A REQUIEM FOR CORPORATE GEOGRAPHY: New directions in industrial organization, the production of place and uneven development

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ABSTRACT. The grand claims once made for the geography of enterprise have faded for lack of supporting evidence and clear theoretical separation of the casual powers of large firms from those of capitalist development in general. Four major hypotheses of corporate geography must be greatly toned down or rejected altogether: The large-firm bias in facility siting, a corporation-dominated spatial division of labor, the geographic importance of branch plants, and a distinctive mode of corporate spatial expansion. Industrial geography has moved beyond recognizing the place of large firms in the space-economy to new concerns embraced by the term "geographical industrialization". It now takes in alternative forms of industrial organization and their spatial configurations, along with the possibility of multiple and changing ways of integrating complex production systems. The new industrial geography also stresses the dynamics of capitalist growth and the way industrialization creates places at the same time as it implants production units. The recent insights of industrial geography with its emphasis on production, need to be joined more fruitfully with the spatial theories of capital accumulation developed by David Harvey, however.

Industrial geography has made great progress over the years, and "corporate geography", or what in Britain is called "geography of enterprise", has held an important position in that process of advance. But the limitations of corporate geography became all too apparent with time, and the discipline has moved on in the last decade to emphasize three critical elements slighted by corporate geographers: the organizational alternatives to the large firm, the centrality of production in industrial analysis, and the dynamics of growth – all of which add up to a rather more sophisticated understanding of uneven spatial development, or the geography of advanced capitalism. At this late date, it should be possible to retire corporate studies to a subordinant place in the geography of industrial organization, itself but a part of economic geography as a whole.

I shall begin by reviewing the history of thought in our discipline briefly, before moving on to a critique of the explanatory failures of corporate geography. The bulk of the paper is a statement of alternative ways of looking at industrial organization and "geographical industrialization". It ends with a consideration of the place of capital in the organizational fabric of capitalist industrialism.

I. The theoretical evolution of economic geography

Economic geography became a field around the turn of the century, with the study of commerce, the formation of large cities and value of land uses in cities (Fellmann, 1986; e.g. Weber, 1899; Hurd, 1903). It achieved its first real theoretical rigor with the work of the German Alfred Weber (1909), whose translation in 1929 inspired Anglophone scholars to apply his ideas about industrial location in the 1930s and 40s (e.g. Hoover, 1937; 1948; McLauglin and Robock, 1949).

Central place theory, developed by Christaller (1935) and Lösch (1944), again in Germany, captured the best minds of the 1950s, such as Walter Isard, Torsten Hägerstrand and the University of Washington quantitative analysis group (e.g. Isard, 1956; Berry, 1967). In this infatuation for ideas Germanic, even long-buried von Thünen was dug up, and his location and land rent model transferred to the urban context (Alonso, 1964). Isard managed the singular achievement of marrying the Weberian locational calculus to central place theory and integrating spatial analysis fully with the prevailing neo-Classical approach in economics, by inserting distance costs into the conventional production function. So great was Isard's influence that "classical location theory" became the textbook orthodoxy for the next twenty years (Smith, 1971).

The first challenge to this geographic orthodoxy came from those studying urban and regional development, for whom aggregate uneven spatial development was the thing to be explained. The "par-

tial equilibrium" analysis of Weber – on a plant by plant basis – could not cope with the "general equilibrium" condition that economic activity tended strongly to cluster in cities; so these investigators turned to the neglected chapter of Weber on agglomeration economies (Hoover and Vernon, 1959; Perloff *et al.*, 1960). Other writers projected the ideas of Perroux (1950) on "leading sectors" of industry onto the geography of uneven development. All agreed that the equilibrium analysis of Weberian location theory, neo-Classical economics and central place theory could not cope with the realities of strongly disequilibrating forces in the space-economy, as shown by the Swedish economist Gunnar Myrdal (1957)[1].

Myrdal's model generated spatial inequality by the simple means of relaxing the assumption of locational fixity of labor and capital in the face of linkage effects (based essentially on agglomeration economies and Keynesian income multipliers). This approach was extended in the 1960s by Pred (1966), who focused on the central role of systems of cities in national development and industrialization. Pred, moving between the United States and Sweden, joined together the insights of Myrdal about "cumulative causation" with those of the Swedish geographer Hägerstrand on "innovation diffusion", in the context of hierarchical city-systems and strong agglomeration forces. He was also influenced by the classic work on the US manufacturing belt by De Geer (1927), which stressed the consolidation and stability of this core region.

In the late 1960s, attention shifted toward the role of large firms in the creation of the space-economy. The geography of enterprise became the dominant strain in industrial geography over the course of the 1970s. Interest in the influence of large firms had surfaced before, of course, in discussions of spatial monopoly in the 1920s and 30s (Hotelling, 1929; Chamberlin, 1933). But it was buried by oligopoly theory in mainstream economics and by the Weber-Central Place hegemony in location theory. Nonetheless, reality could not be denied. The Marshallian single-plant small firm could not be held a sufficient basis for modelling industrial geography forever. Multidivisional, conglomerate and multinational corporations had swept across the United States, then Europe and finally the world, and had to be accounted for (Dicken, 1986).

Outside the mainstream of economics and geography, large-scale industrial organization and corporate management began to receive serious treatment from the 1930s onward (Berle and Means, 1932; Coase, 1937; Barnard, 1938; Simon, 1947), and thinking followed two main routes thereafter. The business historian Alfred Chandler (1962; 1977) studied the evolution of modern corporate structure, while organizational sociologists tried to understand the logic of corporate decision-making (Simon, 1957; Cyert and March, 1963). The latter became the basis for the dominant "behavioralist" approach, focussing on the location decisions of large firms, pioneered by Swedish geographer Gunnar Törnqvist (1968) (see also McNee, 1960; Pred, 1967; Krumme, 1969; Townroe, 1971; Dicken, 1971; Hamilton, 1974). Central to the behaviorist view is the rejection of the Marshallian single-plant family firm, operating in a world of perfect competition and perfect information. Large firms are seen as having a measure of control over their environment, acting on the basis of bounded rationality, and making strategic decisions for corporate advantage.

Chandleresque ideas about the spatial structure of the large firm entered geography through the writings of radical economist Stephen Hymer (1972; 1976), who married Chandler to Marx in a highly-influential treatment of the multinational corporation and uneven development (e.g. Dicken, 1976). Hymer pioneered the term "new international division of labor", which subsequently became so influential with the work of Froebel, Heinrichs and Kreye (1977), and also influenced those working on the changing shape of national space-economies (e.g. Massey, 1984). In this view corporations are endowed with an internal division of labor, internalized systems of commodity and service flow, multilocational operations, and a hierarchical mode of organization.

These major lines of thought in corporate geography were cross-hatched with other concerns. Writers coming out of the Myrdal-Perroux tradition emphasized the way spatial "linkages" between industrial activities have been internalized by the large enterprise, and the effect of this on corporate spatial structure and regional (under)development (Gilmour, 1974; Townroe, 1975; Britton, 1976). Pred (1977), like Holland (1976), integrated the large corporation into a long-run, macroeconomic vision of uneven development and urbanization and capitalism. Several industrial geographers tried to introduce growth into models of (individual) corporate spatial expansion, following the lead of McNee (1960): many of these relied

on vague behavioralist notions of corporate strategy and exploration (Rees, 1974; Taylor, 1975; Hayter, 1976; Håkanson, 1979); some tried to integrate Chandler's theory of corporate organizational evolution (LeHaron and Warr, 1976); others brought in central place theory (Watts, 1980). Dicken (1976; also 1986) reached out to the literature on multinationals to incorporate Hymer's theory of international expansion as a means of exploiting firm-specific competitive advantages (developed further by Buckley and Casson, 1976), Dunning (1979; 1981) and adherents of the "transactions cost" school (e.g. Teece, 1977; 1983; 1985)). Taylor and Thrift (1982; 1983) tried to incorporate a financial version of the dual economy thesis. Most popular of all was to graft on the "product cycle" theory of spatial expansion through technological maturation, following Vernon (1966) (e.g. Thomas, 1975; Krumme and Hayter, 1975; Markusen, 1985; Dicken, 1986). And, of course, every industrial geographer was still steeped in Weber.

At the very end of the 1970s, however, the cutting edge of industrial geography shifted away from corporations toward "industrial restructuring", thanks to the work of Massey (1978; 1979). This line of inquiry was triggered by the catastrophic deindustrialization of so much of Britain in the 1970s, followed by parts of Europe and the United States (Massey and Meegan, 1978; 1982; Hudson *et al.*, 1983; Martin and Rowthorn, 1986). Suddenly, the solidity of even the largest corporate empires was thrown into question (Massey and Meegan, 1982). The new movement was led very largely by a young generation of Leftists whose careers in geography and related fields were just opening up. It led to a new emphasis on industry studies rather than enterprise research, on change in the space economy rather than management of corporate systems, and on the make-up of industrial production operations.

The renewed interest in the shape of industrial production dovetailed, in the early years, with an intense concern on the Left with the role of labor in location. The differential exploitation of labor-forces was seen as constituted the principal basis for a "spatial division of labor", nationally and internationally (Clark, 1981; Storper and Walker, 1983; Massey, 1984). A reawakening of interest in the particulars of place appeared among Left geographers, as well (Massey and Allen, 1984). This is not to say that a preoccupation with large corporations and their internal spatial divisions of labor disappeared. Many leftists still had one foot firmly planted in the corporate concerns of the previous decade, despite their attention to labor exploitation, capital investment and disinvestment, and industrial restructuring (Bluestone and Harrison, 1982; Massey, 1984; Thrift and Taylor, 1986; Smith and Feagin, 1987). Also striking was the way in which the spatial divisions of labor approach harked back to Weber in its attention to the specificities of industry labor demands (even if subdivided amongst different corporate functions) and the optimal utilization (exploitation) of workers and communities by supermobile capital (Walker and Storper, 1981).

In the later 1980s, the key term has become "flexibility" instead of "restructuring", thanks to the work of Political Scientist *cum* Geographer, Charles Sabel (Brusco and Sabel, 1983; Piore and Sabel, 1984; Sabel and Zeitlin, 1985). Sabel rediscovered (and became a propagandist for) the traditional industrial district, and its empire of crafts, that had been so widespread in the 19th century. His work dovetailed with contemporary inquiry by others, such as Bagnasco (1977) in Italy and Scott (1983; 1988 a; b) in Southern California, who had come to the realization that contemporary capitalism is littered with burgeoning industrial districts made up principally of small and medium-sized firms and factories, or what have been called "disintegrated production complexes".

More broadly, neither small firms nor cities have shown any serious tendency to disappear from the industrial landscape. Hybrid marketing and competitive arrangements such as franchising and joint ventures have been found everywhere, blurring the lines between firms (Business Week, 1984; Luxenberg, 1985). National and international subcontracting, it turns out, was growing just as rapidly in the 1970s as were the multilocational corporations (Froebel *et al.*, 1977; Holmes, 1986; Dicken, 1986). In the 1980s, large corporations have been raided, dismantled and stripped down. These facts strike hard against the long-prevailing view of a modern industrial world inevitably dominated by large firms. They also converge to give an impression of a new "industrial divide" between the post-war era of "Fordist" mass production and a new epoch of "flexible specialization" (Piore and Sabel, 1984; Lipietz, 1987; Scott 1988b; Scott and Storper, 1987) – a controversy I will not pursue here.

In short, some exciting new ideas are afoot in industrial geography at the close of the 1980s,

which go well beyond the notions entertained under the rubric of the geography of enterprise. What we see is a vast opening up of the matter of industrial organization beyond the boundaries of the large firm and much greater attention to the organization of production systems rather than locational decision-making. Implicit in this is an awareness of how industries develop in and through the places in which they grow up, rather than descending from the heights of corporate boardrooms. This idea of development in place must be made explicit, however. I call this process "geographical industrialization" rather than "industrial location". Inherent in such a concept is the centrality of industrial growth and capital accumulation to the process by which industries come to be implanted in certain portions of the globe. I have, along with Michael Storper, recently attempted to make these ideas clear in a book, *The Capitalist Imperative* (1989). In it, we try to integrate the geographic work of the last decade on industry restrueturing, labor relations, technological change, industrial organization, and the significance of place to industrial practice – all the significant cuts at industrial production – and to do so around the dynamics of disequilibrium growth that lie at the heart of capital accumulation. The task for the 1990s, in our view, is to understand the way that capital not only uses space (and is shaped by space) as it drives production to new heights, but how accumulation produces places at the same time as it produces commodities and profits, and how it forever revolutionizes the space-economy at the same time as it generates new industrial revolutions.

II. Explanatory failures of corporate geography

The literature on corporate geography turns on four main issues: the spatial bias in location introduced by corporate calculation, the imprint of corporate structure on spatial divisions of labor, the impact of the corporate spatial divison of labor on regional development, and the geographic expansion of corporate activities. Much of this is highly empiricist, and a great deal of research energy has been expended in pursuit of evidence supporting a distinctive corporate geography, inexplicable in classical location theory terms (Lever, 1985; for a survey see Watts, 1980). Nevertheless, the return to this effort has been remarkably lean, as admitted by some of its leading practitioners (Hayter and Watts, 1983). Indeed, the more expansive claims of some advocates of the geography of enterprise, at its peak, appear rather vain in light of the evidentiary picture. Contemporary industrial geography suggests different answers to the corporate geographers' puzzles – and ultimately pushes beyond them to pose quite different questions for geographic research.

1. Spatial biases of the large firm:

Corporate geography holds that the locational calculus of the large firm will be different than that of a small firm embedded in market transactions, for the same facility. Weberian location theory expects the single-plant small firm to situate itself in a cost-minimizing way with respect to the field of material supplies, labor and consumer markets; but the logic of corporate decision–making and internal organization allegedly deflects plant location away from such sites. The presumption is that large firms manifest different spatial patterns than small because, among other things, they adjust internal prices so as to cross-subsidize operations, supply materials and labor via intra-corporate linkages rather than by external purchases, and are protected from competition by oligopolistic behavior.

When all is said and done, however, Weber comes off remarkably well. Watts (1980, pp. 45–47) found that the aggregate regional distribution of employees for the very largest British firms is virtually indistinguishable from that of all smaller companies. Virtually no statistical work exists at the industry level to say whether large and small firms in the same sector exhibit markedly different spatial patterns (Foreign firms exhibit somewhat different locational choices than domestic companies, in aggregate and by sector, but this varies more by nationality and industry than size (Hoare, 1975; Dicken and Lloyd, 1980; Watts, 1980; Schoenberger, 1985)). The evidence on internal price manipulations, at least among multinationals, is not convincing (Dunning, 1981, p. 31). Oligopolistic firms are certainly protected from the exigencies of the market for certain periods of time (Rees, 1978a; Markusen, 1985), but the grim reaper of competition ultimately brings them to heel, too (cf. Storper, 1985). Intra-corporate linkages have been much talked about, but poorly studied, and the data do not make a case for significantly greater internalization of commodity flows within large enterprises than small (Watts, 1980, pp. 56–57; Oakey, 1981; O'Farrell and O'Loughlin, 1981).

In fact, the number and geographic orientation of linkages depends more on such things as plant size (Scott, 1982), industry type (Hoare, 1985), and size of production run (O'hUallachain, 1984)[2].

Of prime importance to the case for spatial bias is the internal organization and management system of the large corporation. The corporation is not a unified, top-down system of central control over decisions. The autonomy of individual plant managers to buy and sell outside the firm is often quite high, especially in loose subsidiary or holding company arrangements (Townroe, 1975; Hoare, 1978; Watts, 1980, p. 254). Multi-divisional companies are organized explicitly for the purpose of emulating the market by establishing relatively independent "profit centers" in place of clumsy bureaucracies, distant autocrats and internal subsidies (Chandler, 1962). At a minimum, it matters for locational strategy whether firms are vertically or horizontally integrated (Teece, 1985). There are, of course, striking instances of corporate organization creating a locational pattern clearly at odds with what independent plants/small firms would choose, such as Ford's "global car" production system (Thrift, 1986) or IBM-Europe's system of cross-responsibility for components and assemblies among its plants (Bakis, 1980). The problem arises in overgeneralizing from a few such cases – as is often the case in social science (cf. Morgan and Sayer, 1988) – and in failing to specify what is the actual organizational logic at work in spatial systems of production.

Confusion as to what corporate organization does and does not explain is rampant. Two exemplary studies oft cited to support the case for a distinct corporate geography, by Teulings (1984) on Phillips and Clarke (1985) on ICI, illustrate the problem. In ICI's massive restructuring of the last ten years, the chief factors affecting its location decisions for different plants are shown to be product mix, materials costs, market share, labor costs and production technology. Similarly, Phillips' global moves have been based on the search for markets (chiefly government military contracts), cheap labor, advanced technological capability and political stability. In both cases, the locational calculus rests on conditions of production and marketing (often quite explicable on conventional Weberian grounds), to which the organizational tissue of the large enterprise adds no explanatory power whatsoever. The large organization does no more than act as a facilitator of geographical expansion and restructuring that is based on other grounds. In a parallel fashion, Townsend and Peck (1985), when challenged to compare directly their "enterprise" approach with the "industrial" approach of Massey and Meegan (1982), proceed to discuss such commonplace locational considerations as profit equilization, capital flows, competition, labor control, marketing, and plant-level conditions[3]. The organizational explanation, then, comes to provide, in Malecki's (1982, p. 1572) words, "a very large umbrella" to cover virtually anything touching on the firm, rather than a form of analysis that correctly isolates the causal force of organization, *per se,* on location.

This is not a call to return to Weber, but to move beyond corporate geography in two ways. First, it is necessary to separate, as best possible, the effects of industrial organization as a force in industry location from the underlying structure of production, if we are to give the former its due. The Weberian conception does not grasp production adequately, hence the continuing interest in questions of industrial restructuring, technological change, and labor relations in the 1980s. Second, the matter of industrial organization cannot be reduced to a simple opposition of the large firm and the market. The way production systems are organized is a much broader problem, encompassing both the internal structure of the firm and various intermediate forms of interfirm interaction, at a minimum. Pred (1980) has shown, for instance, that merchant trading networks run in deeper and more regular channels between big cities than between smaller places, creating systems of cities more deeply linked with each other than with their immediate hinterlands. The organizational fabric of capitalism clearly matters to spatial outcomes, and must be granted its rightful place among the forces of geographical industrialization. This has been recognized by corporate geographers in the 1980s (McDermott and Taylor, 1982; Dicken, 1986), but they have not been able to find a theoretical way out. To do so means, certainly, to drop the static terms of the search for the "organization bias" from a presumed Weberian optimum location pattern.

2. *Corporate spatial divisions of labor:*

Corporate geographers have also made much of the growing internal division of labor within large firms, and its spatial imprint. The argument centers on the general distribution of such corporate facilities as headquarters, research laboratories

and manufacturing plants. That is, it moves beyond concern with the specific calculus of facility by facility location within the corporate system (as just discussed), to general tendencies toward dispersal and hierarchy. Overall, it is claimed, spatial agglomeration and the close interaction of many small firms has been replaced by intra-corporate linkages, labor pools and information flows that allow wide dispersal of all activities within the compass of the large firm (McDermott and Taylor, 1982, pp. 52–54; Hoare, 1985). The corporate division of labor is also frequently said to have a vertical hierarchy that becomes imprinted on the national and global space-economy, as first proposed by Hymer. The general idea is now well known: the headquarters of giant multinationals are concentrated in core cities of the developed countries, higher order functions are grouped in secondary cities, and lower order activities are shunted off to backward regions or third world countries (Westaway, 1974; Massey, 1984; Dicken, 1986, pp. 191–202; Smith and Feagin, 1987).

These claims have been based on the manifest enlargement and separation of management, sales and research functions from the manufacturing arms of large corporations in Europe and the United States. Indeed, whole subfields of economic geography have grown up to study these new spatial divisions of labor (Goddard, 1975; Borchert, 1978; Rees, 1978b; Crum and Gudgin, 1978; Daniels, 1979; 1982; Malecki, 1979; 1980). But here again, while the large corporation facilitates the process, what is at work is an expanding social division of labor (Walker, 1985). This social (and spatial) division of labor goes well beyond the boundaries of the large corporation – long antedates it, in fact. The "service sectors", in all their rich diversity, are embraced by the widest range of firm sizes and buyer-seller relations. The error is, once more, to collapse business organization and production (the division of labor) into a single explanation.

This reductionism shows up most graphically in the Hymer theory of a corporate spatial hierarchy/new international division of labor. Other types of hierarchy can develop out of the social division of labor, cutting across the command hierarchy of the large firm: unequal power among industrial capitalists, which can just as well be expressed in subcontracting hierarchies; the power of the financiers over manufacturers; labor force valuations based on skill, bargaining power or gender (Massey, 1984). The higher position of, say, R & D labs in the social hierarchy is based not at all on "command", but rather on the elite position of scientific workers. The confusion among analytically distinct categories implicit in the Hymer model is most apparent in his treatment of cities. Most of the so-called "headquarters cities" such as New York and London are first of all financial and mercantile, not administrative, centers (Cohen, 1981; Noyelle and Stanback, 1984)[4]. Industrial capital has moved both production and headquarters into major city centers for reasons of access to "business services" already concentrated there, not vice versa; that is the historical lesson of city-system development. The question is how industrial geographers, who ought to have known better from reading Pred (1966; 1977), could have let Hymer go unchallenged! Dicken (1986, p. 210) has lately admitted the impossibility of sustaining the corporate hierarchy model, but can come up with no systematic alternative.

The other major claim – that corporate facilities, particularly manufacturing plants, are dispersing over wider territories – is also, at first glance, valid. Industrialization has spread into new areas of the advanced capitalist nations and is globalizing in our time at a fast rate (Dicken, 1986; Thrift, 1986). Multinational enterprises clearly contribute hugely to this process. Where the problem arises is in denying the efficacy of other causes, such as technology, or subsuming them under the behavourist rubric of "corporate strategies" (McDermott and Taylor, 1982; Schoenberger, 1988). This is most glaring, once again, in the treatment of cities, which have shown no tendency whatsoever to disappear as centers of industrialization. The brashest advocates of corporate geography (McDermott and Taylor, 1982, pp. 52–54) were declaring an end to agglomeration economies (and hence cities) just in time to be swept away by a new wave of excitement over spatially concentrated "flexible production complexes" (Brusco and Sabel, 1983; Scott, 1983; 1988a). Not only was the isolated branch plant not universal, in many sectors it plays no role at all (Watts, 1980, p. 62)[5], and some were thus moved to see just the opposite to the corporatist predictions: a new world of agglomerated flexible production complexes (Scott, 1988b).

Most important of all, urban and regional hierarchies are unstable (Storper and Walker, 1989). No spatial hierarchy theory can fit the facts for long. Uneven development is not a static imprint of corporate control, but a dynamic process by which the fortunes of places rise and fall. This cannot be un-

derstood in terms of control, but only in terms of the production (and destruction) of places under the revolutionary influence of capitalist industrialization.

3. Corporate branch plants and regional development:

Corporate geography continued in the Myrdal-Perroux tradition of arguing that linkages are critical to regional development. Corporate branch plants are depicted as detrimental to regional growth because they have relatively few local linkages, hence low income multipliers (Townroe, 1975; Britton, 1976; Britton and Gilmour, 1978; Watts, 1981). They are "cathedrals in the desert" by virtue of their low impact on the immediate surroundings. They are also portrayed as unstable contributors to regional prosperity, prone to closure (Erickson, 1980; Bluestone and Harrison, 1982). The new international division of labor theory projected this onto the whole world, such that underdevelopment would continue in the Third World despite the influx of multinational direct investment (Hymer, 1976).

As we have already seen, it is not true that corporate factories are universally (or even usually) shorn of external linkages to nearby buyers and sellers. Hence, there is little evidence that branch plants have fewer multiplier effects than small firm factories (Lever, 1974; Watts, 1981). The only clear difference is in utilization of business services: large corporate plants use more and they tap suppliers in the (often distant) centers of such activity (Daniels, 1982; Martinelli, 1986).

When branch plants do seek out peripheral locations, it is less because they have been shorn of external linkages than they are seeking out more exploitable labor or entering new markets on the basis of a competitive advantage (better product, lower costs) (Vernon, 1966; Froebel *et al.*, 1977; Morgan and Sayer, 1988; Storper and Walker, 1989). Moreover, often when branch plants move into greenfield areas they bring along a host of suppliers – and even some R & D functions – that help create quite vigorous local economies, as in the case of IBM in Montpellier, France, electronics semiconductor firms in South Wales, or Japanese automobile factories in the central Midwest (Bakis, 1977; Morgan and Sayer, 1988; Mair *et al.*, 1988)[6].

This whole approach to industrial development is misconceived, in any case. First, it assumes that the key connection between places is exchange, or commodity and service linkages. In fact, corporate – and all other – facilities are "linked" to one another through the additional relations of competition, shared technological bases, and national systems of labor relations, among other things (Morgan and Sayer, 1988). Competitive viability is the initial condition for locational continuity and regional benefit. If a branch plant has a competitive advantage, as do Japanese consumer electronics factories in Britain, then they offer rather more favorable prospects for workers and regions than declining domestic firms[7].

Second, the productive success of any company and its plants depends not only on the raw conditions of technology, demand or labor costs, but on the way the division of labor among all the units of the enterprise are organized[8]. The current system of linkages is not given by nature, but relies on the organizational forms adopted by capitalists. It is abundantly clear today – as it was not a decade ago – that the organizational strategies of many large corporations in Europe and America leave much to be desired; in particular, the Taylorist or Fordist type of extreme division of labor and poor inter-plant connections (the classic cathedral in the desert) seems not as effective as contemporary Japanese industrial organization (Morgan and Sayer, 1988; Florida and Kenney, 1990).

Finally, it is not income multipliers that bring development but industrialization, i.e. the development of human productive powers, the intensification of labor, extraction of surplus value, rate of investment and multiplication of industrial activity in a place (Storper and Walker, 1989; Page and Walker, 1989). Trade patterns can make some local difference, to be sure, but extensive cross-trading with other regions is as old as capitalism itself, and cannot explain the rise and fall of regions. In the end, branch plant studies merely reflect the expanding spatial division of labor, and do not tell us very much about why some places develop into vital industrial districts and others do not, why some industries grow and other decline, why some firms prosper and others do not. These are exactly the questions receiving intense scrutiny in industrial geography today.

4. Corporate spatial expansion:

A final line of thinking in the geography of enterprise is that large firms create a distinctive pattern of spatial expansion, or spatial evolution. In such

corporate growth models, the enterprise establishes a core territory within which it conquers its immediate competitors and from which it gropes outward in search of new markets and resources (McNee, 1960; Taylor, 1975; Rees, 1978a; Watts, 1980; McDermott and Taylor, 1982; Clarke, 1985; Dicken, 1986). Such models join a behaviourist notion of strategic exploration with considerations of Weberian optimization, central place hierarchies, innovation diffusion, international investment, oligopoly, or the product cycle (Hayter and Watts, 1983)[9].

This is consistent with the evidence for many localizing industries, which establish core territories before developing far-flung "growth peripheries" during periods of rapid growth (Storper and Walker, 1989). One is hard put to see the determining role of the large enterprise in this pattern, however. In fact, core industrial territories usually consist of dense complexes of related production activities owned by both small and large firms. Their growth depends, in part, on the dynamic economies of division of labor, scope and flexibility which such industrial districts provide (Scott, 1988b).

It will likely depend, too, on a major innovative jump into a new technological structure, as in the case of Ford's assembly line or the semiconductor (Storper and Walker, 1989). Or it might rest on successful design for a new fashion market and an influx of cheap immigrant labor, as in the case of Los Angeles' booming garment industry. Home firms may well, in addition, enjoy local competitive advantage, or spatial monopoly, for a time (Markusen, 1985); but this is due principally to the barrier of space (including the nation-states and cultures that arise in particular places (Morgan and Sayer, 1988)).

Competition and industry dynamics can just as easily lead to major recenterings of industries, however, and rude shocks to existing plants, firms and locales – regardless of their size or length of tenure. Clarke's research into the dramatic restructuring of Britain's ICI shows that "organizational centrality" counts for little in protecting core plants from layoffs and closure if market share, resource costs and plant productivity are better elsewhere (1985, pp. 211–12). Cost and competitive pressure still appear as decisive factors in the fate of the various pieces of the corporate division of labor, and growth or shrinkage of the industry and/or firm as the context within which allocative decisions about various plant investments are made (Massey and Meegan, 1982).

All such patterns of spatial growth and change are most fruitfully explored in terms of industries rather than individual firms – as Watts (1980, p. 149) implicitly recognizes by limiting the model to certain sectors where it is most fitting. But the great error of the corporate geographers is, once again, to promote organizational behavior over the more fundamental process of industrialization. Indeed, by collapsing industrial growth into industrial organization, they falsely attribute broader dynamics of industrialization to the corporate form in which those processes of competition, technical change, or labor exploitation are wrapped up. The same is true for the attempt to stuff the wider compass of capital flows and the spatial dynamics of accumulation, as enunciated by David Harvey (1982) or Christian Palloix (1977), into the corporate box (e.g. Dicken, 1986). It just won't fit.

In sum, the case for a distinctive "corporate geography" in the modern world has not been made. This is not to say that the impact of industrial organization on geographic patterns of industrialization is insignificant, but rather that it remains to be determined. Although there are many possible arguments one can make for corporate organization as a locational influence, the work has not been done which properly sorts out the organizational from a jumble of other forces such as technology, labor relations and competitive conditions wrongly attributed to the corporation as such. There has been, in the end, a notable failure of the "geography of enterprise" to show how large firm spatial evolution is different from geographical industrialization under capitalism in general (Storper and Walker, 1989). Corporate theorists are right to be impressed by the powers of the modern corporation, as compared with the small firm of yesteryear or today. But whence come these powers and to what ends are they applied? Both the forces of production and the drive to accumulate capital long precede and still underpin the giant firm of today (Harvey, 1982). The corporation is an effective instrument of capitalist development but not the essential cause of it; that lies deeper within the economic structure. Corporate geographers have circled around this conclusion but never quite grasped it because they lack a systematic understanding of capitalism (see e.g. Watts, 1980, ch 5). They introduce the large firm as an exogenous player that alters the rules of the

industrial economy rather than as one that arises and acts according to those rules.

We must therefore back off a bit and rethink the "organizational problem" under capitalism, and position the large firm among the various forms of industrial organization, such as firms, industries and cities. After that, we must rejoin the issue of organization to the broader problems of production and the accumulation of capital. Early in the decade, Hayter and Watts (1983, p. 157) said, "The time would appear ripe for a reappraisal of the geography of enterprise". As industrial geography has pushed on to new territory, it has, rather, transcended corporate geography altogether.

III. Division of labor and the organizational problem

The question of industrial organization has hardly been posed in economics and geography. Solving the organizational puzzle means framing it in terms of the division and reintegration of labor. The division of labor refers to the range of tasks any human society creates to meet its needs. In the capitalist epoch, the division of labor has been vigorously expanded to include work on vast numbers of final products, long series of processing steps, hundreds and thousands of component parts, minutely divided tasks for individual workers, great amounts of engineering and design labor, armies of sales and transport workers, legions of managers, laboratory scientists, and the like. The reason? Competitive advantage and greater surplus value from new products, greater labor productivity, lower materials costs, better sales effort, greater labor control and intensity, and so forth.

An expanding division of labor, while advantageous to capital, also aggravates the organizational problem facing capitalists. The myriad pieces of production systems must be unified, and with a certain degree of competitive efficacy. This requires an institutional structure provided by various modes of organization, which are undergoing persistent improvement and change over time.

1. The tasks of labor integration:

The first element of productive integration is to forge physical links between workunits – groups of laborers. The life-blood of production – flows of materials, information, money and labor-power – must find its way to the various limbs of every production system, and through sales workers to final consumers, as well. The principal means of linkage, or arteries of circulation, are transportation, communications, storage, distribution and banking networks. These cannot be treated as mere appurtenances to production, lying outside the sphere of work, because all labor processes depend on such flows both within and between workunits. One cannot proceed to assemble a car without the requisite dies from the machining department, engine from the motor works, or windshields from the glass company. And all such movements must be accompanied by monetary exchanges, stock records, and other forms of information and accounting (Walker, 1989).

The geographic importance of linkages has long been recognized. The configuration of link-ups and the capabilities of the means of circulation are vital data in the geographic patterning of industry. Many valuable insights into location have been derived from the study of transport rates, shipment weights, break-in-bulk points, telegraph networks, access to airports, shifts in transport mode and flows of information (e.g. Chinitz, 1960; Pred, 1973).

Linkage analysis is not enough, however. Besides mere connection, labor processes must be coordinated. This is an absolutely fundamental condition for the functioning of "the collective worker". Oil must not just be sent down a pipeline from well to refinery and by truck from refinery to gas stations; it must be delivered to a refinery that handles that grade of crude, arrive when needed, be processed into the right mix of byproducts to meet current demands, moved to the correct areas of use, and delivered to outlets at the right time. In complex production systems, researchers, designers, production engineers, line workers, market executives and salespeople must coordinate their efforts in order to produce things that will be competitive and sell. Too often the coordination function is taken for granted, as if the mere fact of being in the same building, the same company or the same country meant that workers knew what their counterparts were doing[10]. Coordination of disparate divisions of labor is particularly important to the dynamics of creating new products that work better and production processes that cost less or improve product quality (Morgan and Sayer, 1988). The pieces must be made to fit even though all are changing over time as production capabilities ("technology") improve.

Third, labor, materials and machines must be effectively regulated according to economic calculations of cost, revenue and rate of growth. Machines must be monitored, materials tracked, workers' activities charted, and the results evaluated in a constant effort to maintain efficiency and quality. Relative profitability of different products must be ascertained. The proper weight to be given to design, production, sales, and so on has to be found. It is not sufficient, for instance, to have good coordination between production and sales if the sales force is so understaffed that they cannot serve customers adequately. The proper allocation of labor is as crucial for success as the right tools or labor skills. Here, too, the problem is not static efficiency but development of the forces of production through technological change (including learning). This requires investment of the surplus in the right quantities so that future inequalities between segments do not jeopardize production and that technical potentials can be realized (Walker, 1988a).

This framework of the universal tasks of integrating labor processes stands up better than the usual hodge-podge of purposes ascribed to specific organizational forms of integration such as the corporation (e.g. Williamson, 1975; 1985; Dunning, 1979; 1981). The latter tend to confuse issues of private property, competitive advantage, and uncertainty that pertain to the social relations of capitalist production with more general issues of productive efficacy that are common to wider systems of industrial production in the modern world. The most general principle governing choice of organizational form usually adduced is the need to protect firm-specific investments or technological advantages; another is the need to avoid debasement of brand-name goods; a third is to avoid risk of misdeeds by others on which one depends (see e.g. Williamson, 1980, pp. 1548–49). All these have universal elements, but take on a distinct coloration in a capitalist setting of individualism, competition and profit-seeking. The social relations of work integration under capitalism need to be considered separately.

2. *The capitalist purposes of industrial organization:*

Let us assume, for the moment, the classical dichotomy between market exchange and the internal administration of the firm. This schism goes back at least to Marx (1863), who contrasts the anarchy of the market with the despotism that obtains inside the capitalist's gates[11]. The neoclassical economist puts a brighter face on it: interior to the firm is a rationally-operated technical production function and on the exterior are efficient price-fixing markets. Both versions take the line between market and firm to be a solid one. Ronald Coase (1937) was the first to see firms and markets as alternative – and potentially interchangeable – means of coordinating production, each with certain advantages and disadvantages. Why, he asked, does the economy arrive at a particular balance of internal administration and external market exchange? This ought to depend on the relative efficacy of bureaucratic command and open-market transactions (see also Arrow, 1969).

Furthermore, the sharp dichotomy of firm and market elides the way the world outside the firm needs to be managed and the world inside the firm needs to be regulated in light of market conditions. Thus, Chandler subsequently called attention to the internal organization of the large corporation and how it sought, first, to internalize markets by forward integration into sales (1977) and, later, to imitate the market by dividing up and playing off divisions like competing "firms" (1962). Conversely, Arrow (1969), Alchian and Demsetz (1972) and Williamson (1975) came to analyse the potential for market failure, and the need to form more fixed contractual relations.

The dominant way of looking at these questions in the 1980s has been that of the "transactions cost" school, led by Oliver Williamson (1975; 1985; 1986; also Teece, 1980; 1985). This approach has been brought into geography with striking effect in the path-breaking work of Allen Scott (1983; 1986; 1988 a & b). In this view, the degree of integration of any production system will depend on two things: economies of scope between related processes (pieces of the division of labor) and the transactions costs of bringing more processes under the wing of a single firm, or leaving them dispersed among several firms doing business with each other. There is no reason to assume that lumping together disparate work units will necessarily yield "economies of scale" nor that either market or administrative transactions are without cost. Hence, the optimal degree of integration/disintegration depends on such things as the relative scales of coordinate processes and the institutional conditions for enforcing contracts.

Despite its undoubted contribution to opening up industrial organization theory, transactions

costs analysis is ultimately unsatisfactory because it is essentially a reaffirmation of neo-classical economies. The basic calculus is one of efficiency: cost minimization by rational actors embedded in a matrix of exchange. All that has been added is extreme self-interested behavior ("opportunism") and limits on perfect knowledge ("bounded rationality") which cause markets to fail in certain circumstances – a continuation of the tradition of Simon (1947) and behavioral sociology. All action, knowledge and social interaction are embedded in deep social/institutional frameworks; the "homo oeconomus" naked before the world is a fiction. Hodgson (1988, Part I) makes a devastating critique of neo-classical theory in institutional terms. But the problem runs deeper. Not only is the theory of action a thin gruel of free-floating individuals, information and logical choice, the theory of the economy cuts only skin-deep.

The vocabulary of transactions is redolant with the idea that the fundamental "economic problem" is one of exchange (even if Williamson does not go so far as Alchian and Demetz in making of the firm just another kind of internal market). Production is reduced to exchanges between profit-seeking actors and between humans and nature (Hodgson, 1988, p. 148). Efficiency is achieved through the minimization of the 'friction of exchange', in a manner disturbingly similar to classical location theory and its 'friction of distance' (Dahlman, 1979). But exchange means, in fact, transfer of property rights. People must do a great deal more than truck, barter and trade to produce useful objects: they have to work, to transform nature into new forms (Marx, 1863, Ch. 7).

What transpires in these models is that the most interesting and important issues are spirited in by the back door: acquired labor skills, technological innovation, labor relations, product quality, fixed capital investment. Or, worse, all the interesting problems are reduced to a positivist conception of "information", consisting of free-floating databits (Hodgson, 1988, p. 203). What is lacking is still the necessary conceptualization of production, rather than exchange: the problems of complex labor processes and the development of the forces of production[12]. This we shall pursue below.

Suffice it to say that transactions cost analysis can be a helpful supplement to explanations in terms of technology, labor relations, scale of operations, the sales effort, etc., but cannot sustain the kind of causal primacy Williamson and his followers claim for it – the same kind of error we saw before in the case of corporate geography. It is hard to see, for example, what transactions costs analysis adds to the already convincing account of the rise of the modern corporation given by Chandler (1962; 1977) and Porter and Livesay (1971), in Williamson's (1981) hands[13]. Similarly, while transactions cost theory has clarified the problems associated with indirect overseas marketing, it has added almost nothing to Hymer's initial insights about the reasons for direct foreign investment (Buckley and Casson, 1976; Williamson, 1981, pp. 1561–63; Teece, 1985; Kindleberger, 1984)[14].

The growth of the giant corporation can also be explained by reference to a quite different tradition, going back to Marx's "Law of Centralization of Capital" (Hymer, 1972) and substantially imbricated in the work of Schumpeter (1942). In this view, growth takes place through an endless jostling for competitive advantage among firms, and the inequalities in firm size thus generated accumulate in an irreversible way. The big just keep on getting bigger. This school of thought has been bolstered considerably by the work of Richard Nelson and Sidney Winter (1982) on stochastic models of corporate expansion over time. The causes of competitive advantage have been widely mooted: technological innovation, financial advantage, managerial aggrandizement, and so forth (Marris, 1979; Marris and Mueller, 1980). Much of this ignores real productive gains as much as the transactions cost literature, and gets stuck on the issues of market concentration (Bain, 1956). Nonetheless, it provides a salutory effect balance to the transactions cost approach in two ways. The "evolution" of organizational forms is strong unidirectional (and racheted upward in the case of large firms) and not subject to easy choices that compare the efficiency of alternatives. And growth does not rest on cost efficiency but on winning the competitive race (often with a stacked deck) and continuing to grow – or what I have been referring to as "efficacy" (Walker, 1988a; Storper and Walker, 1989, Ch. 2)[15].

There are, of course, serious implications of this for class power, which are evaded by Williamson's apologetics for the efficiency of large corporations. We shall return to the matter of capital at the end of this paper, for the purpose of industrial organization is not merely production – and certainly not sheer efficiency – but rather the accumulation of capital.

Recently, transactions cost analysis has been

turned to a different end than Coase or Williamson intended in their effort to explain the existence and organization of large firms. It has been used to argue for small firm complexes and subcontracting networks as equally efficient modes of organization to the large enterprise (Williamson, 1985). This is particularly apparent in geography with the work of Scott (1988a; 1988b). It derives, no doubt, from the shifting arena of post-Fordist production and the enthusiastic "discovery" of the Third Italy and other vigorously growing industrial districts today, especially by Sabel, as indicated previously.

These enthusiasms sit uneasily with what is known about the creeping giantism of corporations and their powers of international rationalization, due in part to transactions cost theorists. Are these two developments mutually exclusive? Not if we drop the old way of thinking in terms of the dichotomy of firms and markets.

3. *Modes of organization:*

Industry must be integrated by means of several "modes of organization", including firms and markets, but also workplaces, cities, the state, and financial oversight. While helpful in opening up thinking about organizational variation, transactions cost analysis still leaves us with only two organizational choices: the market and the firm – and a vague middle ground of "relational contracting" (Williamson, 1985; Scott, 1988a). In fact, there are many ways of joining together production systems, many modes of organization. Every mode has a characteristic means of integrating labor, and each manifests a wide variety of forms[16]. I use the term modes of organization in preference to Williamson's "governance structures", which he defines as contractual frameworks for transactions (1980, p. 1544), because modes of organization are much more than merely exchange systems.

This way of approaching industrial organization will be difficult to grasp, however, unless we free our minds of long-sedimented assumptions. To begin with, industry does not consist of discrete commodity production systems that are self-defining and self-organizing. From input–output analysis it is clear how complex the interconnections among the parts of the division of labor can be (Hoare, 1985). Modes of organization are ways of dividing and reintegrating the pieces of the complex social division of labor.

Second, it is necessary to stop treating the "market" as the primordial aether in which the organizational unit swims. "In the beginning," says Williamson, "there were markets" (1975, p. 20), recapitulating the bourgeois idyll of Adam Smith (Polanyi, 1944). The market is an institution like any other, built of people, laws, and practices, whose existence is as much in need of explanation as that of the firm (Hodgson, 1988, Ch. 8).

Third, space enters directly into the problem of production, and is essential to certain modes of organization, as in the case of workplaces, territories and nation-states. That this should be so obvious and yet so little theorized, is testimony to the general devaluation of the spatial in 20th century social science (Soja, 1989). Factories, cities and countries are regularly treated as if they did not share this elemental dimension of geographic position, boundedness and relation, nor all the social practices that arise from this fact. Even in industrial geography we still have to be instructed to pay attention to the imbrications of urbanism or state policies in the fortunes of industries and places! (e.g. Scott, 1988a; Morgan and Sayer, 1988)[17].

Fourth, the state is not a transcendent referee, floating somewhere behind the organizational institutions of society, as Williamson and the neoclassical theorists suppose (Hodgson, 1988, pp. 152–54). The state is a real entity, made up of laws, agencies, and armies – embedded in national or imperial territories. It does more than "make policies" (every corporation, merchant or union does no less), which may be grafted onto a discussion of corporate or industry geography (e.g. Dicken, 1986). States (and state agencies) can act as modes of organization – though, of course, they have a much wider role than this.

Finally, the circulation of capital is the supreme arbiter of capitalist production, the ultimate linkage mechanism and the key regulator of social labor and its products (Weeks, 1981). Capital weaves in and out of all the pores of production, whatever the mode of organization. Sometimes it flows toward whole industries, sometimes it seeks out particular firms, sometimes it moves among profit centers within firms; it may also sweep across national boundaries and drain from inner city to suburb. Profit rates are the main signal guiding capital movement, but an imperfect guide to accumulation (Walker, 1988a).

Here, briefly, are some of the possibilities open to capitalist industry (for a more complete discussion, see Walker, 1988b). Others not considered include the family and international systems, such as the EEC.

1. The workplace: The workplace is the tangible site of particular labor process, usually bringing many workers together under one roof or within four walls, for reasons of direct access to materials, machines, and other workers. Such workplaces offer the benefit of direct oversight and control for bosses, as well (Marglin, 1974). Workplaces vary from small workshops and boutiques to immense factories and office towers, but include several oddities such as planes, railyards and National Parks. Some workers labor at home, under contract, while a few are free to rove about over forest or highway. Workplaces and firms are very often wrongly treated as one and the same.

2. The firm: The firm is the principal unit of property ownership, by which capitalists secure legal claim to machinery, buildings, money, commodities and other capital assets, as well as to patents and copyrights to technology and general knowledge. Firms are also the main category of employer. The firm has legal control of labor (but not labor-power) during the working day, and can command several workplaces under one administrative system. The corporation is the most popular type of firm, due to its joint stock and limited liability properties under law, but other forms such as partnerships still exist (ownership may also be individual, familial or state). Firm size and internal organization vary quite widely.

3. The market: Markets are a mode of effecting legal transfer of property between two or more parties, usually by means of monetary exchange. Markets exist for transfer of commodities, labor-power, monetary instruments, claims to corporate assets, titles to real assets and land, and future claims to all of these. Markets are first of all legal frameworks for exchange that embrace contracts, property rights and torts, within which widespread transactions take place (Hodgson, 1988). Market exchange is regulated by price systems, by stipulations written into contracts, and by personal relations of trust, among other things. They frequently require intermediaries called "merchants", who knit together widely disparate sets of buyers and sellers, or are structured into regular systems of transactions over long periods by systems of subcontracting, licensing or franchise[18].

4. The territory: Territories are extensive modes of assembling numerous production activities (and much else as well) within reach of each other. Within territories, buildings, machinery, workers and other material things are literally affixed to the earth in some coherent spatial order, and linked together by roads, wires and other infrastructure. Firms, manufacturers' associations and markets, while less tangible than equipment, will also generally be rooted in particular venues and spatial configurations thanks to their legal base, workplace locations, and embodiment in personnel with fixed homes and place-based cultural roots. In addition to fixity and access, territories also frequently offer legal, cultural and physical boundaries, which may be as rigid as those of the fenced-in workplace. An effective territory over which industrial integration takes place may be as small as an industrial district of a big city or as extensive as the Rhine Valley.

5. The industry: An industry is a curious thing, very easy to speak of, very difficult to define. A first cut is that industries correspond to commodity outputs, such as toys, apples or steel. But the boundaries are hard to draw because every industry includes dozens of specific types of goods, some industries produce inputs for others, and, worse yet, one industry may include within its field of operation a product normally classified as the output of another. Accounting problems arise, even where commodity definitions are clear, because diversified firms and workplaces producing joint products cross industry lines. There is an additional problem of how finely or broadly to slice things: beef and pork-packing have sometimes acted as one industry, other times as two distinct industries. And, finally, some industries, such as semiconductors, are truly global, while others, such as food processing, still operate more within distinct territorial bounds. The upshot is that industrial boundaries are fluid, and they effectively arise through institutional practices, such as which firms regard each other as competitors, the way industry associations are formed, and how financiers group firms to evaluate relative sectoral rates of profit. For example, IBM and AT & T, while two of the biggest US producers of semiconductors, do not participate in the Semiconductor Industry Association, and are generally categorized under computers and telecommunications.

6. The nation-state: Countries are always territorially bounded, but they are territories with a difference. Their peculiar status as states gives them a unique array of powers in and over civil society. National governments have enormous powers to affect industrial production and effect industrial organization. These include trade barriers behind which national firms and industries can hide from foreign competition; nationalized firms (often

whole industries in one) that operate under political direction and the umbrella of the national treasury; government planning ministries that help coordinate research efforts and industry strategies; and war department purchases and research funding. All companies have national bases of operations, and even the most widely multinational still evince strongly national orientations. Even such international industries as automobiles and toiletries have distinctive characteristics across countries, including peculiar product designs and consumption habits. Nation-states vary hugely in size and internal governmental systems of administration and political control.

7. The financial system: Money-capital has a special place in capitalist circulation, as the general form of capital able to survey a wide compass of production activities for investment (Harvey, 1982). To do its work as a coordinative and regulatory mechanism, finance capital needs an institutional structure to handle money flows, asset transfers, and accumulated profits. This structure includes commercial banking systems, investment banks, bond and stock markets, and brokerage houses. These institutions of finance want good information about the performance of the physical forms of capital (equipment, inventories, sales, etc); valid means of calculation of investment flows and profit rates; and systems of evaluation of relative opportunities in a changing environment, such as stock indexes and board meetings. Financial systems range in type from the banking-manufacturing blocs of Germany or Spain to the loose and more opportunistic relations of venture capitalists to Silicon Valley electronics firms.

4. Organizational evolution:

Capitalism was not born all swathed in the modern fabric of organizational forms. Modes of organization have evolved over the course of history, as should be obvious from a moment's reflection. Markets and the mercantile threads of commerce were built up over centuries (Braudel, 1982). In the United States, the New York Stock Exchange dates from the 1850s, investment banking from the 1880s, a national bank clearinghouse system from the 1890s (Studenski and Krooss, 1952). Limited liability charters date from the 1840s, multistate operations from the 1870s, multiproduct companies from the 1890s, most of the great Trusts from the turn of the century, and the divisional corporation from the 1920s (H. Williamson, 1951). Putting out systems and the workshop were the earliest forms of capitalist industry (Kriedte *et al.*, 1981); the modern factory dates from the late 18th century (Fong, 1978); the detached office building broke off from the factory in the late 19th century (Condit, 1952). Revolutions in the scale of such workplaces have followed in due course.

The city has grown and shed several skins in its built-form, as well as altering its functional arrangement and means of local governance over the last two centuries (Walker, 1977). Regions like California and the Midwest have developed and achieved an articulated coherence that is denied to many other large territories or even countries (Page and Walker, 1989), but some regions have also devolved as meaningful economic units (Pollard, 1981). The rise and spead of nationalism and the modern nation-state needs no repetition here (Anderson, 1986), except to recall the evolution of state power and economic management capabilities over time. The modern concept of an industry dates only from the mid-19th century (Williams, 1976). Successive industries have come into being as their powers of production have reached a sufficient level to transform artisanal, petty commodity and peasant forms of production into full-blown arenas of capitalist commodity production, competition and investment. New industries have appeared on the basis of technological breakthroughs into new product functions, labor processes and spheres of nature to be manipulated (Schumpeter, 1939).

Evidently, organizational innovation is still very lively in our own time, as the current spate of joint ventures and international subcontracting networks attests. This leads us to a consideration of the complex organizational matrix that develops in and around every industry, and to the variation in actual systems of production organization over time and space.

IV. Industrial organization and uneven development

Industrial production systems must be organized in one way or another in order to function successfully, compete effectively, and grow[19]. Every industry will necessarily consist of a variety of organizational forms, or an "organizational ensemble." The old models of a plurality of small, single-plant, single product firms or an oligopoly of huge, multi-factory, full-integrated corporations are rather impoverished in comparison to the reality

of industrial organization. Typically, every industry will make use of a wide variety of organizational modes and forms: some large firms, some small; some big factories, some tiny workshops, some homework; some clustered plants in cities, some scattered in rural areas; some core financial and mercantile players, some use of intermittent lenders and traders; and so forth.

Modes of organization are not merely substitutes whose comparative worth can be measured in terms of transactions costs, but are complementary ways of solving a range of problems that arise in production, having to do with everything from technical innovation to allocating specialized labor to inventory handling. No one solution can suffice (indeed, it is impossible to treat them in undialectical isolation (cf. Hodgson, 1988, p. 169). Here I beg to differ with Scott's (1988a) single-minded argument for integration-disintegration along parallel axes of large and small workplace, large and small firm, and industrial districts versus dispersed production. Because the urban territory, for instance, is not a direct outcome of systems of small workplaces (or firms), a city like Los Angeles will evidence an assortment of large factories and giant firms, as well as local manufacturers' councils, specific government interventions across local industries, and banking-industry networks. At the same time, Los Angeles has not had as big financial or mercantile sectors, proportionately, as San Francisco, which is perhaps why venture capital has not set up shop as munificently in Southern California as in Northern California, and Orange County has attracted more outside banks, instead. The logic of Scott's own analysis suggests that even large plants and firms are likely to depend on the dense fabric of external linkages found in disintegrated production complexes. And the evidence he adduces for the claim of dispersal of large plants is simply not convincing. All the industrial clusters he refers to – semiconductors in Silicon Valley, garments in L.A., aerospace electronics in Orange County, auto plants in Tokyo – show the persistent presence of very large factories.

Different industries are likely to be clad in organizational garb appropriate to the widely divergent production problems they face (cf. Livesay and Porter, 1969). Shipyards are a far cry from garment sweatshops, and ship-building companies have been much larger, on the whole, than clothing producers; they have clustered on the outskirts of cities rather than in their centers, and have sought out quite different regions, such as Clydeside in Scotland versus the Eastside of London. Shipbuilders are financed mostly by banks or governments, while garments are fronted largely by merchants and commercial credit. One never hears of a "national champion" garment industry, but ships are often matters of state. Putting-out is common in garment work but precious few parts of a ship can be made at home.

Yet the same industry may assume different organizational forms at different times and places. Organization cannot be reduced to a simple outcome of other forces, such as technology or labor control[20]. It is now abundantly clear that Japanese electronics and automobile production systems are organized in ways quite at odds with prevailing practices in the United States and Europe. Those differences show up in degrees of firm integration, size of workplaces, supplier contracting practices, kinds of state intervention, financing methods, and the like. While automobile production is a world industry in certain respects, it nonetheless breaks into several national industries with distinctive features (Friedman, 1977; Abernathy *et al.*, 1983). Similarly, competition between Japanese and British electronics is largely blocked across the barrier between consumer goods and defense instruments, given the close integration of British armaments firms and the military (Morgan and Sayer, 1988). The almost total focus in the traditional Anglophone industrial organization and industrial geography literature on American and British forms of the corporation – to the exclusion of Japanese zaibatsu and trading companies, German bank holding companies, or French state firms, for example – is remarkable, and indicative of the blindness of Anglo-American business culture to outside challenges. Now everyone is scrambling to catch up.

The variety of "organizational solutions" to every production problem is an essential part of uneven development and unequal competition of industries and the places in which they grow. Contemporary Japanese export success depends heavily on the coordination provided by trading companies, zaibatsu, large banks and the state, through MITI (Okimoto *et al.*, 1984; Johnson, 1982). It also depends on the famous just-in-time system of deliveries between regionally-based suppliers and assemblers/processors (Cusumano, 1985). Ford Motor Company, on the other hand, has met the Japanese challenge rather well through a system of globally-integrated production. In microelectronics, US firms have created,

in Silicon Valley, a highly fragmented and independent system of entrepreneurial spinoffs which, until recently, has dominated global microelectronics (Saxenian, 1989). The Japanese and French have, by contrast, depended more heavily on large firms to challenge the Americans, and have, in many fields, done better by virtue of larger scope of operations and better internal integration (Florida and Kenney, 1990).

Such competitive differences do not appear only at the international level. An industry can restructure organizationally within a single country because of pressure from outside competition, changing technological possibilities, opportunities to outflank organized labor, or new product niches opening up. Silicon Valley, for example, got started when a few independent researchers broke from the previous corporate culture of GE and AT & T on the East Coast (Scott and Storper, 1987). US meatpacking has gone through a revolution led by Iowa Beef Packers, without foreign impetus, in order to box beef for supermarkets, buy beef from feedlots and slaughter beef with non-union labor[21]. LA's garment industry has become more disintegrated in order to take advantage of an influx of low-wage immigrants (Scott, 1988a). The film industry of Hollywood has been thoroughly remade into a disintegrated complex during the 1970s, and in the process regained its earlier global primacy in the broadcast entertainment world (Storper and Christopherson, 1987).

One thus sees the rise and fall of organizational ensembles over time, usually in association with the branching off of new industries or major restructurings and renewals of old sectors (Storper and Walker, 1989). These reorganizations are usually marked by the appearance of young innovative firms, such as Fairchild Semiconductor or Southern Pacific Railroad in their day, and new capitalist actors, such as Steve Jobs of Apple Computer or Ono Taiichi of Toyota Motors, who are later lionized by bourgeois mythology (e.g. Rogers and Larsen, 1984). New financiers may rise alongside the industrial innovators with whom they develop favored relations, as in the cases of Mellon in Pittsburgh (steel) or Giannini in San Francisco (construction). Or new forms of state intervention may appear, as in the developmentalist regimes of Taiwan and Korea today (Deyo, 1987). Along with these come periodic shifts in the landscape of capitalist industrialization, often marked by dramatic leaps into previously backward regions or the rise of new challenger nations among the elite of the capitalist world. Places such as California or Hong Kong thus become virtually identified, for a time, around the world with the vibrant industries, such as aerospace or men's suits, on which they make their fortunes.

If the preceding is true, the whole matter of "industry location" must be looked at differently than it has been in the past. In classical location theory, industries were givens, and one considered only their optimal distribution over a known map of possible sites. This begs entirely the question of what organizational form an industry takes, and thus speaks naively of "plant siting" decisions – as if it were known exactly what goes into each workplace, what is to be done in-house or subcontracted whether the state could be mobilized to intercede against a foreign acquisition, or whether there are stipulations in a joint venture agreement that affect locational choice. In short, organization and location are of a piece, and we must speak of "the geographical organization of production systems" rather than treating one, then the other, often in different disciplines (Walker, 1988b).

While specific forms of organization will certainly affect location patterns, the crucial point is that industries, their organizational ensembles, and their location patterns evolve together as sectoral growth proceeds. This is clear from the histories of such disparate places as Orange County, California (Scott, 1988a), Toyota City, near Nagoya, Japan (Cusumano, 1985), and Emilia-Romagna (Bagnasco, 1977). Industrial development is not based on rational choice among a menu of alternatives, but on growth along certain paths of evolution (Storper, 1989). These paths are only occasionally subject to radical reorientation, due to industry crisis, technological change or dramatic shifts in labor relations, as happened recently in the movie industry. Often change comes the hard way: by external competition and defeat from new centers of industry using new methods of production and new organizational ensembles (Storper and Walker, 1989).

There is thus a danger in trying to explain too much in terms of industrial organization. This was the principal thrust of my condemnation of corporate geography, above. One sees this tendency even in the transaction approach of Scott (1988a), who tends to move analytically from organization to location, as if the integration/disintegration of production systems were sufficient to explain their

behavior and development. It is not. We must move through the framework of organization into the house of production itself.

V. From industrial location to the production of place

Uneven development, or what I prefer to call "the inconstant geography of capitalism", is mostly about industrial growth and change. Capitalist industrialization builds up and discards places as it tirelessly expands and renews the sources of growth and accumulation. It is not corporate concentration that lends the principal dynamic to this process, as the geographers of enterprise believe. Nor is it even capital flows, as such Marxist geographers as Harvey (1982), Smith (1986) or Bluestone and Harrison (1982) believe – important as those are. It is, rather, the enormous productive powers unleashed by industrialization which make capital capable of producing places and ultimately reproducing and restructuring the immense geographical apparatus of cities, factories, highways and the like across the face of the globe. Conversely, the industry (or locale) that does not generate surplus value fast enough will not have a big impact on location in the long run.

Organization may be the principal stimulus to growth in some instances. Certainly, the invention of the divisional corporation by Alfred Sloan and others in the 1920s gave General Motors and other American corporations an edge over many European holding companies or "functionally" organized firms. Yet more fundamental to American hegemony were the methods of Fordist mass production (Aglietta, 1976; Hounshell, 1984). Similarly, while Japanese corporations and MITI have been vital to that country's economic success, the keystone of competitive advantage across a wide range of industries today is the measures taken to improve work methods through more flexible task assignment, close inventory monitoring, rapid feedback on product defects, and general attention to learning-by-doing (Schoenberger, 1982; Cusumano, 1985; Sayer, 1986). In the Japanese case, but also in the American, improvements in work integration at the plant (as well as inter- and intra plant) level have been crucial, and in this sense production technology and the labor process cannot be shorn of their oft-forgotten organizational dimension (Walker, 1989). Dialectically speaking, this would be impossible. But it is not merely splitting hairs to affirm that the principle issue is production as the transformation of nature, rather than general structures of administration, commodity flow and capital circulation.

In other cases, it is clear that organization has been a secondary (though still vital) aspect of industry success stories (though most involve a virtual across-the-board revamping of old ways of doing things). In garments the key to growth today is usually fashion leadership or immigrant labor; in microelectronics it is the technology of circuit design and minaturization; in meatpacking it is boxed beef, feedlots and non-union labor; in consumer electronics it is the products (transistor radios, walkmen, VCRs, etc.) and the labor process. In other words, organization is only one among several basic facets of industrial production and the endless industrial revolution driven by capital accumulation. The other facets are product technology, employment relations, the labor process, and the division of labor, which I have treated elsewhere at greater length (Storper and Walker, 1983; Storper and Walker, 1989; Walker 1988b; 1989). While I cannot expand on the other facets of industrialization here, they are all means to economic growth and capital accumulation.

The economic pulse of capitalism beats to the rhythms of capital accumulation, but that accumulation rests on the production of values and use-values and expands through the development of the forces of production. The industrialization process has always been about creating more from less: the capacity of human labor to transform nature in progressively deeper and more efficient ways (also more destructive, but that is another problem). It has done so, among other ways, by means of a wider division of labor, new levels of scientific and practical understanding of nature, more sophisticated and powerful machines, new power sources, the laying down of faster means of communication and transportation, greater social cooperation, and the growing knowledge and skills of the workforce. Industrialization has vastly increased the productive power and accumulation of the products of labor, or wealth, of capitalist societies. It is this process of creation of something out of nothing that we must grasp in order to understand the geographic expansion and reconstitution of capitalism over the course of its history.

This has profound implications for industrial geography. For if industrial societies are able to do things not previously possible, they are also able

to operate in places where little existed before, or to make over entirely the landscapes of the past. The decisive insight of the approach I call "geographical industrialization" is that industries do not so much locate as create places (Storper and Walker, 1989). They can do so, moreover, in unexpected locales where the cost structure, in Weberian terms, makes little sense. This is partly because fast-growing industries generate super-profits and rapid rates of accumulation that allow them to attract their own factors of production, and products of special quality, growing number and declining price that help them create their own markets. It is also because they are engaged in a process of solving problems no one has ever solved before, in which new labor skills must be learned, new production methods invented, and new kinds of machines installed. In such situations, avoidance of older industrial territories and their sedimented habits in production methods may be a positive virtue, which is one reason why industrialization has also left a train of industrial spaces in its wake, many now gone to rubble and forgotten except by archaeologists of the modern.

Industrial revolutions across wide spectra of production activities, such as those unleashed by the mechanization of textiles, microelectronics, Ford's assembly line and continuous-flow chemical processing, have led to the transformation of whole industrial landscapes and to new macrogeographies of industrialization. These upheavals tend to overthrow existing spatial divisions of labor, giving the lie to corporate geography and other theories of uneven development that posit an unchanging and unchallengeable hierarchy of places. In other words, the cumulative causation theorists of the Myrdal-Perroux school and the new international division of labor theorists of the Hymer-Froebel school did not go far enough in grasping the disequilibrating forces unleashed by capitalist industrialization (Storper and Walker, 1989).

VI. Capital and the development of industrial organization

Since this paper is written for the Vega Symposium in honor of David Harvey, it is only fitting that I return, at the end, to the place of capital in the treatment of organization, production, and geography. In taking up the problem of industrial organization and the production of place, it is important not to abandon Marx's theory of capital. Yet this has happened substantially in much of the work of left industrial geographers. Hymer (1972) at least posed the corporation in terms of the "Law of Increasing Firm Size" and "Law of Uneven Development" based expressly on Marx. He was wrong, as has been much of the literature that has tried to derive uneven development too straightforwardly from the analysis of capital accumulation. Hence the need to delve more deeply into the realms of industry, production and organization. But recent enthusiasms for industrial restructuring theory and flexible specialization ("post-Fordism") often take us very far from the analysis of value, exploitation, circulation and accumulation[22].

The insights of Harvey (1982; 1985a & b) into the crisis-prone nature of capitalism, the dissolving power of money and capitalist circulation, the entrapment of value in fixed capital, and the "spatial fix" of geographic expansion are, among other ideas, extremely useful for an understanding of the spatial dynamics of capitalist accumulation. I shall not belabor them here. My point is that they are in no way incompatible with the kind of conclusions I have drawn in this paper, and my other work on industrial production; indeed, they resonate in the kind of disequilibrium dynamics on which I have tried to base my theory of capitalist industrialization (see especially Walker, 1988a).

The difference between us lies in this: a parting of the ways to look at capitalism from two vantage points. Harvey's studies of urbanism long ago led him to stress the role of money capital in the making of an uneven geography and an unjust society, and he has consistently pursued this side of capital in his studies (including a new book in 1989). My studies of suburbanization (Walker, 1977; 1981), on the other hand, left me with a feeling of disquiet over the almost total absense of any consideration of capitalist production in the city (other than the production of the built environment itself). I therefore eagerly jumped on the industrial geography bandwagon set in train by Doreen Massey. I believe that I return to the question of capitalist urbanization – or rather territorial development, as a whole – better armed than before.

The task before us then, is to build from here on the two foundations of the geography of capital accumulation and geographical industrialization. This relation turns, I believe, on the crucial dialectic of social relations of production and forces of production in historial-geographical materialism. My concern in this discussion has been chiefly with the productive forces – division of labor, organiza-

tional modes, and the industrialization process. This naturally leads to an emphasis on capital as use-value in the productive apparatus and the forms of capital-in-use rather than on capital as value in motion, seen principally from the side of the money-form. It is necessary to move back and forth between the two realms, however, in order to see a fully-rounded picture of capitalist industrialization.

I cannot pull off this synthesis here. I shall therefore confine myself to three brief points about capital and industrial organization.

The first thing to be clear on is that capital circulates and accumulates behind the various forms of industrial organization treated here[23]. One reason for opening up the organization question for a new look is to let it be seen that the wizard behind the organizational curtain is still the capitalist[24]. It is unfortunate that the corporation was substituted for capital in the lexicon of economics and geography, as well as in the proclamations of much of the Left. The enemy was wrongly seen to be the giant multinationals, when they are no more than the organizational bearers of capitalist social relations and capitalist power. Organizational mass and variety is one more layer of the social fabric obscuring the role of capital as the ultimate integrator of the growing social division of labor and the capitalist class as the ultimate "decision-makers" in the economy. A capitalist class still prevails by virtue of its ownership of property, including corporate assets and monetary instruments, and the control over investment, production and accumulation that this gives them.

Capital is not the same as the firm, corporate or otherwise; yet this error is commonly made on both Right and Left. The firm is not the only "container" for production, as we have seen; nor is it the sole instrument of capitalist competition, exploitation, and accumulation. Competition, for instance, may be manifest in the boosterism of US cities, the clash of capitalist nations, or in the jostling of various profit centers within a single company. Exploitation (extraction of surplus value for capitalist profit) takes place in large multinationals, hamburger franchises, banks offices, on city streets, and through such avenues of extraction as subcontracts, apartment rents, interest payments, and taxes, as well as directly from worker to boss. Capital can accumulate in banks, personal holdings, the infrastructure of cities, and "the wealth of nations."

As it circulates, capital weaves its way through the warp of an immensely complex system of production to knit a tapestry of immense richness. Certain designs in that fabric stand out – here General Foods, there Miami, and over there the aerospace industry. We can argue whether cities, industries, large corporations, or nation-states constitute the principal patterns in the worldwide spatial division of labor; but we must be cautious not to obscure the deeper level at which capital moves. This flux of value in search of surplus value animates the far-flung production systems (labor systems) of the capitalist world, throws them into competition with one another, compells them to exploit their labor-forces, and drives them to accumulate – and lays waste to those that do not perform well enough.

A second point is that the productive forces at the disposal of capital have been growing over time and space. Earlier I argued that without an understanding of the productive capability of industrialization, we could not properly comprehend the power of capital to create places and the landscape of the modern world. Those powers have been on the increase, and this shows up as an across-the-board expansion of the organizational capacities of capitalism over time. Growth in the division of labor plays a fundamental role in capitalist development, propelling economic growth along with the other forces of production, such as greater mechanization, increasing scientific manipulation of natural processes, more educated workers, or greater state military powers. Less well recognized, perhaps, is that integration of labor is equally a dynamic force in industrialization, and that the development of organizational capabilities has contributed significantly to the forward motion of capitalism.

This advance has been most clearly seen in the case of the large firm, particularly by Chandler and students of multinational corporations. The giant company has promoted careful marketing of its products, raised capital for bigger undertakings, created major R & D laboratories, stabilized resource supplies, insulated favored workers from external labor markets, developed better administrative techniques, applied new information technologies to internal communications, diversified product lines and investment portfolios, put its tentacles deep into governments, and so forth. The development of such organizational capabilities has enhanced the geographic reach of large firms immensely, so that they regularly jump national boundaries, enter distant markets, scope out a wi-

der selection of plant sites, and the like. This point has been aptly made by the corporate geographers (e.g. Dicken, 1986).

Nonetheless, the wrong lesson is normally drawn from the saga of the giant corporation: that because the firm has enlarged its integrational capabilities, other modes of organization must have fallen behind in organizational capacity. Markets, subcontracting, small firms and cities are commonly depicted as left over from an earlier stage of history. This is utterly wrong, and again works to hide the role of capital and the continuity of development under a capitalist regime. Indeed, many of the powers and effects attributed to the giant firm were to be seen before the modern corporation ever appeared on the scene! Progress in the technologies of integration has worked to the benefit of all modes of organization.

For example, markets institutions for goods and money (capital) have been steadily enhanced by such innovations as the telegraph, the railroad, steam packet, stock exchanges, commodity futures, stock futures, investment banking, telephones, digital telecommunications, computerized data management, and so forth. As a result, market transactions now reach farther around the globe, move more goods and money faster, penetrate more deeply into everyday life, and generally allow more far-flung (and precise) capitalist production and consumption than ever before (cf. Marx and Engels, 1848). For most of the same reasons, subcontracting networks have never been present in more places and over wider areas than today. For a very long time, factories grew more and more immense, owing to the growth of machine technologies, worker skills and managerial competence. The mind boggles at Mc Donnell-Douglas' 45,000 workers in one plant in Long Beach, California. Industries have also become more tightly knit organizational units by virtue of the internationalization of markets, firms competing across traditional geographic boundaries, factories and disintegrated production complexes producing a world's supply of many goods from one spot, joint ventures among national firms, and so forth. Industries are also being successfully managed by government planning ministries such as Japan's MITI in ways not previously thought consonant with conservative capitalist policy. Cities and other territorial production complexes have been able to continue growing in size by virtue of improvements in transport, communication, real estate markets, intergovernment finance, infrastructure provision, land use planning and redevelopment, and the like.

The fact is that the minimal conditions of urbanism generally work on a scale far beyond that possible a century ago, which is why all predictions of size limits to cities have been proved wrong. And financial systems have come to span the globe, with the internationalization of banks and the 24-hour network of securities trading in the major bourses.

As a consequence of these virtual across-the-board improvements in integrative capability, capitalist production has steadily expanded across the globe. Too often this "globalization" has been attributed to improvements in means of transport and communication alone, and thence to the mere speed of capital movements. Even Harvey (1975) fell prey at one time to this Weberian take on capitalist expansion (see also Walker and Storper, 1981). Rather, capital has increased its power to integrate and organize increasingly far-flung and complex labor systems in the global economy.

A third and last point with regard to capital and industrial organization is this: as the organizational fabric of capitalism evolves and changes over time, the locus of capital and capitalist power may be dramatically altered. That there are contending sites of capitalist power cannot be disputed. It is made plain everyday by the fierce struggles of financial raiders against corporate managers. It would be naive, however, to fall into old traps about which faction of capital "really" rules, as in the tiresome debate whether bankers or industrialists hold the real power (e.g. Kotz, 1978) or whether stockholders or managers actually control the corporations (e.g. Berle and Means, 1932) (for a good review, see Herman, 1981). As one can easily see in the present spate of hostile takeovers, it all depends on the opportunities and weapons mustered by the various parties, and on the historical implacement of rules and institutions to contain such disputes – banking laws, securities regulations, reorganizations by occupying armies, etc. That is, there is no one Church of the True Cross of Capital.

Presently, we are witnessing the revival of another long-stale debate over the relative power (and virtue) of large and small firms, rigid bureaucracies and flexible production networks (e.g. Zysman, 1977; Piore and Sabel, 1984). The affection for petit bourgeois palliatives among many on the Left is alarming: small businesses are still capitalist enterprises, even if they have a more human face

due to close association to workers and bosses. Now, it may well be that small firm networks offer a better way to organize certain productive activities, and are increasingly capable owing to various developments in technology, management, contracting and the governance of industrial districts; it is wholly salutatory to break with the old Stalinist affection for giantism in industrial organization. Nevertheless, small firms and flexible networks are not the appropriate solution to all production problems. And they neither eliminate the imperatives of capital accumulation nor solve the problem of democratic rule versus class prerogatives in the workplace, the firm, the city or the nation as a whole. One has merely to observe the utter futility of working class organization in Silicon Valley today to be apprised of the secure class power of the entrepreneurial business class in a classic disintegrated production complex (Walker *et al.*, 1990). We need a rather more capacious socialist agenda than this.

Instead of rehashing worn debates, we need to think hard about the implications of expanding forces of production, including the division of labor and organizational capability, on the one hand, and continuing capitalist relations of production in command of the industrial system, on the other. One implication of this conjunction, as we have seen, has been the increasing power of capital to orchestrate labor systems over ever larger geographical areas. This is increasing despite the appearance of more dispersed production location and more disintegrated forms of production, in many cases. If the usefulness of large factories is diminishing today, it may be that the division of labor has so expanded as to make the factory an insufficiently large unit to encompass comfortably entire production systems. So another way has to be found. If through organizing a subcontracting network, for example, the lead firm maintains control over the circulation of capital, it remains the key node of capital. If capitalists can effectively master larger territories through merchant networks or politics, then they may not require the fortresses of private property known as factories, and a more dispersed form of capitalist production can eventuate.

Capital has also outgrown the confines of individual industries. One means of this escape was the diversified, multidivisional corporation. Now the buying, selling, assemblage and dismantling of sets of companies into giant conglomerates is an everyday occurance. Did the company miss out on the shift to microelectronics? Then buy into it. Corporate raiders have gone farther, striking fear into the hearts of even the most brazen corporate empire builders by treating megacompanies in the same terms the latter have treated their subsidiaries.

Perhaps, then, we have come to a time when capital is outgrowing the corporation, as presently constituted. This will herald the end of corporate geography more effectively than any of the arguments I have mustered here.

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Footnotes

[1] Except Hirschman (1958) who argued from short-run inequality to long-run regional equalization.

[2] Intra-firm linkages and spatial patterns are clearly different for large firms and small when management offices and attendant business services are taken into account (Martinelli, 1986). But this raises further issues which I treat below. Here we are speaking of manufacturing locations.

[3] The same largely holds for Massey och Meegan themselves, and all "industrial restructuring" or "locational adjustment" studies (Leigh and North, 1978; Watts, 1980; Healey, 1981), which are essentially Weberian in inspiration. That is, while recognizing that industrial change can occur at the firm or industry level as a whole, resulting in adjustments among the parts (rather than isolated restructuring of single-plant firms), the premise is still comparative statics and cost-minimization, as in Weber.

[4] Cohen sees himself as a close follower of Hymer, but his data actually grate against the corporate hierarchy thesis.

[5] Conversely, the distant headquarters office is not the rule in highly localized industries with few dispersed branch plants (Watts, 1980, p. 62).

[6] Where branch plants are bereft of such linkages it can be as much the fault of the local economy – poor performance by local suppliers – than strategy of the incoming company. A good example of this is Toyota's joint-venture auto plant near San Francisco. Military contractors, enveloped in secrecy and favored-company status, can also be notoriously poor generators of linkages or new firm spin-offs (Morgan and Sayer, 1988).

[7] There is a secondary strand of industrial geography that raises the issue of technological innovation and branch plants (e.g. Thwaites, 1978; Britton, 1980). Here again, the corporate shell turns out to be less important than the characteristics of product and process technology that make some activities more susceptible to spin-offs to new firms and plants (Glasmeier, 1985; Morgan and Sayer, 1988). There are difficult questions surrounding the relation between industrial organization and technological dynamism, but they range far beyond the branch plant approach (Brusco and Sabel, 1983; Scott, 1988b; Storper and Walker, 1989; Florida and Kenney, 1990).

[8] Virtually all production today is carried out in complex divisions of labor which are not confined to a single factory. Every workplace is in some sense a branch plant – a piece of a large puzzle, unable to sustain itself without myriad nearby and distant dependencies. Each depends on what the others are doing

and how well – the competence of headquarters, the efficacy of R & D, the quality of inputs, the rise and fall of the average rate of profit. The real question is how are complex production systems made to function well or how they fail. Secondarily, we may ask how the corporation does this better, worse or differently than other forms of organization (see below).

[9] Core-spread models sit uneasily with corporate hierarchy models, often within the same texts. In the former, large factories may be found in the firms' core territory, and are not all relegated to the periphery.

[10] At a Belgian telephone plant I was told of how poor integration between project engineering and manufacturing had resulted in a big money-losing product, even though the departments in question were only a few hundred feet apart; the result had been a major organizational shake-up. At the same factory complex, the marketing director despaired of the engineers' inflexibility in designing products for customer demands, while production managers complained of salesmen promising deliveries that could not be met.

[11] Hymer (1972) adopts Marx's dichotomy literally, for example. For a useful discussion of Marx's views on production and exchange – which nonetheless does not solve the problems raised – see Levine (1980).

[12] On this I part ways with Hodgson (1988, pp. 205 ff.), who is unable to get past a conception of the economic problem in terms of uncertainty – important, to be sure, but not the heart of the matter – and a rather static notion of productive capabilities (despite his recognition of the need for more than this). Scott (1988a), it seems to me, is also stuck at approximately this position.

[13] The same is true of Williamson's (1980) account of the rise of the factory, which is criticized by Jones (1982).

[14] The criticisms by Williamson (1981) and Teece (1985) of Hymer's reliance on oligopoly theory are valid, but do not depend on transactions costs *per se*, only on paying attention to production considerations over market power. As Hodgson (1988, p. 207) observes, "The function of the firms is . . . not simply to minimize transaction costs, but to provide an institutional framework within which, to some extent, the very calculus of costs is superseded."

[15] Transactions costs analysis is unacceptable as it is form of Marshallian comparative statics (Hodgson, 1988, p. 208). On the other hand, the corporate expansion literature does not pay adequate attention to the internal organization of large firms and their ways of emulating market exchange and open competition to maintain taut regulation over enormous administrative empires.

[16] Williamson, Coase, Scott and Hymer all recognize the availability of several modes of organizing production but never follow up the insight beyond the limits of the dual model of firm and market.

[17] The other modes of organization are highly spatial as well. Markets normally have places of operation, such as bourses; industrial companies are chartered in certain countries; finance capital is controlled by a few people in the biggest cities, as a rule.

[18] Hodgson (1988, p. 177) draws a boundary between open price-setting markets and relational contracts (e.g. a habitual contract between buyer and seller without recourse to open bidding). Whether this important difference requires a categorical break is moot, but I prefer to leave contracting under the large heading of markets to avoid semantic confusion, given my very broad scheme of modes of organization.

[19] I speak of "industries", as if they were self-evident units, for convenience of exposition, because something must be held constant so we can proceed. Indeed, industries must themselves be constituted through collections of firms, industry trade councils, financial ties, and so forth. I could just as well begin with "territories" as another large framework in which the multiplicity of organizational forms can easily be seen. I do not, for good reason, begin with the factory, market and the firm, which have been the favored units of past economic geography (cf. Storper and Walker, 1989, Ch. 5).

[20] Which is why both Marglin (1974) and Jones (1982) are reductionist in their explanations of the rise of the factory – and some of Williamson's (1980) arguments have to be admitted.

[21] Thanks to Brian Page for this information.

[22] Sabel is openly hostile to Marxist theory, based on a debate at the 1989 meetings of the Association of American Geographers in Baltimore. Storper (1987) sloughs off value theory as so much "essentialist" baggage. Scott declares his allegiance but makes no use of capital theory in his strongly neo-classically oriented analysis (Harvey and Scott, 1989; Scott, 1988a).

[23] Unfortunately, organization – the market, the firm, etc. – has been routinely confused with capital, which is a social relation based on class exploitation through ownership of the means of production and a process of value production, circulation and accumulation.

[24] Forgive the allusion to the Wizard of Oz, but it is not wide enough known that its author, Frank Baum, had the financial wizards of Wall Street in mind in his portrayal of the old fraud behind the curtain.

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