

POST-FORDISM, THE "FRENCH REGULATION SCHOOL", AND THE WORK OF JOHN MATHEWS

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The theory of post-Fordism is now a significant influence in Australia's industrial restructuring debates. According to post-Fordists, the supposed transition from an era of Fordism to an era of post-Fordism is the underlying dynamic of our age, to which political and industrial strategy should attend. Manufacturing decline is, on this view, part and parcel of a worldwide crisis of "Fordism", or of the "mass production system". The means of regeneration lie in "post-Fordist" strategies of workplace design and industrial organisation.

The main Australian advocate of this theory is John Mathews, whose work links industrial change in Australia and the theory of changing "eras" of production. Mathews and other post-Fordists identify the current award restructuring push as a movement from a Fordist industrial relations system, to a post-Fordist one (Badham and Mathews, 1989; Curtain and Mathews, 1990). Post-Fordism focusses on new technology and work design—that is, on workers—as the proper site for measures aimed at industrial regeneration. Attention is thus diverted from the wider institutional requirements of industrial renewal advocated by strategic unionism. Post-Fordism has helped shift strategic unionism's focus from industry policy to its own version of

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award restructuring, and Mathews' theories have been key ingredients in this².

Mathews' version of post-Fordism, although differing in important respects from the versions dominant overseas, is dominant in Australia. These differences invite examination, since Mathews' work presents itself as an innovative synthesis and application of a vast field of literature to the Australian predicament. But if this project has gone awry, and activists and consultants are using his theory in accordance with its stated purpose "to be of practical assistance to workers and managements who are prepared to meet the challenges ahead" (1989a:4-5) the consequences could be misguided industrial strategy and political activity.

The areas where Mathews' theories vary from most post-Fordist theory are as follows. Firstly, and most importantly, where Mathews sees favourable results for organised labour in the supposed transition from Fordism to post-Fordism, nearly all other post-Fordist writers see unions' decline. Secondly, Mathews amplifies one of the features of post-Fordist literature, an underlying determinism—a sense that the transition to post-Fordism is inevitable, and society must adjust to it—by underpinning the process with a deterministic transition between technological paradigms³ and with more conventional technological determinism. But the resulting sense of inevitability in the transition to post-Fordism sits uneasily with the assertions of political choice which supposedly constitute the process. The contradiction between assertions of political choice, and the determination of that choice is thus more acute in Mathews' writings. Thirdly, Mathews goes further than most post-Fordists in claiming the mantle of the French regulation school. His use of their terminology gives the erroneous impression that his theory is based on their analysis, and that thus critics of the theory of post-Fordism are bound to take on the French regulation school.

2 For a statement of the post-Fordist thesis by a prominent unionist, see Carmichael, (1988, 1989)

3 His source for this theoretical perspective is Perez, (1983, 1985), Freeman and Perez, (1986), Roobeek (1987).

The importance of the industrial restructuring issue to Australia, the prominence of Mathews as an actor in this process, and the ambit nature of his theoretical claims justifies a critical study of his version of post-Fordism—the aim of this article. Part of the novelty of his theories derives from the eclectic manner in which he combines his sources, particularly the French regulation school, and the version of long-wave economic theory which utilises the problematic concept of technological paradigm. This article studies this theoretical structure, commencing with a discussion of Mathews' key source, Piore and Sabel's *Second Industrial Divide*. While a similar sense of optimism pervades their work, their view of the fate of organised labour at the hands of contemporary industrial change is somewhat different. The article then canvasses criticisms of Piore and Sabel's theory which cast serious doubts on it. Then the focus shifts to Mathews' work, highlighting its deterministic underpinnings, which undercut the assertions that political choice constitutes the process of transition between eras. Then the French regulation school enter the discussion, and I reject claims that their work forms the basis of popular post-Fordist theory.

The "Second Industrial Divide"

Piore and Sabel's text *The Second Industrial Divide* is the basis for Mathews' theory of post-Fordism. According to this widely cited work, the present period is one of transition between two eras, from mass production, or "Fordism", to "flexible specialisation", or, in Mathews' terminology, "post-Fordism". For Piore and Sabel, the present international industrial crisis is due to "the limits of the model of industrial development that is founded on mass production—the use of special purpose product-specific machines and of semi-skilled workers to produce standardised goods" (1984:3-4).

According to the French regulation school, from whom Piore and Sabel borrow the term, "Fordism" described not only the system of mass-production, with long production runs of standardised products made by unskilled workers on dedicated machinery, but also a complex of institutions which ensured the matching of production and consumption

at the level of the national economy. With increasing productivity following developments in mass production technology, ensuring consumption became more urgent. Wage determination systems were part of this process. Under capitalism, wages have a contradictory aspect—they are at once a cost to capital, and a means of realising surplus value, ie profits. A key feature of Fordism was that wages rose in tandem with productivity increases, thus preventing underconsumption and falling profits. Keynesian economic management techniques and the welfare state further buttressed aggregate purchasing power. The Bretton Woods international monetary system, under US hegemony, ensured that states would act to correct balance of payments disequilibria.

The system of "Fordism" came to an end with two broad sets of changes, in market structure and technology, in the late 1960's to mid 1970's. According to Piore and Sabel, domestic markets for mass produced goods became saturated, prompting firms to go multinational in quest of markets and cheaper labour. Developments in production technology—the computerisation of manufacturing—gave the technological possibility of reorganising production in radically different ways to the prevailing Taylorist methods. Previously, production had taken place on dedicated mass-production machinery, in long production runs which were required to recoup high startup costs. New flexible computerised production technology, with its ability to change more rapidly from product to product, enabled the recovery of startup costs over a greater range of products, thus shortening economically effective production runs.

This, for Piore and Sabel, enables production to be more directly oriented to a changing market, and targetted at selected market niches. Production and work organisation strategies, to be successful, they argued, should shift from the production of standardized goods in long production runs on dedicated equipment by unskilled workers (Fordism), to the production of differentiated products, in shorter production runs, on flexible computerised equipment, by skilled workers (post-Fordism, flexible specialisation).

In Piore and Sabel's theory, there are periods in which "choice" between different developmental paths of production technology, writ large,

becomes an overriding issue. They call such periods "industrial divides", the second of which we are now living through. In the first industrial divide, there was a political choice between the technology of "mass production" (the use of dedicated machinery operated by low or semi-skilled workers to produce large runs of standardised goods) and craft production, or "skilled workers using sophisticated, general purpose machinery to turn out a wide and constantly changing assortment of goods for large but constantly shifting markets" (Piore and Sabel, 1984:5). The choice resulted in the dominance of mass production as a form of productive organisation. The outcome was not technically determined: firms using general purpose machinery and widely-skilled workers could have taken a more prominent profile in economic life, but for the exigencies of politics. At the present second industrial divide, their work suggests, a "choice" in favour of "flexible specialisation" is the most likely outcome⁴.

The Critique of Piore and Sabel

Piore and Sabel's theory has encountered a number of devastating critiques, which I will review here. It is useful to sort these critiques into three somewhat overlapping categories; the theory's conceptual effectiveness, its contemporary and historical accuracy, and its treatment of the concept of "choice". (This last feature will be discussed in the context of Mathews' theories.)

As to the first point—the theory's conceptual effectiveness—Piore and Sabel's theory is a binary interpretation of historical and contemporary trends in the development of production. It is a "two-place historiography" (Schuster and Watchirs, 1990) of the general form before—period of transition—after. The before and after are defined by a twofold categorisation of production types—mass production and flexible specialisation: before—mass production, after—flexible specialisation (post-Fordism). As Williams, et al. (1987) note, seldom

4 This thumbnail sketch of Piore and Sabel's book passes over significant problems which I discuss later.

can such a massive theoretical superstructure have been erected on such a flimsy base.

The most devastating criticism that can be made of Piore and Sabel's theory is that it cannot be refuted or verified, since they do not operationalise their concepts. That is, they do not say how to identify instances of the two basic production types. This problem is serious because Piore and Sabel intend this twofold taxonomy of production types to be the basis for a typology of whole "eras" of capitalist development as well as of firms, regional and national economies. But they do not give "criteria of dominance" (Williams et al, 1987:415) which enable us to identify which production type dominates at the level of the firm, the industry, the regional or national economy, much less a whole era. How many firms need to be classifiable as instances of "post-Fordism/flexible specialisation", to apply the labels to the region/nation/era, or to justify the claim that a particular form of production is dominant? How many workers must be working in the "flexible specialisation" manner to apply that label to a firm? Instances of mass production and flexible specialisation cannot be satisfactorily identified at plant, enterprise or industry level, let alone that of region, nation or "era" (Williams, et al., 1987:417).

Furthermore, the elements of the production taxonomy are themselves ill-defined. As Williams, et al. (1987:415) argue, Piore and Sabel's formulas characterise two production types, with 3 dimensions of difference. Mass production is the production of standardised goods, by dedicated machinery in long production runs. Flexible specialisation is the production of specialised goods, by flexible machinery, in short production runs. The 3 dimensions of difference are the dedication—flexibility of the equipment, the degree of product differentiation—standardisation, and the length of production run. The opposition Piore and Sabel put forward suggests joint variation in all three dimensions. But they offer no means of distinguishing these key terms from one another. When is production equipment "dedicated"? When does it become "flexible"? When is a product "standardised", and when is it "differentiated"? How long is a "long" production run? Piore and Sabel make no attempt to deal with these problems. There are no criteria given to distinguish fundamental variation from more trivial restyling,

or standardised from differentiated products (Williams et al., 1987:416). Another dimensions of difference is skill and labour control, as to which similar arguments could be put. What is defined as a skilled job in one national context may be defined otherwise in another—there is no transcultural yardstick to measure skill with (Wood, 1982:19, Zicklin, 1987:453).

To move to the second (empirical) strand of the critique, not only does the conceptual equipment fail to function in such a way that instances of flexible specialisation or mass production could be identified, but this taxonomy fails to do justice to the rich variety of past and present types of production processes. Woodward's (1965) classification of three types - unit and short run, mass and long run, continuous flow - is widely accepted⁵, and the twofold classification of production types was eventually acknowledged as a non-starter by Piore himself (1987, cited in Allen, 1989:166). Peter Dicken employs a more subtle taxonomy of seven production types (1986:101).

The two production types, as the basis for a taxonomy of enterprises, regions, nations and a periodisation of history, lead to an "overburdened dualism" (Sayer, 1988:666) which cannot grasp the detail of past and present economies and enterprises. Few enterprises, much less whole economies, could be located at one end of the taxonomy on all three dimensions. This generates a tendency to make some pretty "flexible" observations. The "great divides" tempt post-Fordists to attribute false homogeneity to the passing epoch, and therefore false novelty to different developments in the emergent era. The universal concept of "Fordism" elides the rich variety of production types in existence in the supposed era of "Fordism", and when an enterprise which belongs to another type of production comes under study, it looks like something new. This is especially so for managerial strategies of labour control which have oscillated between the contradictory needs of on the one hand engaging the skill and commitment of workers, and on the other ensuring that subordinates do what they are told (Hyman, 1986:6). Viewing history through "Fordist" glasses makes direct control and supervision strategies visible, and contemporary "responsible

5 For instance, see Hirschorn, 1984.

autonomy" control strategies assume a false novelty when contrasted with supposedly formerly "Fordist" strategies (Sayer, 1986). Of course, the "Fordist" glasses screened from view the previously existing "responsible autonomy" strategies, like the whole human relations, and socio-technical systems schools.

Piore and Sabel's argument thus lapses into extreme selectivity, a point noted even by some post-Fordists themselves (eg Kenny and Florida, 1988:141-142). The temptation for the post-Fordists, as Campbell (1989:8-10) notes, is to select examples to illustrate the thesis, rather than really attempting to describe the complex changes undoubtedly taking place. The theory attracts observations which support it, and repels those which don't. When our theory predisposes us towards post-Fordism, we see it everywhere.

Post-Fordists' replies to some of these criticisms often lapse into "method rhetoric". For example, Badham and Mathews respond to criticisms of post-Fordist literature with general observations on method. "[T]he presence of conceptual ambiguities does not render a theory disproved or useless", they argue, "conceptual frameworks are not simply refuted by counter examples" (p.216). They acknowledge many of the points made by critics of post-Fordist theory, but that will not induce them to abandon it, since "[e]very macro-social theory can be criticized on the grounds that it appears to be contradicted by some particular development at some particular time" (Badham and Mathews, 1989:215). Furthermore, they suggest, many of the problems constitute "technical puzzles (in the Kuhnian sense)", (p.222) rather than decisive refutations. But these general points surely raise more questions than they answer. How many counterexamples, how much conceptual lassitude, is tolerable? They go on to suggest, oddly, that opponents of for instance Piore and Sabel are arguing against theory itself, in general, rather than the particular theories under consideration. "[W]e do not accept that this constitutes grounds for abandoning macro-level conceptualization", or of "the attempt to use "abstract categories as explanatory devices" (p. 222). The esoteric nature of this debate can blind us to the fact that there are pressing policy issues at stake here.

Market Saturation?

The post-Fordist thesis turns on an image of the immense transformations in capitalist markets. Mathews and Piore and Sabel sum up these changes in the central but highly contentious notion of "market saturation", which makes mass production unviable. It is remarkable that such a central idea is so little discussed, and such little evidence presented for it. Piore and Sabel point out that in the early 1950s in the US there was one car for every 4 residents, whereas in the 1970s there was one for every 2. In 1970, 99% of American households had TV sets compared with 47% in 1953. 99% of households had refrigerators, radios and electric irons, and 90% had automatic clothes washers, toasters and vacuum cleaners (Piore and Sabel, 1984:184). Mathews argues that domestic markets became saturated as part of the development of Fordism, since "there are only so many cars, TV sets, washing machines or radios that people can absorb" (Mathews, 1989a:30).

There are a number of objections to this simplistic market saturation thesis. Why suppose that owning one of the above products prevents the affluent owning two or more? TV sets are a case in point, where it is now not uncommon for households to own several, of different types. Products commonly proceed through several technological generations, earlier versions ending up relegated from pride of place. Black and white TVs are now frequently found in secondary viewing rooms—garages, or the like (or the homes of the less affluent). The next generation of high definition TVs will likely shift ordinary colour TVs into the secondary viewing rooms, and the black and white ones onto the scrap heap. There is a trend towards the ownership of small-screen, portable TVs ("watchmen"). Technological "gales of creative destruction" continually yield innovations which can be the basis for volume production, despite Piore and Sabel's nonsensical assertion that during the crisis of mass production "no new products emerged to stimulate demand for mass produced good" (1984:413). There is also significant replacement demand for mature products, precisely because they have such a high level of market penetration. (Williams, et al, 1987).

Post-Fordists often mount impressionistic arguments to the effect that there are more products available today on any given national market, and that therefore they must have been made in shorter runs. But this increasing availability of different products is because of the increasing international trade in manufactured goods, and the interpenetration of national markets is often a response precisely to the need to achieve economies of scale. Transnational producers simply sum the demand in diverse national markets into an economical production run⁶.

Furthermore, Mathews and Piore and Sabel fail to distinguish between market saturation due to lack of effective demand, and market saturation due to demand satisfaction. Piore and Sabel note that the structure of markets depends on the rights to property and the distribution of wealth, ie are politically determined — and then let the crucial importance of this fact escape them (1984:5). Markets are structured by effective demand, ie demand (need, want) which is backed by purchasing power. Thus they reflect inequalities of wealth and power. Markets for some products may be saturated at existing income distributions, but only when everyone who who wanted X could be provided with X would we be entitled to speak of market saturation, in the sense that post-Fordists like Mathews imply.

The geopolitical contingency of market structure is another important matter to which this universal theory is insensitive. In the immediate postwar period European markets were structured by Marshall Plan aid (Block, 1977) and some similar massive transfer of spending power from the industrially powerful nations to the (formerly) Eastern Bloc may take place soon (AFR, 7-2-1991). If so, this development would surely give rise to greatly increased demand for mass produced products. The rationalisation of the European Community should also consolidate mass markets. In Australia's case tight monetary policy constrains demand to limit imports.

Mathews' implicit suggestion that demand (need) satisfaction is at the root of market saturation—that people have all the mass produced products they need—is insensitive to the inequalities and inequities in

income and wealth distribution which structure markets. Industrial strategies that flow from Mathews' conception of market structure—that industrial activity should be directed at the upper end of the market, where quality not price is the determinant of the purchase, where differentiated, "post-modern", individualised forms of production reign—raise the question of how politically desirable is this resurgence of consumerism (albeit, "post-modern")? Is it not a regressive step, reinforcing inequalities by explicitly targeting industrial capacity towards the affluent at the expense of the less affluent? Should trade unions advocate such a strategy? The nature and social usefulness of products produced in the "post-Fordist" era, and in particular their environmental implications, is a notable lacuna in Mathews' post-Fordist vision.

This impoverished concept of market saturation is a poor guide for industry policy and corporate strategy for which an accurate picture of market structure is essential. The recent Pappas Carter report suggested that Australia should support "complex factor" industries, like the car industry, and identified two types of these industries: "mature complex factor", and "high-growth complex factor". Each demand different strategies—if competitive advantage is desired in high-growth industries, then success would follow "the ability to scale-up operations rapidly to develop and fulfill international demand" (Pappas Carter, et al, 1990:26). A universal concept of "market saturation" does not apply here.

On the question of industry policy, more problems arise with the idea that the "system as a whole" could benefit from a transition from Fordism to flexible specialisation. Post-Fordists sometimes orient their discourse at this level, as if the aim of policy was the regeneration of the system as a whole, rather than particular parts of it (eg Schoenberger, 1988). But, as critics point out, international trade in manufactures, far from resembling the assumption of mutual benefit which underpins conventional trade theory, is a zero-sum game, with winners and losers (Williams, et al, 1987:436, Hyman, 1986:8). It is a "fallacy of composition" (Lipietz, 1987a) to suggest that the whole system can benefit from changes which advantage particular components of a competitive system.

Thus far I have canvassed two strands of the critique of Piore and Sabel, conceptual and empirical. The third strand concerns the problematic concept of choice they employ. I will discuss this after sketching Mathews version of post-Fordism, since it amplifies the contradiction between choice and the determination of that choice which undercuts Piore and Sabel's work.

Post-Fordism-Mathews-Style

The discredited Piore and Sabel account of the end of mass production forms the basis of Mathews' version of post-Fordism. "[T]he mass production system", he writes, "is finite and already on the decline" (1989a:90, also see 1988b:43). Competitive advantage thus depends on quick response to fast changing demand, ie on "flexibility". Thus, according to Mathews, "...work is about to undergo its greatest change since the Industrial Revolution...", and "...the role of the organised labour movement in this process will be central."

Mathews writes:

"Mass production is reaching the limits of its technical, and hence economic, efficiency. Markets for mass consumer goods have become saturated; competitive pressures induced by newly industrialised nations in South East Asia and South America are becoming acute; and demand is being expressed in specialised market niches. Quality rather than quantity is increasingly the road to profitability. This shift is creating a requirement for "value added" management techniques, and for a flexible, skilled and responsible workforce which is able to exploit the productive gains available with computer-integrated production systems" (Mathews, 1989a:1-2).

In this changed economic environment, according to Mathews, there is a confluence of the traditional labour movement goals of industrial democracy, and of the demands of the changed economic environment, such that

"...if the new economic conditions of specialist market niches and rapid innovation require a highly skilled and motivated

workforce, to enable firms to be able to respond to the conditions, then it follows that treating workers seriously as responsible and adult humans, who are capable of making sensible contributions, is an optimal strategy for firms to follow. The participative and democratic workplace then becomes, under this reasoning, the most efficient and productive workplace". (Mathews, 1989a:34).

As he aphoristically puts it, industrial democracy is now "a matter of economic survival" (1988a:20, 23). Post-Fordist strategies flow from this coincidence between the the labour movement's political interests ("industrial democracy") and economic rationality. Employers and unions have a "common interest" in a "flexible, innovative and efficient industrial system" (1989a:38). Organised labour's role is to ensure, through political pressure, that employers follow the path of greatest efficiency, since employers will not necessarily implement industrial democracy strategies just because they are economically efficient (1989a:37). They may try other "neo-Fordist" strategies, which are extensions of Fordism (1989a:31-35), relying on tight labour control and polarisation between highly skilled workers, and deskilled, marginal ones. But can these strategies attain efficiency and competitive advantage? Mathews equivocates on this point. On the one hand, he argues that "neo-Fordist" strategies are ultimately doomed to failure because they conflict with the requirements of economic efficiency, and could "condemn whole industries and nations to industrial oblivion" (1989a:88). On the other hand, he states that there are "other routes towards efficiency" (1989a:38), like the strategy of skill and income polarisation, which he identifies with the "New Right".

This contradicts Mathews' central point that only post-Fordist industrial democracy strategies can deliver competitive advantage. Elsewhere he distinguishes between "more or less desirable forms of post-Fordism", on the basis of their implications for worker autonomy (Badham and Mathews, 1989:205). Although economically induced uncertainty in the labour process may necessitate more worker "involvement", increased skill, job-content and responsibility, Badham and Mathews acknowledge, this need have few implications for worker autonomy and working conditions (1989:214).

A measure of self-contradiction thus emerges in Mathews' theory. Industrial democracy is and is not a necessary feature of post-Fordism. Efficiency can and cannot be achieved on the basis of neo-Fordist strategies. But this argument's political cachet is the claim that industrial democracy is necessary for efficiency, and this idea, although contradicted, provides the central thread of Mathews' version of the post-Fordist thesis. However, industrial democracy necessarily involves the sort of genuine sharing of power which managements have traditionally resisted. Do efficient firms really rely on industrial democracy? This is an empirical question, easily settled by observation of efficient production methods. Observation of the sophisticated forms of control employed in Japanese and Japanese clone factories refutes the simplistic association of industrial democracy with efficiency, and shows that efficient production can be coerced from highly-skilled workers (Hampson, 1991, *forthcoming*)⁷.

The Japanese system of labour control relies on labour market conditions not unlike those touted in the post-Fordist vision (Kumazawa and Yamada, 1989). These conditions—high job security for the few, insecure conditions of employment for the many, and organised labour's demise—are precisely those conditions other post-Fordist theorists, including many of his own sources (eg Perez, 1983, 1985, Roobeek, 1987) see as necessary for an economy based on flexible specialisation, or post-Fordism.

Mathews is probably unique among post-Fordist theorists in seeing the new conditions in the supposedly "less authoritarian, more participative and democratic workplace that is emerging" (1989a:2) as favouring organised labour. This optimistic view of the outcome of the transition to post-Fordism places him right out of step with the majority of post-Fordist theorists. Certainly, his major source, Piore and Sabel, have the opposite view of unions' role. For Piore and Sabel, unions are an obstacle to the sort of industrial change necessary for prosperity. In their view, labour has to detach itself from increasingly indefensible forms of shop floor control (1984:4, 307), and adjust to the new economic and industrial circumstances. Piore and Sabel argue that the

7 see Dohse, Jurgens and Malsch, (1987), Parker and Slaughter, (1988).

changes they envisage are very important to labour, which will bear the lion's share of the costs of adjustment. Labour will adjust to the new circumstances, and have no role in shaping them (1984:7)⁸. Although organised labour seems set to decline, a sense of optimism regarding working conditions still pervades their account. Workplace relations at enterprise level will be "collaborative", work will be more tolerable. But their lack of sympathy with organised labour makes Piore and Sabel and Mathews strange bedfellows.

The view that post-Fordism is a dangerous thing for organised labour is the dominant one in the literature. This danger follows from post-Fordism's tendency to widen the split between core and periphery in the labour market (Murray, 1989:49). Labour market segmentation follows from "flexibility"; one of those buzzwords which are the stuff of political diplomacy. It is a "warm, fuzzy" word—after all, who wants to be inflexible? And, true to its central meaning, it is "flexible" enough itself to accommodate a variety of meanings, of which two concern us here. "Numerical" flexibility means management's ability to hire and fire at will, to get workers on short notice for short periods of time to accommodate peaks in demand, and to send them home on short notice. Such workers are typically expected to be "flexible" as regards wages and conditions as well. "Functional" flexibility means workers' ability to undertake many jobs, and encompasses all the rhetoric of multiskilling and multitasking. These are valued workers—and their higher than normal pay and conditions reflects this. Thus the concept

8 Piore argues elsewhere that "labour has lost its place in America's vision of itself", and that "unions are not organic to the way in which society operates" (1986a:207). Unions' role in subsidising aggregate purchasing power in a "Fordist" economy is increasingly irrelevant, while "the high wages and work rules which unions have sought seem to weaken the competitive position of US industry on world markets" (Piore, 1986a:210). The agenda is clear: let's get rid of unions, have some wage cuts, and get some control on the job! "Flexibility" is enhanced by having a large pool of cheap labour to draw on (Piore, 1986b:153, Piore and Sabel, 1984:86), and the absence of a strong trade union movement ensured "flexibility" in post-war Japan (Piore and Sabel, 1984:160).

of flexibility entails a core-periphery division in the workplace (Hyman, 1986:12-13)⁹.

The British counterpart to Mathews' theory is the "New Times" thesis, promulgated by theorists who write for *Marxism Today* (Hall and Jacques, 1989). But most "New Times" theorists also foresee, indeed celebrate, unions' decline. According to these theorists, we are living in "New Times"—in a "post-Fordist" age. This is generally something to be optimistic about—one of the features of the new age is a "post-modern" celebration of individual personal style, and an associated decline of mass-based organisations—including trade unions (Murray, 1989). Political activity in the post-Fordist age thus has to take very different forms, including personal "subjective" struggle. In common with Lash and Urry's "End of Organised Capitalism" thesis, this theory sees a greatly reduced role for organised labour in political strategy, which must now rely on alliances with new social movements (Lash and Urry, 1987:211-225). Many economic geography post-Fordists also view organised labour's demise as inevitable under post-Fordism eg Schoenberger (1989:259-260). Roobeek (1987:129, 146), from the perspective of innovation theory, worries about social instability flowing from what she sees as post-Fordism's demands for "flexibility, deregulation, dualization, polarization and segmentation". For Roobeek, "flexibility" entails deregulation of working conditions and wages, and she sees this leading to increasing polarization among workers, and between workers and non- or part-time workers. This threatens labour movement unity (Bramble, 1988:194). We could see the emergence of a core of the working class, made up of white, skilled, male trade unionists, increasingly seeing their interests tied to managerial conceptions of "flexible production", while the rest of the trade union movement is increasingly reduced to an "unorganisable underclass" (Pollert, 1988:50).

9 For a discussion of "flexibility", see Bramble, (1988), Pollert, (1988),

Political "Choice", Technological and Paradigm Determinism

A major weakness of the post-Fordist thesis lies in its problematic notion of "choice". The direction and nature of technological development is the result of political processes, which select among the range of technical options. Mass production triumphed, not because of technical or economic superiority, in this unlikely scheme, but because powerful groups and individuals put resources behind it. But the usefulness of this image of technological change diminishes as it is extended upwards into the rarified atmosphere of "eras" of development, where the "choice" is preempted by the moving forces of history; its outcome is a foregone conclusion. Assertions of choice are a "decorous pretence" (Williams et al, 1987:412, Campbell, 1989a:11-12) since Piore and Sabel structure their argument in such a way that the only choice possible at the second industrial divide is between the prepackaged alternatives they offer, one of which they argue is unacceptable.

Mathews' theory follows Piore and Sabel in portraying the present industrial and political conjuncture as offering momentous choices, and in preempting the outcome of the choices. Various determinations contradict the assertions of choice. Piore and Sabel avoid technological determinism (1984:258-262): instead the sense of inevitability as to the outcome of the "choices" comes from supposed changes in markets (Elam, 1990:16-17). Mathews bolsters these market imperatives with technological determinism as well as a kind of "paradigmatic determinism" imported from the Freeman and Perez version of Long-Wave theory. I discuss the role played by these two determinisms in turn.

Even though he sees technological determinism as an all-pervasive, dangerous and powerful ideology, Mathews offers few examples of it in other people's writings. Technological determinism, he writes, is the idea "that the technical base determines, or shapes, the social organisation that grows around it" (Mathews, 1989a:2). But 'determining' something, and 'shaping' it are not the same thing: technologies can and do powerfully 'shape' their social environment. The important question is—what interests and forces shape the

technology? (MacKenzie and Wajcman, 1984, Badham, 1986). Furthermore, Mathews himself assumes a major role for technology in shaping (his word-1989a:vii) world developments. He writes "[n]ew technologies—robots, flexible manufacturing cells, CAD/CAM and other computerised systems—are changing what seemed to be the permanent rules of the manufacturing game" (Mathews, 1989b:144), they "have changed the face of production" (1989d:72). These are incautious formulations, which could be read as either a metaphoric shorthand, leaving unspecified what shapes technology, or as exactly the sort of deterministic view Mathews argues against.

The ideology of technological determinism, for Mathews, is especially insidious at the workplace, where it takes the form that "a certain form of technology requires a certain form of work organisation to be efficient" (Mathews, 1989a:3). But claims of exactly this nature support his own position. On CNC technology, he argues against "the artificiality of keeping programming and execution separate when the technology allows them to be integrated, and indeed requires them to be integrated in order to exploit its productive potential. The requirements of efficiency therefore coincide with a concern for human welfare and for the quality of worklife - *a unique characteristic of the computerised equipment...*" (Mathews, 1989a:107, emphasis added).

Thus Mathews' position on technological determinism equivocates between rejecting technological determinism on the one hand, and on the other utilising it for his own purposes. He insists that changes in work organisation are not "technology driven" (1989a:59), but he is fond of terms like "stimulated", "triggered", and "precipitated" (1989a:4, 41) which conceal this ambiguity.

Technological Paradigms and the Problem of Dominance

The concept of technological paradigm is another creaky foundation of Mathews' version of post-Fordism. It supports the theory in two ways: by helping to deflect the obvious criticism that few workers are actually enjoying post-Fordism's supposed fruits, and by providing a deterministic underpinning to the transition.

As to the first point, one major problem for any version of post-Fordism which points to positive results for workers, is the extent to which the new model fits observable developments. Post-Fordism focusses on the new skill requirements of the use of microelectronic technology in selected areas of manufacturing (rarely employing more than 25% of the labour force in toto) in selected countries. The changes affect only a minority of workers, who are often already skilled, in a few industries (Campbell, 1988:9). To what extent then can these optimistic post-Fordist principles of work organisation be applied to the rest of the economy? (Hyman, 1986:7; Rustin, 1989:58). In what sense can post-Fordism be "dominant"? Since there are no "criteria of dominance" (Williams, et al, 1987) as we have discussed, and given that post-Fordist workpractices are a numerical minority of the economy, post-Fordists might suggest these practices are "ideologically" dominant, in a "production paradigm", a notion much more difficult to assess.

A related question is how can these benevolent post-Fordist trends generalise to the rest of the economy? (Campbell, 1898a:8-9). Mathews' answer: their significance does not rest on their having blanket coverage, but "lies ... in the impact they are having on traditional Fordist assumptions concerning productive work organisation and industrial relations." (1989a:184). Changing these assumptions, embodied in a "production paradigm" (Badham and Mathews, 1989) residing in the "industrial imagination" will lead to political pressure to change work practices in other industries. This process is part of a "paradigm shift", driving the process of transition between eras, strengthening the underlying determinism and inevitability in post-Fordist theory. We next turn to the source for this view¹⁰.

10 There is a wide and confusing range of usages of the term "paradigm" in Mathews' theories, and I cannot discuss them all here. Mathews extends Kuhn's use of "paradigm" to refer to "a deliberate elaboration of a framework for sustained conceptual and practical work" (1988:56). He wants to develop a "post-socialist paradigm" (1988:15), to make up for the lack of programmatic specificity of the term "socialism", which he wants to replace. This post-socialist paradigm could help us make the choices to move beyond the Fordist paradigm to a post-Fordist paradigm (1988:21) of industrial democracy. And these sorts of "choices will be

Long Wave Theory and "Technoeconomic Paradigms"

The notion of paradigm shift and diffusion derive ultimately from the theory of scientific change developed by Thomas Kuhn (1970), and this theory was applied to technology by members of the Science Policy Research Unit (SPRU) at Sussex University. There the concept of "technoeconomic paradigm" was developed and modified in the context of long wave economic theory. The latter rests on the controversial observation that the capitalist world's economic development has proceeded in waves, or cycles, of boom and slump of 50-60 years duration, called after the Russian economist, Kondratieff¹¹. Schumpeter took up the theory, and suggested that a bunching, or a collection of technological innovations fuelled the long-wave of expansion, the exhaustion of which was associated with the decline of these technologies. One of the main problems bedevilling later generations of the theory was how to account for the technologies' supposed bunching and/or diffusion, and Carlotta Perez (1983, 1985) attempted to resolve this impasse by suggesting that the causal mechanisms of the Kondratiev long wave were bound up with the development and diffusion of 'technoeconomic paradigms'. Schumpeter's long cycles, argued Freeman and Perez, were "successions of 'technoeconomic paradigms'" (1986:9). For Freeman and Perez a paradigm shift in this sense is "a radical transformation of the best engineering and managerial common sense for best productivity and most profitable practice, which is applicable in almost any industry" (1986:10). It accounts for the decline of one period of economic activity, and the rise of another. In this theory, the new paradigm emerges within the old in response to the latter's exhaustion, and shows its advantages during the "downswing" of the previous cycle. It then becomes established as the dominant technological regime after a period of structural crisis and adjustment.

made according to sets of values that will be embodied in different paradigms, which in turn become the platforms of different political parties" (Mathews, 1989b:146).

For a discussion of the difficulties in applying Kuhn's theory to understand broad "shifts" in technology see Hampson and Schuster (1990)

In Perez's version of the causes of economic long waves, "the upswing of a Kondratiev long wave begins when a harmonic complementarity has been achieved through adequate social and institutional innovations, between the "technoeconomic paradigm"... and the socio-institutional climate" (Perez, 1983:363). The long period of growth is only entered after the socio-institutional sphere of society adjusts to the "technoeconomic paradigm", or "ideal type" of productive organisation (Perez, 1983:360-361). The resulting deep structural changes in the economy "require equally profound transformation of the institutional and social framework" (Freeman and Perez, 1986:16). The new system dynamics thus generated gradually transform the social fabric, forcing "the restructuring of the socio-institutional framework". Clearly, changes in the "technoeconomic sphere", the "technoeconomic paradigm", are the prime motor of these developments, and this constitutes a kind of technological determinism which I call "paradigmatic determinism".

It is tempting to conceive of the process of macro economic/social change as that of a paradigm shift, drawing social changes in its wake. It seems to be this view which informs Mathews' theories. For instance, Mathews, Hall and Smith (1987:3), in a paper concerned with educational policy, claim to be drawing "on the literature that characterises the current upheavals in industry as the transition from one technological paradigm to another — from a paradigm based on mass production, ... to a paradigm based on flexible production patterns ...". Thus, "the present decade ...[is] one of transition between two major technological paradigms" (Mathews, Hall and Smith, 1987:13). But Mathews elsewhere contradicts this view, arguing against seeing "production in any one era ...[as] a reflection of a single dominant paradigm", and against the notion of "one paradigmatic era succeed[ing] another in some grand march through history" (Badham and Mathews 1989:221). He further muddies the waters by suggesting that the process of paradigm shift is a political one in which activists should participate to impart to the paradigm a more amenable form (Mathews, 1989c:143, Badham and Mathews, 1989:234). The notion of a "paradigm" as an exemplary form of work organisation, propelled by a "paradigm" as a set of political goals (or the program of a political

party [1989b:146, 148]) supposedly supports the claim that the changes in work organisation in selected areas of manufacturing will diffuse throughout the economy.

Like Piore and Sabel, the problem of a constrained "pseudo choice" dogs Mathews' writings, but this determinist side of the contradiction is strengthened by technological and paradigm determinism, which is also a feature of his sources. Roobeek suggests that "pervasive technologies are causing changes in all spheres of production and consumption" (1987:132), while averring that "technological determinism does not exist" (Roobeek, 1987:134). Perez gestures to the political sphere's autonomy: the final form of structure will "ultimately depend on the interests, actions, lucidity and relative strength of the social forces at play" (1983:360). The technology—society relation is here grossly undertheorised.

The "choice" Mathews offers, between post- and neo-Fordism is hardly a "choice" at all, being equivalent to a "choice" between prosperity or stagnation (Campbell, 1989:11-12), and worse, between rationality and irrationality. Taylorism, Mathews argues, "could make sense only in the extreme circumstances of mass production; it makes sense no longer as the era of mass production slips into history" (1989a:123). Opposing the new post-Fordist paradigm is thus tantamount to opposing the tide of rationality itself, since "[m]any of the features of taylorism have lost their rationality with the decline of mass production" (Mathews, 1989b:145). According to Mathews, Hall and Smith, (1987:14). "[T]he countries that favour this new paradigm are going to be the survivors into the 21st century; those that cling to the Fordist paradigm that powered the post-war boom ... will find themselves marginalised and driven to the periphery of the global industrial system. We do not want to see that happen to Australia." The alternative to post-Fordism is ultimately doomed to failure because the strategy conflicts with the requirements of economic efficiency, and could "condemn whole industries and nations to industrial oblivion" (Mathews, 1989a:89). But this is all the more problematic when set against the contrary idea that "there are other routes towards efficiency" (1989a:38).

Mathews stresses the importance of political choice, but in the context of economic and technological imperatives, bolstered with a notion of

underlying paradigm shifts. The choice is thus not a real one, but merely a rhetorical device, a gesture to the autonomy of politics. It is "but an enfeebled semi-rhetorical choice between progress and stagnation", between "survival and death" (Campbell, 1988:11-12). It is a choice between rationality and madness, between self-preservation and self-destruction.

The French Regulation School and Post-Fordism

The work of the "French regulation school" has become increasingly popular among post-Fordists. Radical economic geographers have drawn on and extended this theoretical framework (Schoenberger, 1989, Harvey, 1988, Moulaert and Swyngedouw, 1989), and some economic long-wave researchers have attempted theoretical combinations between long-wave theory and regulationist analysis (Roobeek, 1987), and between the latter and labour-process theory (Blackburn, Coombs and Green, 1985). All this is grist for the post-Fordist mill.

Mathews claims the mantle of the regulationists for his own analysis, insisting that the "French Regulation School" is an important source material for his work¹². The suggestion is that post-Fordist analysis extends or builds on that of the regulationists, and that a critique of the former must attack the latter. This section rejects that view, since Post-Fordist analysis shares little with the French regulation school beyond some terminology. I establish this point by outlining the French regulation school project (admittedly in a sketchy manner, as space dictates) and then drawing out the difference between this body of thought and post-Fordism—Mathews'-style.

12 Personal communication - also see (1989c:142). Badham and Mathews chide critics of Piore and Sabel for dismissing the notion of a "Fordist paradigm" without discussing the French Regulation School "who are the progenitors of the term" (Badham and Mathews, 1989:222).

The French Regulation School

Until recently, the most comprehensive and accessible renditions of regulationist work were available in *Capital and Class*, in the works of multi-lingual participants in the "Reformulation of State Theory" debate, in particular Bob Jessop. Fortunately, this situation has changed with the publication in English of Robert Boyer's (1988) book, *The Regulation School: A Critical Introduction*, which aims to overview and explain the French regulation school project. According to Boyer, a key regulationist, the widespread interest in their work follows "an unfortunate sort of popularisation" (1988:20), leading to "success based on fashion" (p. 86). He suggests that most popular renditions of the French regulation school work are based on a very incomplete knowledge of the works it has produced, and people attempting to quickly apprehend their analysis of the present crisis risk coming to "a fairly simple diagnosis of the current crisis" (p. 25). This observation, I suggest, is particularly apposite to the popular versions of post-Fordism.

Regulationist theory appears on the surface to be a slightly eccentric rehash of Marxist value theory. But beneath the sometimes difficult Marxist jargon lies a challenging theoretical base and a quite promising research agenda, ill-served by the popularisation it has received. The French regulation school is firmly rooted in Marxism, but it rejects the "orthodox" version (Boyer, 1988. vii), in particular, the idea that there are eternal, ineluctable laws of capitalist development (p. 12), which necessarily manifest themselves in particular social developments. The central set of questions it addresses concerns the variability of economic performance and institutional structures existing within an overarching framework of a capitalist system (p. 27).

The French regulation school accept Marx's analysis of Capitalism in the abstract, and ask themselves how this social formation has endured when it is so patently riddled with contradictions? Capitalism is inherently crisis-prone, since "to the degree that the logic of capitalism is completely in command, or at least dominant, the very factors that favour profitability in the sphere of production compromise the realization process in the sphere of circulation, and thus the continuity of capitalism itself". Thus crises should be the rule, rather than the

exception, and the regulationists reject the neo-classical economic thesis that markets tend towards equilibrium, and that crises must be accidental (p. 27). On the other hand, the Marxist analysis would suggest that crises are ineluctable, but history, especially the long period of growth following world war two, shows that these crisis tendencies can be overcome, or at least forestalled (pp. 34-35).

The key concept for this process of forestalling crisis from which the regulation school gets its name, is that of "regulation" (Lipietz, 1987b:5). Regulation enables the reproduction of the capitalist mode of production, rather than its lapse into crisis as a result of the social conflicts to which it gives rise (Boyer, 1988:117). It is an alternative to the economic theory of general equilibrium (p. 117). Regulation refers to the process, codifiable in general laws, by which a specific mode of production, in a specific historical time, reproduces itself (p. 117). It is "the dynamic process of the adaptation of production and social demand, that is the combination of the economic adjustments associated with a configuration of social relations, institutional forms, and structures" (p. 118). It thus comprises both economics and politics, and refers to "the conjunction of the mechanisms working together for social reproduction, with attention to the prevalent economic structures and social forms" (p. 20).

The key to understanding the regulation process lies in the distinction between social relations in general, rooted in the commodity form or the labour capital relation, and the precise forms that they take in a given society in particular historical phases (p. 13). Regulation school analysis focusses on the specific institutional forms capitalism takes in precise contexts (Jessop, 1988:149). It thus centres on institutions, but since these institutions derive in part from the "fundamental" social relations underpinning capitalism, it differs from institutional economics, which describes these social forms without reference to the underlying laws of capitalism. The aim of the French regulation school is to generate and operationalise a set of concepts spanning these two extremes "from the highest level of abstraction", to propositions that can be tested against research material, historical accounts, or life experience (Boyer, 1988:31). Thus, it has proposed a hierarchy of conceptual tools, and three levels of analysis.

Firstly, and at the highest level of abstraction, lies the mode of production - a concept familiar from Marx. This concept tells us about the links between social relations and economic organisation, especially the forms of production and exchange. French regulation school analysis centres, of course, on capitalism, where the commodity form characterises exchange and, in conjunction with the wage relation, production as well. It reminds us that the "eternal" laws of economics which economists investigate are specific to a particular historic mode of production (p. 32).

Secondly, at the next lowest level of abstraction, lies the "regime of accumulation". Given Marx's analysis that Capitalism was prone to crisis, the question arises, as I indicated above, how does the capitalist mode of production endure? The answer lies in social forms which can channel and guide the major aspects of the accumulation process, so disequilibria and contradictions are concealed or in some way defused. The social form, at this level of abstraction (of "coercive laws imposed on the system as a whole" p. 19), is the regime of accumulation. It is comprised, at its most abstract level, of "a macroeconomic principle which describes the compatibility between transformations in production conditions, and in types of usage of social output" (Lipietz, 1987a:3). This principle denotes "a set of regularities that ensure the general and relatively coherent progress of capitalist accumulation, ie allow for the postponement of the distortions and disequilibria to which the process continually gives rise" (Boyer, 1988:36). It enables a "fairly long-term stabilization of allocation of social production between consumption and accumulation", and implies a correspondence between transformations in the conditions of production, and transformations in the conditions of the reproduction of wage labour (Lipietz, 1987b:14). This form, however, exists at a level from which it is still impossible to "read off" specific features—as opposed to very general ones—of the particular social environment under study.

Thirdly, the descent into specificity is accomplished with the concept of a "mode of regulation", which moves down from social relations in general, to "their specific configuration in a given country and during a particular historical phase" (p. 37). It operates, as Lipietz noted in a rule of thumb fashion, "at a level evident to the general public" (in

Boyer, 1988:19). It explains how agents and groups manage collectively to adjust their decisions on a day to day basis, knowing only the constraints they face locally, in accordance with the "laws", governing the system as a whole, and in accordance with the regime of accumulation (p. 43). The regime of accumulation must be materialised, in the shape of norms, habits, laws and regulating networks which ensure the unity of the process and that its agents conform to the schema of reproduction (Lipietz, 1987b:14). But the process of filling out the concept of a mode of regulation entailed describing precisely the institutional forms concerned, but by reference to the underlying "laws" of capitalism. As Jessop notes, this hierarchy of concepts, although located at different levels of abstraction, have essentially the same referents (1989:262-266, 288). Specifying the content of the mode of regulation means defining the exact nature of structural, or institutional forms (Boyer, 1988:37). Institutional forms are codifications of fundamental invariant social relations. They derive from the "mode of production", yet have a day to day, down to earth referent. They can span the divide between the nuts and bolts of political analysis and class theory.

The French regulation school claim to be doing economics in a new way, which centres on the "logic, origins and disappearances of institutional forms" (p. xxvi), and their connection with rates of economic activity (p. 13). It thus has most affinity with political economy. Its key notion of regulation is intended to substitute for the neo-classical notion of equilibrium. Boyer claims that the French regulation school does not offer a theory, but a method (p. xviii). The method precipitates a challenging research agenda, which holds a good deal of promise for comparative policy purposes. Correlating capitalism's specific manifestations in institutional/structural forms with economic success through historical and international comparison should be a powerful method for generating policy prescriptions.

Only a hasty reading could sustain the impression that the post-Fordist writers to whom I have referred derive from, or have a great similarity to, the French regulation school. An important difference is their views on the causes of the current world economic crisis, and, more importantly, the means of exit from it. I treat these questions in turn.

Crisis of Fordism

The central idea which regulationists hold, almost by definition, is that the present crisis dating from the late 1960s through the 1970s derives from a crisis of "Fordism" as an economic, social and technical system (Boyer, 1988:25). There are a variety of explanations for the crisis of Fordism, which are both too numerous and insufficiently connected to provide the basis for a unified account (p. 89). For instance, Boyer notes several explanations "the saturation of consumption norms, the rise of the tertiary sector and unproductive labour, the crisis of productivity within Fordism, the disconnection between national economic spaces and accumulation on an international scale, and the loss of hegemony by American capitalism", with emphasis varying from "the influence of social conflict (strikes by semiskilled workers, demands hostile to the system), to technological factors (the counterproductive character of large productive units, their rigidity vis a vis short term fluctuations), to the contradictions inherent in the long-run tendencies of the regime of accumulation..." (pp. 89-90). The precise nature of the crisis itself is a matter which is far from resolved within the French regulation school, and certainly is not reducible to a simplistic notion of "market saturation".

Alain Lipietz, in a quite widely received book, accounts for capitalist crisis in a more comprehensive manner. He distinguishes 3 different types of phenomena and events; those that relate to a general crisis in Fordism, and which appear in all countries; the magnifying effects of the forms of interconnection between the various national centres; and phenomena specific to the particular national centres (Lipietz, 1987b:41). Excluding the latter from his account, he "limits" his discussion to the general crisis in the world system. But his conception of crisis involves more than just structural limits, and includes more contingent factors. His explanation centres on the downturn in the rate of productivity growth worldwide, and the contradiction between this downturn and the continued tendency to increase purchasing power,

which eroded profitability (1987b:42)¹³. Further productivity increases could not be wrung from further application of Taylorist production techniques. There is a structural logic, then, to the onset of crisis, but the main culprit is "central monetarism" (p. 132), and its transmission through policies of "competitive stagnation" (p. 184). Such policies, according to Lipietz, amplified the effect of US monetarism, forcing the world into a Keynesian-style "deficit in growth", resulting in a "crisis of under-consumption", since the demand from the "South" is insufficient to compensate for the increased competition from these countries (p. 184).

Ways Out of the Crisis

The most marked difference between regulationist theory and its popular post-Fordist progeny concerns the means of exit from the crisis, and the nature of the system "post-Fordism". This term appears rarely in French regulation school literature, and when it does it usually means something quite vague; literally "that which follows Fordism — whatever it is". Regulation school theorists' tentativeness in sketching the shape of the new post-Fordist future contrasts starkly with the twofold prepackaged options—and one of them a pseudo-option—presented in Mathews' and Piore and Sabel's theories. Aglietta (1976), the quintessential French regulation school theorist, was sceptical of the possibility of a new "neo-Fordist" or "post-Fordist" regime of accumulation emerging out of the crisis of the 1960's and 70's (Clarke, 1988:67). Boyer notes that we have not yet arrived at a new regime of accumulation, and it may be that one will not emerge at all "beyond Fordism" (Boyer, 1988:xviii). Jessop (1988:160) points to regulation school attempts to sketch different trajectories and types of post-Fordism, and their different economic and social preconditions. For

13 However, he notes that the downturn in profitability is not statistically supported by figures from Germany and Japan, which he explains as "temporary exceptions" (Lipietz, 1987b:42). This explanation is, however, hardly good enough, since it cannot grasp the disparity of profit rates in different countries, and the whole point of such comparative policy exercises is to uncover the policy roots of manufacturing success.

most of these theorists, it is clear, "post-Fordism" is rather like a blank sheet. The shape of the new regime of accumulation is uncertain. Some of the economic geography theorists who utilise French Regulation School concepts are aware of this, and are therefore tentative about attributing to the new regime of accumulation a definite form, (Harvey, 1989:126, but cf Schoenberger, 1988).

Even the sources of Mathews' version of the French Regulation School (Lipietz, 1987a, Leborne and Lipietz, 1987) offer a variety of possible "post-Fordist" futures, several of which do not correspond well with Mathews' prepackaged industrial eschatology. Lipietz argues in *Miracles and Mirages* that an attempt must be made to find progressive exits from Fordism (1987b:193). But in this work he proposes only very general desired outcomes (including cooperation with the "South" to increase demand) not the precise "choice" between two "alternatives". The concept of "post-Fordism" appears only once in the book, to point out that Japan appeared to have found a new "post-Fordist" way of translating the skill of its workers into productivity (1987b:137).

But elsewhere Lipietz presents a dichotomous model which has some similarity with that of Piore and Sabel and Mathews. Lipietz sees two possible forms of post-Fordist future, liberal productivist and an "alternative". The liberal productivist version is basically restructuring in the interests of capital (Barbrook, 1990:103). This version, championed by Thatcher and Reagan, builds on the breakdown of the Social Democratic compromise and seeks the restoration of "old liberalism" within the context of the modern "technological revolution" (Lipietz, 1987a:12). The new model will emerge following the breakdown of "rigidities", like the welfare state and protective labour legislation, which inhibit the workings of competition. There will be a polarization of society, based on skill and income (Lipietz, 1987a:13).

The alternative future is one immeasurably richer. Although showing some similarities with Mathews' theories, this version is broader, since it introduces an explicitly ecological dimension to the discussion. It is "post-Fordism for workers who want to combine socialism with ecology" (Lipietz, in Barbrook, 1990:103). This ecological dimension is a blind spot in popular accounts of post-Fordism. But for Lipietz, the

ecological crisis is a key element of the crisis of Fordism, and a stepping stone to an alternative post-Fordist future (1987b:192). The working class, he argues, could be instrumental in enforcing an ecological dimension on corporate strategy, since workers' skill, initiative and imagination is necessary for the new production processes (1987a:18). This could be used as a lever to contest management's control over the intensification of work, and, importantly, the design of the product. "Worker's involvement in 'how do we work?' entails involvement in 'what should we do?'" (ibid, p. 20). This entails a new democratic definition of real social needs, and new forms of democratic planning. The issue of who benefits from the new technologies' productivity gains arises, and with it the question of the length of the working day and the possibility of a "life beyond work". These important issues enter the debates around post-Fordism only by omission conspicuous by their absence (Hyman, 1986).

Piore and Sabel's theory bears only a superficial resemblance to French regulation school work. They themselves make it clear that although they borrow the term "regulation" from the French regulation school "the concepts of historical change and economic crisis with which we associate it differ from those concepts in the French theory" (1984:4). Boyer (1988:139) lists Piore and Sabel's book among "[f]oreign works close to the regulation approach", but points out that although their hypothesis of a shift to flexible specialisation has stimulated lots of thought in the French regulation school, "greater product variety would represent a new phase of Mass production, not its abandonment" (1988:xxi).

The French Regulation School-Mathews-Style

The above discussion of the French regulation school, when set against popular post-Fordist accounts like Mathews', should establish the lack of affinity between these two bodies of theory. How does the French regulation school work become transformed into popular post-Fordism? Mathews' main source for his "regulationist" accounts appears to be a series of papers put out by CEPREMAP, (which is a French acronym which refers to a research centre dominated by regulationists located in

France) which offer "summaries" of the regulationist theory which are so shortened and cryptic as to be almost meaningless to the unprepared reader. The regulationists who have sought to publicise their theory must bear much of the blame for the inaccurate popularisations which have followed.

Mathews' accounts of French regulation school theory vary from each other, and from that theory itself. He renders the CEPREMAP summaries thus. The French Regulation School presents "a system of categories that ... characterise any real technical, industrial and economic system in ... 3 criteria, a model of work organisation (ie an industrial or technical paradigm, a Regime of Accumulation, or a 'macroeconomic structure linking production with consumption', and a Mode of Regulation, or a set of institutional rules governing the system. (1989b:140. Also cf Badham and Mathews, 1989:197). But in another piece Mathews argued that the French Regulation School identifies "three aspects of the paradigm of mass production. These are: its technological model... its regime of accumulation ... and its mode of regulation. ... This ensemble of relations is termed the "Fordist system" (Mathews 1989c:131-132). Here the term "paradigm" has expanded to encompass all elements of the "institutional ensemble", and opens the way to conceptualising the transition as one between two technological paradigms, with all the associated determinism and inevitability.

But this differs from the CEPREMAP version. For Lipietz (1987a), "eras" of development (Fordism, neo-or post-Fordism) express the "hegemony", or dominance, of particular "patterns of development" within countries, and of a "world configuration" between them. A "pattern of development" is composed of three elements; firstly a "model or paradigm of industrialisation", or "the "general principles which govern the evolution of the organisation of labour", which is not confined to industry. The second feature is a "regime of accumulation", or a "macroeconomic principle" which "describes the compatibility ... between transformations in the production conditions and in the types of usage of the social output", or put more simply, an idea of matching production with consumption. The third element of the pattern of development is the "mode of regulation", which is a complex of rules and institutional structures which act to ensure the adjustment of

individual agents to the regime of accumulation, like wage fixing principles (Lipietz, 1987:3, Leborgne and Lipietz, 1987:2). Thus, in the CEPREMAP version of regulation theory, the industrial or technological paradigm is only one of three major elements of a pattern of development denoting an "era". It is not the major factor denoting "eras" as Mathews, Hall and Smith (1987:3, 13) for instance would have it. In other versions of French Regulation School analysis, the term simply does not appear.

According to Mathews, and Badham and Mathews, (1989:197), the French Regulation School see a transition to post-Fordism, or neo-Fordism occurring at all these levels. This amounts to a massive misinterpretation of French regulation school work.

Conclusion

This article has critically analysed Mathews' popular account of post-Fordist theory. I have explored a number of differences between Mathews and his sources, chiefly over the position of organised labour in the supposed transition to post-Fordism, and the role of regulationist theory in his account. Mathews is probably unique among post-Fordist theorists in seeing advantages for organised labour in the supposed transition. This on its own is not necessarily a problem: they might all be wrong. But this view pales when the theoretical streams which Mathews draws on are analysed in their relation to his work.

I have analysed three such streams here: Piore and Sabel's theory of a "second industrial divide", the technoeconomic paradigm literature, and the French regulation school. Piore and Sabel's theory has been shown to be conceptually unsatisfying (because unoperationalisable), historiographically naive and empirically unsound. It turns on an implausible "market saturation" thesis. It rests on an unsatisfactory notion of choice, which is but a pretence, since the choices' outcomes are preempted. The technoeconomic paradigm literature has its own similar problems, chiefly a contradiction between the assertions of choice and the determination by mega-level "technoeconomic paradigms". Mathews' theories reproduce these pathologies, and

introduce several unique self-contradictions into the bargain: that industrial democracy is and is not necessary for industrial efficiency; and that neo-Fordist strategies necessarily lead to industrial oblivion, although they are one possible route to efficiency. His rendition of the French regulation school is wide of the mark, and bears little more than a superficial resemblance to its work. Mathews' incoherent intellectual alchemy is a poor guide for industrial strategy, policy analysis, and political strategy.

It is thus disturbing that strategic unionism has fallen under the sway of post-Fordist ideas. Strategic unionism offers a challenging and potentially fertile reform agenda which is ill-served by its reduction to strategies for workplace design. The latter are, although necessary, far from sufficient for industrial renewal in Australia, and the reforms strategic unionism used to advocate, encompassing financial institutions among other things, are more likely to further that goal (ACTU/TDC, 1987, Ewer et al, 1987).

References

- ACTU/TDC (1987) *Australia Reconstructed* Canberra: AGPS
- Aglietta, M (1976) *A Theory of Capitalist Regulation: the US Experience* London: NLB.
- Allen, C (1989) "Political Consequences of Change: The Chemical Industry", Ch 6, in P. Katzenstein, *Industry and Politics in West Germany: Toward the Third Republic* Ithaca: Cornell University Press.
- Badham, R (1986) "Technology and Public Choice: Strategies for Technological Control and the Selection of Technologies" *Prometheus*, Vol 4, No 2, December
- Badham, R. and J. Mathews (1989) "The New Production Systems Debate", *Labour and Industry*, Vol 2, No 2. pp194-246.
- Barbrook, R (1990) "Mistranslations: Lipietz in London and Paris", *Science as Culture*, No 8.
- Blackburn, P; R. Coombs, and K. Green, (1985) *Technology, Economic Growth and the Labour Process*, New York: St Martins.
- Block, F (1977) *The Origins of International Economic Disorder*, London: University of California Press.

Boyer, R (1988) (C. Charney Trans) *The Regulation School: A Critical Introduction*, New York: Columbia University Press.

Bramble, T (1988) The Flexibility Debate: Industrial Relations and New Management Production Practices, *Labour and Industry*, Vol 1, No 2, pp. 187-209.

Campbell, I (1989) "The Australian Trade Union Movement and Post-Fordism", *Mimeo*.

Campbell, I (1990) The Australian Trade Union Movement and Post-Fordism, *Journal of Australian Political Economy*, No 26, pp. 1-26.

Carmichael, L (1988) "Counsel For the Defence: an Interview with Laurie Carmichael", *Australian Left Review*, No 108, May - June. pp. 21-25.

Carmichael, L (1989) "After the Revolution: (Micro) Chips With Everything", *Australian Left Review*, No 110, May - June.

Clarke, S (1988) "Overaccumulation, class struggle and the regulation approach", *Capital and Class*, No 56.

Curtain, R and J. Mathews (1990) "Two Models of Award Restructuring in Australia", *Labour and Industry*, Vol 3, No 1, pp. 58-75.

Dicken, P (1986) *Global Shift*, London: Harper Row.

Dohse, K.; U. Jurgens and T. Malsh (1985) "From 'Fordism' to Toyotism? The Social Organisation of the Labour Process in the Japanese Automobile Industry", *Politics and Society*, Vol 14, No 2.

Elam, M (1990) "Puzzling Out the Post-Fordist Debate", *Economic and Industrial Democracy*, Vol11, pp. 9-37.

Ewer, P.; W. Higgins and A. Stephens (1987) *The Unions and the Future of Australian Manufacturing*, London: Allen and Unwin.

Freeman, C. and C. Perez (1986) "The Diffusion of Technical Innovations and Changes of Techno-economic Paradigm", Paper prepared for the Venice Conference, January.

Freeman, C (1984) *Long Waves in the World Economy*, London: Francis Pinter.

Gottdiener, M, and N Komninos, (1989) *Capitalist Development and Crisis Theory*, London: Macmillan.

Hall, S, and M Jacques (1989) *New Times: The Changing Face of Politics in the 1990s*, London: Lawrence and Wishart, in Association with *Marxism Today*.

Hampson, I (1991, forthcoming) "Information Technology at Work: Industrial Democracy and Technological Determinism", Ch 5, in S. Aungles (ed) *Organisations and Information Technology in Australia*, Sydney: University of New South Wales Press.

Hampson, I and J. Schuster (1990) "From the Paradigms of '62 to the Policy Pundits of the '90s, Or From Debased Coinage to Shiny, Symbolic Capital", Paper for Presentation to the conference of the Australasian Association for the Advancement of the History, Philosophy and Social Studies of Science, Lorne, Victoria, 25 September.

Harvey, D (1989) *The Condition of Post-Modernity: An Inquiry into the Origins of Cultural Change*, Oxford: Basil Blackwell.

Harvey, D (1988) "The Geographical and Geopolitical Consequences of the Transition from Fordist to Flexible Accumulation", in G. Sternlieb and J. Hughes, *America's New Market Geography*, State University of New Jersey, NJ: Centre for Urban Policy Research.

Hirschorn, L (1984) *Beyond Mechanisation*, Cambridge: MIT Press.

Hyman, R (1986) "Flexible Specialisation: Miracle or Myth?", *Mimeo*, Also published as Hyman (1988).

Hyman, R (1988) "Flexible Specialisation: Miracle or Myth?", in R. Hyman and W. Streeck *New Technology and Industrial Relations*, Oxford: Basil Blackwell.

Jessop, B (1988) "Regulation theory, post-Fordism and the state: more than a reply to Werner Bonefield", *Capital and Class*, No 34.

Jessop, B (1989) "Conservative Regimes and the Transition to Post-fordism: The Cases of Great Britain and West Germany", Ch 11, in M. Gottdiener and N. Komminos, *Capitalist Development and Crisis Theory*, London: Macmillan.

Katzenstein, P (1989) *Industry and Politics in West Germany: Toward the Third Republic*, Ithaca: Cornell.

Kenney, M. and R. Florida (1988) "Beyond Mass Production: Production and the Labour Process in Japan", *Politics and Society*, Vol 16, No1.

Kenney, M. and R. Florida (1989) "Japan's Role in a Post-Fordist Age", *Futures*, April.

Kuhn, T. S (1970) *The Structure of Scientific Revolutions*, Chicago: Chicago University Press.

Kumazawa, M. and J. Yamada, (1989) "Jobs and Skills Under the Lifetime Nenko Employment System", in S. Wood, *The Transformation of Work*, London: Unwin Hyman.

Lash, S and J. Urry (1987) *The End of Organised Capitalism*, London: Polity

Leborgne, D. and A. Lipietz (1987) "New Technologies, New Modes of Regulation", CEPREMAP paper; Presented at the international Conference Technology, Restructuring and Urban/Regional Development, Dubrovnik, June.

Lipietz, A (1987a) "An Alternative Design for the Twenty First Century", CEPREMAP paper no 8738,

Lipietz, A (1987b) *Miracles and Mirages: The Crisis in Global Fordism*, London: Pluto.

MacKenzie, D. and J. Wajcman (1984) *The Social Shaping of Technology*, Milton Keynes: Open University Press.

Mathews, J. (1988) *A Culture of Power*, NSW Australia: Pluto Press, Australian Fabian Society and Socialist Forum.

Mathews, J. (1989a) *Tools of Change*, Melbourne: Pluto.

Mathews, J. (1989b) "From Post-Industrialism to Post-Fordism", *Meanjin*, Vol 48, No 1.

Mathews, J. (1989c) "New Production Concepts", *Prometheus*, Vol 7, June, pp.129-148.

Mathews, J. (1989d) *Age of Democracy: the Politics of Post-Fordism*, Melbourne: Oxford University Press.

Mathews, J., G. Hall, and H. Smith (1987) "Towards Flexible Skill Formation and Technological Literacy: Challenges Facing the Educational System", Occasional Paper, Policy Co-ordination Division

Ministry of Education, Victoria, Also Published in *Economic and Industrial Democracy*, Vol 9, 1988, pp. 497-522.

Moulaert, F. and E. Swyngedouw (1989) "A Regulation Approach to the Geography of Flexible Production Systems", *Environment and Planning D: Society and Space*, Vol 7, pp. 327-345.

Murray, R (1989) "Fordism and Post-Fordism", in S. Hall, and M. Jacques *New Times: The Changing Face of Politics in the 1990s*, London: Lawrence and Wishart, in Association with *Marxism Today*.

Parker, M. and J. Slaughter (1988) "Management by Stress", *Technology Review*, Vol 91, No 7.

Perez, C (1983) "Structural Change and Assimilation of New Technologies in the Social and Economic Systems", *Futures*, October.

Perez, C (1985) "Microelectronics, Long Waves, and World Structural Change: New Perspectives for Developing Countries", *World Development*, Vol 13.

Piore, M (1986a) "The decline of mass production and the challenge to union survival" *Industrial Relations Journal*, Vol 9, No 3.

Piore M (1986b) "Perspectives on Labor Market Flexibility", *Industrial Relations*, Vol 25, No 2.

Piore, M (1987) "Corporate Reform in American Manufacturing and the Challenge to Economic Theory", Paper Presented at the Workshop on Production Organisation and Skills, Roundtable on the International Economy, University of California, September 10-12.

Piore, M. and C. Sabel (1984) *The Second Industrial Divide*, New York: Basic Books.

Pollert, A (1988) "Dismantling Flexibility", *Capital and Class*, Vol 34.

Roobeek, A (1987) "The Crisis in Fordism and the Rise of a New Technological Paradigm", *Futures*, April

Rustin, M (1989) "The Politics of Post-Fordism: Or the Trouble With 'New Times'", *New Left Review*, No 175.

Sayer, A (1988) "Postfordism in Question", *International Journal of Urban and Regional Research*, Vol 13, No 4.

Schoenberger, E (1988) "From Fordism to Flexible Accumulation: Technology, Competitive Strategies and International Location", *Environment and Planning D: Society and Space*,

Schuster, J.A. and G. Watchirs (1990) "Natural Philosophy, Experiment and Discourse: Beyond the Kuhn/Bachelard Problematic" in H.E. LeGrand (ed.) *Experimental Inquiries* Dordrecht: Reidel, pp. 1-48.

Storper, M. and R. Walker (1989) *The Capitalist Imperative: Territory, Technology and Industrial Growth*, Oxford: Basil Blackwell.

Williams, K.; J. Williams, and J. Thomas (1983) *Why are the British Bad at Manufacturing?*, London: Routledge and Kegan Paul.

Williams, K.; T. Cutler; J. Williams and C. Haslam (1987) "The End of Mass Production?", *Economy and Society*, Vol 16, No 3.

Wood, S (1982) *The Degradation of Work? Skill, Deskillling and the Labour Process*, London: Hutchinson.

Woodward, J (1965) *Industrial Organisation: Theory and Practice*, London: Oxford University Press.

Zicklin, G (1987) "Numerical Control Machining and the Issue of Deskilling", *Work and Occupations*, Vol 14, No 3, pp. 452-466.



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