, "Interpretation of the Class Situation Today" 79.

⁹⁸ Negri, Revolution Retrieved 219.

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- ⁹⁹ Negri, Politics of Subversion 204.
- ¹⁰⁰ Negri, Politics of Subversion 84.
- ¹⁰¹ Negri, Politics of Subversion 94-95.
- ¹⁰² Negri, Del Obrero-Masa al Obrero Social 36-37, trans. Santiago Valles.
- ¹⁰³ Negri, Politics of Subversion 87.
- ¹⁰⁴ Negri, "Gauche et Coordinations Ouvrieres," Lignes 5: (1989) 94. my trans.
- ¹⁰⁵ Negri, "Gauche et Coordinations Ouvrieres" 93.
- ¹⁰⁶ Negri, "Gauche et Coordinations Ouvrieres" 94.
- ¹⁰⁷ Negri, "Gauche et Coordinations Ouvrieres" 94.
- ¹⁰⁸ Felix Guattari and Toni Negri, Communists Like Us (New York: Semiotext(e), 1990) 128.
- ¹⁰⁹ Negri, "Luttes Sociales et Control Systemique," Futur Antérieur. 9 (1992): 15 my trans.
- ¹¹⁰ Negri, "Luttes Sociales" 15.
- ¹¹¹ Negri, "Luttes Sociales" 18.
- ¹¹² Negri, Revolution Retrieved 239.
- ¹¹³ Negri, Politics of Subversion 93.
- ¹¹⁴ Negri, Politics of Subversion 93.
- ¹¹⁵ Negri, Politics of Subversion 93.
- ¹¹⁶ Negri, Politics of Subversion 85-86. Referring specifically to computerisation, Negri, "Interpretation of the Class Situation Today" 89, observes that the more "abstract" and "immaterial" the "instrumentation of production" becomes, the more it is itself "implicated in the struggle that traverses the social" and reveals "sectors which are

vulnerable, and ever more vulnerable to the autonomy of social co-operation and the auto-valorisation of proletarian subjects."

¹¹⁷ Serge Mallet, Essays on the New Working Class (St. Louis: Telos, 1975).

¹¹⁸ Maurizio Lazzarato and Toni Negri, "Travail Immaterial and Subjectivite," Futur Antérieur 6 (1991): 87.

¹¹⁹ Negri, Politics of Subversion 52.

¹²⁰ Negri, Politics of Subversion 116 (original emphasis).

¹²¹ Negri, Politics of Subversion 116 (original emphasis).

¹²² Negri, Politics of Subversion 118.

¹²³ Negri, Politics of Subversion 119. He notes that the distinction is "imprecise"; in practice information and communication are not easily separable: computerisation represents an attempt by capital to enhance its informational powers, but may in practice allow communicational opportunities for workers. For this reason, "One must . . . be very careful in the use we make of the distinction, occasionally using it, if one wishes, as an abstract, definitional distinction, but bearing in mind that it is quite inadequate for analysis of the concrete."

¹²⁴ Negri, Politics of Subversion 117-118.

¹²⁵ Negri, Politics of Subversion 118, 58

¹²⁶ For information on these events, see Marie Marchand, The Minitel Saga (Larousse: Paris, 1988).

¹²⁷ "There was also detailed information on the demonstrations (starting points, routes, buttons to wear, slogans to shout) and statements rejecting any attempts by political parties

and their allies to coopt the student movement. They were truly dead set on maintaining their independence and they said as much on display page after display page." (Marchand, 153).

¹²⁸ Negri, Politics of Subversion 137.

¹²⁹ Alain Lipietz, The Enchanted World: Inflation, Credit and the World Crisis (London: Verso, 1985) 141. The resemblances between the autonomists' theory of "cycles of struggle" and the Regulation School's concept of successive "regimes of accumulation"--with the era of the mass worker corresponding to Fordism, and the socialised worker to post-Fordism--will be apparent. In fact, both groups have influenced each other, while taking very different orientations--the Regulation School theorists preoccupying themselves with the requirements for successful capitalist accumulation, the autonomists searching for possibilities to explode that process. Perhaps predictably, they arrive at different conclusions, with autonomists--or at least Negri--perceiving the onset of a new era of struggle, and Regulation School theorists settling for accommodation. Negri, although sometimes using the Fordist/post-Fordist terminology, has criticised the Regulationists as an "academic school" who have abandoned the "critique of political economy" in favour of a "functionalist and programmatic schema." ("Interpretation of the Class Situation Today" 104-105).

¹³⁰ For example Sergio Bologna was intensely critical of Negri's attempt to contain the complexities arising from the restructuring of labour power within a single grand theoretical construct. For an exciting and informative summary of the criticism of Negri's "socialised worker" thesis by Bologna and other of his Italian comrades see Wright, 287-

339, and an important, and a scathing critique of Negri's work from the perspective of the German "autonomous" movements appears in George Katsiaficas, The Subversion of Politics: European Autonomous Social Movements and the Decolonization of Everyday Life (New Jersey: Humanities Press, 1997). It should, however, be noted that Negri's account of the "socialised worker" has developed over the course of time, and its most recent versions are more substantial than its initial enunciation.

¹³¹ Leon Trotsky, History of the Russian Revolution, vol 1, "Preface. (Ann Arbor: Michigan, 1967).

¹³² Caffentzis 235.

¹³³ Caffentzis 235

¹³⁴ For a selection from the large literature on this issue, see Cockburn; Margaret Lowe Benston, "For Women, The Chips Are Down," The Technological Woman: Interfacing With Tomorrow, ed. Jan Zimmerman (New York: Praeger, 1983) 44-54; Heather Menzies, Fast Forward and Out of Control: How Technology is Changing Your Life (Toronto: MacMillan, 1989); Sally Hacker, "Doing It the Hard Way:" Investigations of Gender and Technology (Boston: Unwin Hyman, 1990).

¹³⁵ See the discussion between Guido Baldi, "Negri Beyond Marx," and Bartleby the Scrivener, "Marx Beyond Midnight" both in Midnight Notes 8 (1985): 32-36.

¹³⁶ Thus in a recent analysis--The Informational City: Information Technology, Economic Restructuring and the Urban-Regional Process (Oxford: Blackwell, 1989)--which provides a striking contrast to Negri's account of the socialised worker Manuel Castells argues that a high technology economy--unlike smokestack industry with its massed blue collar

workforce--tend to polarise employment. Computerisation results in the elimination of jobs insufficiently skilled to escape automation but expensive enough to be worth replacement. Of the remainder a substantial number are 'upgraded' to provide 'intellective' tasks for a new echelon of technicians and programmers. A larger portion are downgraded, "recycled in low-skill, low-pay activities in the miscellaneous service sector, or integrated in the booming informal economy in both manufacturing and services" with lower wages and little or no social protection. This generates a dualised occupational pattern whose divisions follow predictable lines of gender and ethnicity, and are reinforced by self-perpetuating residential enclaves, educational chances, and differential exposure to media and information flows. What results is "a highly differentiated social structure, both polarised and fragmented."(205)Professional and managerial classes identify with capital, and the remainder of the working population, with their variegated positions in the new production systems reflected and amplified in their territorial differentiation in the city are divided into "socially discriminated communities that cannot constitute a class" (228, emphasis added)

¹³⁷ Negri, Politics of Subversion 145-146.

¹³⁸ Negri, Politics of Subversion 133.

¹³⁹ Negri, "Interpretation of the Class Situation Today" 87.