

PHYSICAL PLANNING THOUGHT: RETROSPECT AND PROSPECT

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City planning scholars recently have been calling for greater attention by schools of city and regional planning to the intellectual field of physical planning. This article responds by offering a retrospective of the physical planning field and a future research agenda. Both are organized around five perennial questions which, it is argued, have always been at the core of the field. The questions address the forces that shape physical development, the evolving urban form, possible and desirable physical futures, the impacts of development, and institutional means for guiding urban growth.

INTRODUCTION

The basic definition of physical planning has changed very little during the past few decades: *Physical planning is concerned with the general pattern of land-use, the character and location of public buildings and structures, the design of streets, the location and development of transit and transportation systems, and all other physical facilities which are necessary or desirable to promote the economic betterment, comfort, convenience, and the general welfare. (Webster 1958, p. 137)*

Since then the field has grown to include urban design and environmental planning. This is reflected in a current description of the "physical city" which includes overall form, topography, buildings, infrastructure, transportation, utilities, open space, density, climate, vegetation, aesthetic quality, and urban design (Branch, 1985).

A study was recently completed by one of the authors which examined changes during the past fifteen years in available specializations, faculty interests, and courses offered in the subject areas suggested by this definition of physical planning. The subject areas included land-use planning, land-use policy, urban design, infrastructure, transportation, environmental planning, and urban spatial structure. The general conclusion of the study was that physical planning subjects are being taught at a number of planning schools but many schools are not particularly active or have nearly abandoned activity in the physical planning area (Pivo, 1989).

The future of physical planning education and research in professional schools of city and regional planning has received serious attention recently in the planning literature. Professor David Sawicki, former president of the Association of Collegiate Schools of Planning, argued in his 1987 presidential address for greater attention to the traditional concerns of the profession (Sawicki, 1988). He wrote "that it is, in fact, our lack of focus both substantively and organizationally that is leading to our demise." He claimed that certain activities should be a part of our professional definition and that we have been giving up our interest in the very problems which set us apart from other professions. According to Sawicki:

Many young scholars are captivated by romantic notions of political and social reforms; meanwhile, the frontiers of planning method or of substantive areas like infrastructure planning and finance go unexplored. The fringe dominates while the core stagnates, and our graduates have no sense of the profession they expected to join. We are in danger of losing the balance between our traditional concerns with the physical environment and the social concerns we adopted in the early 1970s.

Professor Marc Weiss stated the case for a resurgence of physical planning even more directly when he wrote that "physical planning...(should be the) core basis, the stable future of planning education and research" (Weiss, 1988).

If physical planning is to play a central role in the future of city and regional planning education it would be helpful to have available a retrospective of the field and a discussion of its prospects for the future. In a 1987 doctoral seminar, convened by Professor Collignon at the University of California, Berkeley, the authors of this paper found that, except for a few aging articles (Raymond, 1978; Mocine, 1966), there were no recent discussions in the literature on the past and future of physical planning. This paper offers a retrospective of the field and a suggested agenda for future research. Both of these are organized around five perennial ques-

tions which appear to always have been at the core of the field. The emphasis is on writers and thinkers in the field rather than physical planning practice. A similar work on physical planning practice would also be a useful contribution.

PHYSICAL PLANNING THOUGHT IN RETROSPECT

Five Perennial Questions

The physical planning field can be organized around five perennial questions. These questions cover the range of studies and writings that have emerged in the literature since the mid-nineteenth century. Answers to these questions have been pursued during nearly every period of the field's development. The questions are as follows:

What are the forces that shape land-use and the infrastructure that supports it? Understanding the factors that influence land-use and public improvement patterns is a central concern of the physical planning field. The forces that shape our cities are important to understand because they explain and predict the impacts of planning decisions, influence future urbanization patterns, and create the context for planning activities.

What is the evolving physical form of urban and regional settlements? As the forces which shape the city change and evolve, they create changes in the form of physical development. Understanding this ever changing landscape is critical to understanding the impacts of physical planning policies and newly emerging issues. Over the years, the description of urban and regional form has been the subject of many watershed studies (Firey, 1947; Gottman, 1961; Leven, 1978; Berry, 1980).

What are the possible and desirable futures for physical development? Normative and prescriptive discussions about the form of development that should occur, as well as presentations of scenarios that could occur, have always received attention in the field. They provide planners with a better understanding of their options and a basis for making the unavoidably ethical decisions these options imply. From visionaries and utopianists (Meyerson, 1961) to ethical philosophers (Haworth, 1963; Mumford, 1934), authors have been fascinated with the normative elements of city planning. At the same time the choices that are more realistically available also have received a great deal of attention (Goodman and Goodman, 1947; Downs, 1970).

What are the social, economic, and ecological impacts of current and future physical urban forms? Even before the more recent emphasis on environmental impact assessment, researchers were studying the effects of development. Impacts of the pattern (Lynch, 1961; Marris, 1962; McHarg, 1969; Kozlowski and Hughes, 1967), the size (Lillibridge, 1952; Applebaum, 1976), and more recently the rate of physical development (Malamud, 1986) have all been the subject of research.

What institutional means are available for guiding physical development? A great deal of effort has gone into exploring how physical plans are implemented or inhibited. Studies range from investigations of zoning and other regulatory devices (Delafons, 1969) to critiques of the property market as an institution for determining the amount and location of growth (Pivo, 1984).

These five questions have been the subject of scholarly effort for more than a hundred years. The following retrospective demonstrates their continuity. It is composed of significant illustrative works from a vast literature and therefore should not be taken as a detailed intellectual history as much as a sweeping review of some of the high points in the physical planning literature.

Before The First National Conference on Planning

Thinkers were searching for answers to all of the perennial questions well before the founding of the city planning profession in 1909 at the first National Conference on Planning.

Scholars tried to understand the forces that were shaping land-use and the infrastructure that supports it. They discussed how various political, economic, and physical factors, such as the mode of production, accessibility, land rent, and taxation, influenced the evolution of land-use and physical development (George, 1879; Marx, 1894; Hurd, 1903; von Thunen, 1826).

The desire to understand the evolving physical form of urban and regional settlements is illustrated by the early call for surveys of urban areas (Geddes, 1908). Surveyors were joined by journalists, architects, landscape architects, sanitary engineers, and social reformers in an effort to describe the character of nineteenth and early twentieth century cities. Many observed the squalor of those urban centers (Sitte, 1899; Rauch, 1869; Fien, 1972; Dal Co, 1979; Foglesong, 1986; Engels, 1872; Riis, 1890).

Poor conditions generated a variety of ideas about possible and desirable futures for physical development. The Parks, Garden City, and City Beautiful movements dominated the intellectual debates. Planners explicitly addressed the arrangement of open space, civic centers, transportation corridors, and industrial zones and laid the foundation for future city planning initiatives (Burnham and Bennet, 1909; Howard, 1898; Unwin, 1903). However, they neglected the social and economic underpinnings of urban structure and their plans failed to offer any solutions to the deplorable living conditions of the working class (Manieri-Elia, 1979). To a large extent these social concerns were taken up by leaders of the housing reform movement (Marcuse, 1980).

1909 to the New Deal

Intellectual activity dealing with the five perennial questions accelerated after the first National Conference on City Planning in 1909.

The Chicago School became a leader in describing the forces that shape land-use and the infrastructure that supports it. It offered a social-ecological approach based on competition, invasion, and succession among social groups (Park, Burgess, and McKenzie, 1925). Other researchers developed explanations based on the spatial expression of economic forces (Haig, 1926; Christaller, 1933).

Urban plans were published which both described the evolving form of urban and regional settlements and offered possible and desirable futures for physical urban development. The Regional Plan of New York and Its Environs and the counter-proposal by Lewis Mumford and the Regional Planning Association of America were important examples published during the

1920s (Adams, 1931; Sussman, 1976). These visions exemplified the conflict between plans adapted to prevailing economic and political constraints and plans based upon a critique of the social and economic systems.

Numerous master plans described futures which adapted the city to the automobile. Planners developed recommendations on the integration of schools, parks, and other public facilities with residential areas in order to separate daily living from major arterials (Perry, 1929). A new generation of urban plans emerged from the architectural profession. Unlike the pragmatic plans of the professional planners, they envisioned a drastic restructuring of nineteenth century industrial cities, either by replacing whole sections with efficient and technologically advanced modern forms or by starting over with a clean slate in the countryside (Osborn, 1918; Le Corbusier, 1924; Wright, 1932; Fishman, 1986).

The New Deal to World War II

Research on the forces that shape land-use and the infrastructure that supports it advanced during the period between the New Deal and World War II. Scholars struggled to explain decentralization and other phenomena by generating descriptive and economic models of urban form and evolution (Wehrly, 1937; Hawley, 1937; Hoyt, 1939; Harris and Ullman, 1945).

Possible and desirable futures for physical urban development were explored by planners in both the public and private sector who made plans for urban highways, slum clearance, public housing projects, suburban subdivisions, and suburban factory districts (Woods, 1939; Bartholomew et al., 1939; Saarinen, 1943). Many of the plans were realized after the War as the requisite political, economic, and demographic conditions provided for a new wave of urban expansion.

The impacts of current and future physical urban form also were examined during this time. Impacts on traffic circulation, the natural environment, and property values received detailed attention in the literature (Herrick, 1939; Liepmann, 1944).

Finally, new city planning institutions, such as zoning boards and planning commissions, were put under the spotlight as a growing number of municipalities adopted land-use controls. The placement and organization of the city planning function within local government were frequently discussed in the journals (Abrams, 1939; Ackerman, 1935; Bettman and Nolan, 1938; Bassett, 1940).

The Post-War Period to 1969

During the 1950s and 1960s researchers intensified their efforts to understand the forces that shape land-use and the infrastructure that supports it. An economic school developed von Thunen type models that explained the distribution of land-uses in space. They centered on economic trade-offs between work place accessibility and residential land consumption made by individual consumers in the private market (Carroll, 1952; Alonso, 1964; Muth, 1969). Gravity-type approaches also were developed which emphasized the role of activity concentrations in determining physical form (Hansen, 1959; Alcaly, 1967). Behavioral approaches were proposed which explained physical development patterns by relating them to the behavior of individual decision-makers (Foley, 1964; Chapin and Weiss, 1962) and structural perspectives emerged which tied physical form to class structure (Johnson, 1965).

New explanations for infrastructure location were developed during this period (Kain, 1967; Tietz, 1968; Tiebout, 1968). Scholars studied the problem of efficiency in the provision of public facility systems in order to permit their rational planning (Kain, 1967; Tietz, 1968; Tiebout, 1968). Attention also was paid to how public facilities influenced development patterns (Chapin and Weiss, 1962).

Literature on developing Third World cities emerged during this era and included debates on the forces that shape land-uses and infrastructure in developing countries. The process of world-wide industrialization was the background for theories which described Third World cities as an earlier stage in the industrialization process (Sjoberg, 1965; Schnore, 1964; McGee, 1967). Causes behind the location of spontaneous squatter settlements also were investigated. Social ties, availability of land, and access to employment or markets received the most attention as causal factors (Spengler, 1967; Peattie, 1968; Laquian, 1969).

Scholars continued to study the evolving form of urban and regional settlements. Drastic changes in metropolitan form were underway as plans for urban renewal at the city center were coupled with the proliferation of new growth on the urban fringe. Suburbanization remained at the center of attention (Clark, 1950; Blumenfeld, 1954; Schnore, 1959; Guttenberg, 1960; Friedman and Miller, 1965). The merging of urban areas into polynucleated *megalopolis* was described (Gottman, 1961; Ullman, 1962) along with new development patterns in Third World cities (Sjoberg, 1965; Kaye, 1960; Singh, 1964; Turner, 1966). Taxonomies for describing and classifying the form of urban development were developed by scholars with an architectural or urban design orientation (Lynch, 1961; Doxiadis, 1968).

Writers continued to offer their versions of possible or desirable futures for urban development. Some recommended scatteration while others argued for concentration or imageability (Kelly, 1953; Lynch and Rodwin, 1958; Lynch, 1960; Lessinger, 1962; Doxiadis, 1968). Strong reactions to redevelopment were clearly developing. The urban renewal strategy of large-scale land clearance and the construction of massive, sterile projects was sharply criticized (Jacobs, 1961).

During the fifties and sixties there were a growing number of studies of the social, economic, and ecological impacts of current and future physical forms (Isard and Coughlin, 1956; Wiberly, 1959; Rosow, 1961; Marris, 1962; McHarg, 1966; Darling and Milton, 1966). Specialized studies examined the relationship between urban development and all of these types of impacts. This predated and foreshadowed the formalization of impact assessment as a professional activity.

Strong interest continued in institutions for guiding physical development. Scholars focused on the need for flexible land-use controls and citizen participation in the physical planning process (Gans, 1953; Reps, 1954; Engelen, 1956; Clawson, 1960; Chapin, 1963; Kent, 1964; Peps, 1964; Babcock, 1966; Delefos, 1969). Capital programming emerged as a means for planning the provision of public facilities (Parker, 1954). Disenchantment with the traditional master planning process increased, scholars questioned the efficacy of orthodox city planning, and a new generation of planners focused on politics, social issues, and the planning process rather than the production of physical plans (Altshuler, 1965; Perin, 1967; Gans, 1969).

The 1970s and 1980s

Significant work continues to the present on the forces that shape land-use and the infrastructure that supports it. It is characterized by conflicting theoretical perspectives. The influence of Marxist scholarship has grown and emphasizes the structural political-economic forces which shape physical development and constrain the city planning process (Lamarche, 1972; Harvey, 1971; Edel, 1976; Castells, 1977; Walker, 1981). At the same time the traditional economic perspective has continued (Solow, 1973; Richardson, 1977). Innovative theories based on communication and organizational structure also have emerged (Goddard, 1975), extending the insights of earlier work along these lines (Meier, 1962). No consensus has developed from this outpouring of scholarship and physical planning scholars remain divided on what they believe to be the most important forces that explain physical form.

A number of important themes have emerged in the study of forces which shape Third World cities. In contrast to earlier stage theories, increasing emphasis has been placed on cultural differences and specific historical contexts (Berry, 1973; McGee, 1971a, 1971b). For example, colonial roots of present day urbanism have been analyzed by a number of writers (McGee, 1967; King, 1976).

Studies of the evolving physical form of urban and regional settlements continue to be published. Attention has focused on the processes of suburbanization and counter urbanization (Walker, 1981; Erickson, 1983; Gottdiener, 1983). There also have been discussions concerning "reconcentration", "exurbanization", and "multinucleation" (Berry, 1980; Blumenfeld, 1986). Shifts within the world economic system have provoked debate over development trends in Third World cities. Discussion has centered on whether cities in developing countries are undergoing physical convergence or divergence due to their role in the world economy (Scargill, 1979; Berry, 1973; Harvey, 1975). Studies of specific components of Third World cities have developed during this period, with particular attention given to housing (Leeds, 1981; Ward, 1982; Turner, 1976) and land issues (Angel, et al., 1983; Oberlander, 1985; Dunkerley, 1983).

Architects and designers continue to offer some fascinating work on possible and desirable futures for physical development (Alexander, et al., 1975; Lynch, 1981). A strong theme has been the street and the neighborhood (Appleyard, 1981; Anderson, 1978; Vernez-Moudon, 1987), although some work has emphasized broader criteria for the design of urban form (Jacobs and Appleyard, 1987).

The social, economic, and environmental impacts of current and future physical forms continues to be a theme for research. During the 1970s, environmental issues became extremely important and generated a vast body of literature. McHarg's theory of environmental determinism was particularly important and left a permanent mark on the field (McHarg, 1969). Scholars also have evaluated the social, fiscal, and economic implications of physical development (Harvey, 1971; Soderstrom, 1981; Real Estate Research Corporation, 1974; Muller, 1976).

Physical planning research has kept abreast of a number of new institutional means for guiding physical development. Among the more prominent topics have been land-use controls at the regional and state level, growth management, new forms of zoning, flexible development controls, and development agreements (Clawson, 1973; Bosselman and Callies, 1973; Scott, 1975; Krasnowiecki, 1980; Dowall, 1984; Babcock and Siemon, 1985).

Physical planning research continues to investigate certain perennial questions which have motivated scholars since before the turn of the century. Despite the push and pull of diverse disciplinary agendas, professional imperatives, and theoretical perspectives, these questions continue to be compelling.

INTELLECTUAL PROSPECTS

There are several areas of study which deserve attention because of changing conditions, unanswered questions, or unresolved debates.

In order to improve our understanding of the forces that shape land-use and the infrastructure that supports it, several lines of research could be pursued. New forms of public and private organizations, trade and development, demographic structures, technology, and family structure are changing society. How will these forces change the pattern of physical development? There continues to be a lack of agreement on the most valid theory of spatial structure. Is it possible to work toward a synthesis of theories by searching for common ground among them?

As urban form changes, there will be the need to describe the newly evolving form of urban and regional settlements. To what extent are regions becoming multinucleated? Are "urban villages" or "edge cities" reshaping our urban regions and to what degree?

The need continues for new ideas about possible and desirable futures. What urban forms can best respond to the growth of women and two-income households in the work force, decaying infrastructure, traffic congestion, housing price inflation, environmental pollution, and the loss of open space? In the Third World, the tremendous migration of rural residents to the cities will require ideas for housing that can preserve their traditional cultures while allowing entry into the urban economy.

Research also is needed on the social, economic, and ecological impacts of current and future physical forms. Studies are needed of the fiscal impacts of land development and how they are affected by changing tax policies and development impact fees. The nature and measurement of cumulative environmental impacts require study along with the adequacy of current impact assessment procedures in this area. The physical form of development can have significant economic redistribution impacts which are poorly understood by physical planners. A better understanding of how the physical environment is affecting economic justice would be helpful. The resurgence of the growth control movement has generated the need for various studies including the effect of growth rates and the balance among different land-uses. Finally, the suburbanization of office employment and the exurbanization of residential development requires a better understanding of the impacts of various patterns of suburban and exurban development.

Research into institutional means for guiding physical development will continue to be important. In the less developed and newly industrialized countries, there is a need to find institutional means that are effective in a context of informal economies, poor data bases, and diverse cultural conditions. In the developed countries, land-use and infrastructure planning is moving toward more negotiated, discretionary, and flexible approaches. This will require regulatory systems that can handle uncertainty and pluralism in the planning process. Effective systems of interjurisdictional cooperation continue to be in demand. Large scale edge cities will require

new permitting systems that can balance the need for development commitments that justify private infrastructure expenditures with the need for flexibility in order to respond to unpredictable changes in future market conditions.

CONCLUSION

The lack of focus on physical planning subjects at many graduate schools of city and regional planning has generated calls for renewed attention to the area. This paper is intended to aid in this renaissance by providing a retrospective of the field and offering some questions that could be pursued in the future. It has been organized around five perennial questions which lie at the heart of the physical planning intellectual agenda.

If history is our guide, scholars will continue to search for answers to these apparently compelling questions. To what extent will schools of city and regional planning participate in this endeavor?

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