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The Neighborhood Concept: A Retrospective of Physical Design and Social Interaction

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Abstract

In 1929 the neighborhood concept was published separately in two forms. First was the neighborhood idea of Clarence Stein and Henry Wright, exemplified in their plan for Radburn. Second was the Neighborhood Unit idea of Clarence Perry. Since then, for the past seven decades, the concept has been applied and adapted internationally. Over this period the concept's original principles of neighborhood physical design, in both its forms, have varied with little controversy. What has been and is still an issue is the nature of the relationship between the neighborhood's physical arrangement and the social interaction among its residents. The conceptual framework adopted for analysis of this issue is to consider three basic approaches to the physical-social relationship: the equivocal, opportunistic, and deterministic modes. These approaches comprise a physical design-social interaction continuum of the neighborhood concept. Applications of the concept in North America, Britain, and elsewhere are examined and identified with one of the three approaches on the design-interaction continuum. In addition, comparisons of the original concepts of Stein and Wright with those of Perry, and their applications, are briefly undertaken. After review of seventy years of studies it is concluded that when considering the relation between neighborhood physical arrangement and social interaction that residential design should focus on users at the micro-neighborhood scale using an opportunistic approach.

Introduction

The year 1999 marked the 70th anniversary of the publication of the neighborhood concept. This concept was one of the major landmarks in shaping urban form during the 20th century. Two forms of the concept appeared in the same year, 1929. First there was the innovative idea by Clarence Stein and Henry Wright for neighborhoods as exemplified in their plan for Radburn (Adams, 1929). Then came the neighborhood unit idea by Clarence Perry (1929). In his monograph Perry referred to the Radburn plan. Whereas Stein and Wright presented the concept in the form of a specific town, that of Radburn, New Jersey, Perry illustrated his idea in a generic form. On the occasion of Radburn's 50th anniversary it was still lauded as an important model (Gallery, 1979; Goldberger, 1979; Jailer, 1979).

A major issue has arisen in the applications of both forms of the concept over the past seven decades. This has been the assumptions regarding the nature of the relationship between the way the physical environment is arranged and the linkage with social interaction between neighborhood residents. This paper will examine the different approaches taken by architects, planners, and others in viewing this relationship.

Physical Design Principles

Clarence Stein and Henry Wright. The principles of Stein and Wright were most clearly seen in their plan for Radburn (Adams, 1929, pp.264-269). Their basic concept was of a hierarchy beginning with a group about twenty or so houses. These were arranged around a cul-de-sac court for motor vehicles. While the back of each house faced this cul-de-sac, the front of the house faced onto a garden. A pedestrian pathway parallel to the cul-de-sac ran between the gardens of all the houses. The furthest house was within a one-minute walk of a parkway. This parkway consisted of an open green space surrounded by a cluster of cul-de-sac court groups. Some parkways had located within them small schools and community rooms. The cluster of cul-de-sac court groups along with the parkway as a backbone comprised a superblock.

FIGURE 1 ABOUT HERE

In the superblock vehicular and pedestrian traffic were segregated so that every child could walk to school without crossing a single road. Four to six superblocks together would constitute the neighborhood. Stores were located at the junction of neighborhoods. Superblocks, it was argued, reduced the cost of street improvements, provided seclusion from street noise and danger, segregated the pedestrian from vehicular traffic, and enabled a sizable internal area to serve as a sheltered park (Wright, H., 1935). For Stein and Wright the concept of the neighborhood was not only about specific spatial arrangements of streets, residences, and supporting facilities, but also about having a fixed population size. They did not give a definite number. Each neighborhood was to have definite boundaries, preferably as natural as possible, focused on a tangible center.

FIGURE 2 ABOUT HERE

Stein conceived the neighborhood as a relatively self-contained building block of the city. While the lot and the city were the basis for design in the past, he believed in the future it needed to be the neighborhood and the region (Stein, 1942). Future urban development should, according to him, should be based on the regional city - a constellation of smaller-sized towns tied together by a parkway or open highway, somewhat similar to the Regional City idea proposed by Ebenezer Howard (1946). Stein suggested that neighborhoods be grouped in an overlapping manner to support joint use of facilities such as hospitals, high schools, and theaters. Due to the general collapse of the United States housing market between 1929 and 1933 less than one full neighborhood in Radburn was completed.

FIGURE 3 ABOUT HERE

Clarence Perry. The three functions of Perry's neighborhood unit were to be the elementary school, small parks and playgrounds, and local shops. Harmonious interplay of these three functions would create the residential character and quality of the neighborhood. In addition, “the quality of the architecture, the layout of streets, the planting along curbs and in yards, the arrangement and setback of buildings” was important in the quality of the environment (Perry, 1929, p. 34). Perry identified six principles of the neighborhood unit plan - a fixed size based on the service area of an elementary school and a one quarter mile walking distance, boundaries formed by arterial streets, scattered small parks and open spaces to form ten percent of the total area, various institutional sites including a school at a central neighborhood or community center, local shops on the periphery of the neighborhood, and an internal street system to discourage through traffic. These principles were all of a physical nature.

FIGURE 4 ABOUT HERE

Perry, like Stein, also conceived the neighborhood unit as a component of a larger urban whole, hence the addition of the word “unit” to his concept. He described four types of urban areas where the concept could be applied – new sites in the suburbs, vacant sites in the central area, in predominantly apartment districts, and in rebuilding sections of the central sections that had suffered deterioration (Perry, 1933).

Social Interaction

The theoretical linkage between neighborhood physical design and social interaction can be traced back to Charles Cooley (1909). His premise was that primary human or face-to-face relationships had a geographical basis. Perry was aware of Cooley's ideas as well as the sociological literature on the significance of satisfactory face-to-face relations (Perry, 1926, pp. 215-221). In addition to Cooley he referred to statements by prominent scholars, including those by the famous Chicago School sociologists Robert Park, Ernest Burgess, and Roderick McKenzie (1925). Robert Park in fact emphasized that face-to-face relations were the basis for the definition

of neighborhood. At the 8th annual meeting of the American Sociological Society, held in 1913, he stated: “Proximity and neighborly contact are the basis for the simplest and most elementary form of association with which we have to do in the organization of the city. In the social and political organization of the city it is the smallest unit” (Park, 1952, p. 18). In the view of Ernest Burgess (1929) the physical form of the city was a “frame” upon which the community grew. Face-to-face relations were, then, to be the basis of social interaction between neighborhood residents. As Perry put it when "residents are brought together through the use of common recreational facilities, they come to know one another and friendly relations ensue. Existing developments with neighborhood unit features have consistently produced face-to-face social interaction" (Perry, 1939, p. 215).

In applications of the concepts over the past seven decades there have been diverging approaches in viewing the interrelationship between a neighborhood’s physical design and the assumed social interaction among its residents. To facilitate analysis these approaches are grouped, for convenience, into three basic categories. These three are the equivocal, deterministic, and opportunistic approaches that have been derived from a study of the literature dealing with physical design and social interaction (see Lang, 1987 for a general discussion). The approaches are considered as comprising a design-interaction continuum with the equivocal approach in the middle, the deterministic mode at one end, and the opportunistic at the other extreme of the continuum. Proponents of the equivocal approach are non-committal, or ambivalent, about the effect of physical design of the neighborhood on the social interaction of people. Advocates for the deterministic approach assume that the physical arrangement of the neighborhood produces directly a social interaction among its residents. Underlying this belief is that the individual’s freedom of choice is ultimately an illusion. As one philosopher put it, though, determinism “turns out to rest either on a mythology or on a metaphysical dogma” (Berlin, 1998, p. 180). On the other hand, the adherents of the opportunistic approach believe that the physical design of the neighborhood provides but probabilities for social interaction. This of course makes it difficult to predict whether or not a particular arrangement will generate social interaction, or as is sometimes claimed, a sense of community among its residents.

This design-interaction continuum with its three basic approaches forms a useful conceptual framework to examine the applications of the neighborhood concepts over the past decades. The original intentions of Stein and Wright, and Perry, will be examined first to better understand their original intentions. Antecedents to their concepts will be touched upon briefly to enhance this understanding. Secondly, this conceptual framework will be utilized to review the applications of the two neighborhood concepts over the past decades in North America, Britain, and elsewhere. The results of these inquiries should provide increased comprehension of the relationship between neighborhood physical design and social interaction.

Original Intentions and Antecedents

The approach of Stein and Wright to the question of the relationship between the physical environment and social interaction was equivocal. A careful analysis of the early literature by Tannenbaum (1948) revealed that their focus was almost entirely on the physical aspects of the neighborhood concept – the superblock, the shopping center, the road pattern, the green spaces, or the organization of houses. Social benefits were after-thoughts. The brief reference Stein made

to any social characteristic of the neighborhood related to neighborhood size - it should be small enough to permit neighborliness and allow all members to participate in common concerns (Stein, 1942). He added, however, it should be large enough to support economically a variety of community facilities. In the plan for Radburn, Stein emphasized that the prime goal was to design a town for the automobile age, an intention that was entirely functional (Stein, 1928). In fact the plan had the title “A Town for the Motor Age.” In contrast to Stein and Wright, Perry gave a little more emphasis to the social nature of the neighborhood. His reason for locating local institution sites in a neighborhood center was so as to provide conditions for face-to-face relationships to take place. He intended to devise a "scheme of arrangement for a family life community" (Perry, 1929). His approach, then, was more towards the opportunistic end of the design continuum. Perry believed his ideas of physical arrangement of the neighborhood would offer people "a sense of their locality or an occasion for local pride" (Dahir, 1947, p.22).

Recognizing the antecedents of these original intentions regarding the social benefits of a particular physical design of the neighborhood will enhance understanding of the concepts. Thus the individual personal experiences of Stein, Wright, and Perry need to be identified. It can be inferred from a biographical sketch of Clarence Stein that his early education at the Ethical Culture Workingman’s School (1890-1898) in New York shaped his sense of social responsibility (Parsons, 1998). Later (1912-1918) he became involved in civic reform and tenement house reforms of the New York Ethical Culture Society. Stein participated in social reform politics and devoted much of his life to improving community life. He called himself a community architect. Little is known of Henry Wright except that he worked on the master plan for Yorkship Village, (later renamed Fairview), in Camden, New Jersey. It was recognized at the time as one of the best communities built during World War I. Clarence Stein acknowledged Henry Wright as "my fine associate and planning genius (and as) the greatest site planner I have known, excepting possibly Raymond Unwin" (Stein, 1958 in Parsons, 1998, p. 582).

A major influence on Stein and Wright in the planning of Radburn was Ebenezer Howard and the English Garden City movement. Howard conceived the Garden City as divided into six wards. Each ward was to accommodate five thousand people with a school at its center (Howard, 1946). As Thomas Adams pointed out there were, however, distinctive differences between Radburn and the Garden Cities (Adams, 1929). He remarked how the cul-de-sac street in the American city dealt with the problems of the automobile as the dead-end street reduced to a minimum the danger of automobiles to pedestrian safety. In Radburn, however, the cul-de-sac street also achieved privacy and architectural effect, the original functions of this type of street in the Garden City of Letchworth and in other English examples. Primarily, then, the variation was in the need to serve the motor vehicle. Stein and Wright, in 1922, visited the English Garden City new towns of Letchworth and Welwyn in England. There they met with Howard and the designers, Raymond Unwin and Barry Parker. Stein and Wright were no doubt influenced by Raymond Unwin's idea of neighborly cooperation, which he described in the last chapter of his book *Town Planning in Practice*: *An Introduction to the Art of Designing Cities and Suburbs* (1909). Cooperation among neighbors begins, he argued, with the location of the community facilities – schools, shops, institutes, and common open space. Unwin, furthermore, had a more direct influence on Radburn. Stein wrote to Benton MacKaye, in a letter dated September 12, 1928, that “Raymond Unwin is here for a short time. We are seeing a good deal of him as he is

consulting with us in the planning of Radburn" (Parsons, 1998, p. 153).

On their return to the United States, Stein organized the first meeting of the Garden Cities and Regional Planning Association of America. This was later shortened to Regional Planning Association of America. Together with another member of the Association, Alexander Bing, Stein intended to create a Garden City in America. The City Housing Corporation was set up for this purpose and built Sunnyside (1926) both as a garden development and as an urban laboratory to work out better house and block plans. At Sunnyside, Stein developed the theoretical basis he later applied to other plans, particularly Radburn which he saw as realistically planned for the Motor Age, but not as a Garden City as Howard envisioned it. Stein and Wright incorporated the ideas of the superblock and cul-de-sac into their design for Radburn but did not attempt to create a garden suburb. Perry, on the other hand, focused on the physical issues of design as is evident in his book *Housing for the Machine Age* (1939). Only in the last few pages did he mention the importance of face-to-face meetings in the neighborhood. Henry Wright similarly in his book *Rehousing Urban America* (1935) did not refer to any social objectives in the design of neighborhoods.

Clarence Perry's approach to the physical-social continuum was opportunistic. To better understand his viewpoint it is necessary to briefly examine his personal experiences. His interests and concerns were a reflection of the times, particularly the progressive reform activities in housing and social welfare that had begun in the late nineteenth century. The aim of the reformist movements was to improve social interaction so as to redress the urban environment's seeming hostility and anomie. Perry proposed his neighborhood unit plan as a formula to address these issues. Hence his neighborhood unit concept of a central community center where people of the neighborhood could gather. The center was to be housed in the local school building. He arrived at the solution of putting the community center and school together through his decade long study of both the community center movement and the use of school plant (Perry, 1910, 1921).

Perry was also inspired by the place he already lived, Forest Hills Gardens in Queens, New York. Later he was to write that "the virtues and defects of Forest Hills Gardens contributed to the neighborhood unit formula" (Perry, 1939, p. 211). The suburb was planned by Frederick Law Olmsted Jr., promoted and financed by the Russell Sage Foundation. Precedents for this design were Unwin's and Parker's garden suburb of Hampstead Garden Suburb in England and the American suburbs of Llewellyn Park, Lake Forest, and Riverside. Perry also noted that the plan for Mariemont, Cincinnati by the noted American planner John Nolen was another exemplar. In evaluating the plan of Forest Hill Gardens, Perry's objective was to concern himself "with those features of physical arrangement which add to or detract from its qualities as an environment for a neighborhood community" (Perry, 1929, p. 97). He identified five factors that contributed to the obvious success of the development. These factors were the internal street system that provided direct access to the shops and railway station, the streets themselves whether curved or short and intimate, the exclusion of industry and business use that were limited to a definite and convenient location, a central school site with other community facilities, and areas set aside for neighborhood parks and recreation spaces. Related to these factors were the restrictions imposed to preserve a unified architectural character. Perry incorporated many of these factors into his neighborhood unit concept.

Although Forest Hills Gardens provided inspiration Perry also relied on published research

results that dealt with schools, local shops, and the street patterns (Perry, 1929). His principles for the elementary school were derived from a report of the time that stated that grade-school children should not have to walk more than one-half mile to school (Strayer and Engelhardt, 1929). Perry was influenced in his ideas about the nature and location of the local shopping center in the neighborhood by the research of the sociologist Ernest Burgess in Chicago. Perry's interest in the street layout of the neighborhood arose from two contemporary urban concerns. First, children walking to school had to cross busy roads carrying through traffic. In New York alone at that time one child a day died as a result of traffic accidents. Second, the conventional gridiron pattern of street layout was inadequate for modern motor traffic, which generated noise, dirt, and danger to neighborhoods. Even before the publication of his neighborhood unit concept he had proposed that main thoroughfares should demarcate neighborhood districts rather than cut them up. Perry's idea was that the neighborhood street system should have an entirely local function and so arranged so as to discourage "foreign" traffic.

Clarence Perry prime concern was with convenience and secondarily with the character of the residential area. His reference to social aspects in describing the principles of the neighborhood unit plan was confined to the school site as a community center. The center was to accommodate a variety of voluntary associations "devoted to the furtherance of common local interests" (Perry, 1929, p. 72). Only in the final section of his monograph did Perry refer to a social characteristic when he stated that the "neighborhood community"should be nourished (1929, pp. 123-129). The two reasons he gave for this were safety and social interaction. Perry's concern for safety had to do with the reduction of pedestrian accidents caused by conflicts with automobiles. His interest in social interaction was so as to create conditions for face-to-face relationships that would lead to a healthier civic and political life for neighborhood residents. While "this new urban community differs from the village community" he wanted the neighborhood to have a role to play in the social development of young people and in the formulation of moral values (Perry, 1929, p. 126). Shelby Harrison, later General Director of the Russell Sage Foundation, in his introduction to Clarence Perry's monograph wrote about the purpose of the study undertaken by Perry. This was to discover the physical basis of face-to-face association which characterized the old village community and which the large city found difficult to re-create. Shelby stated very clearly that the application of the neighborhood unit plan was not to "compel an interchange of unwanted social courtesies; it merely extends the opportunity for forming new ties [to make] possible free expression in artistic, social and civic endeavor on the part of all its members" (Harrison, 1929, p. 24).

Applications

While the approach of Stein and Wright to the relationship between the physical environment and social interaction was equivocal, Perry's approach was that the physical setting of the neighborhood could provide opportunities for social relations to take place. In the applications of the neighborhood concept and neighborhood unit idea by various architects, planners, and others, over the decades the approaches did not always follow the original equivocal mode of Stein and Wright and Perry's more opportunistic mode. As will be seen there were not only cross-overs in approach to each neighborhood concept, but also the use of the deterministic mode. The applications using the equivocal and opportunistic approaches will be outlined first,

followed by descriptions of the deterministic approach to the physical design of the neighborhood.

Equivocal Approach. Applications of the neighborhood concept followed publicity about Radburn in magazine articles and discussions at meetings of professional organizations (Birch, 1980) and the spread and acceptance of Perry's neighborhood unit idea (Dahir, 1947). One of the first major applications of the neighborhood concept in North America was in the planned towns of the Greenbelt Program conducted by the United States Resettlement Administration (USRA) during the era of the New Deal (USRA, 1936). Clarence Stein strongly influenced this New Deal program primarily as consultant on one of four projects, that of Greenbelt, Maryland. Then during World War II much thought and study was given to the planning of cities after the war and how cities could be improved (Ascher, 1942; Architectural Forum, 1943; Mackesey and Clarke, 1943, are some examples). Endorsement of the neighborhood concept by agencies of not only the federal government, but by real estate developers and lending institutions encouraged its application (Urbanism Committee of the NRC, 1939; FHA, 1941a, 1941b; Chamber of Commerce of the U.S., 1936, 1937, 1941). Furthermore, over twenty organizations supported some or all of the neighborhood unit principles (Solow, Ham & Donnelly, 1969). Building new neighborhoods was the theme of cities such as Baltimore, Chicago, and Detroit (Sanders and Rabuck, 1946; Chicago Plan Commission, 1943; Detroit City Plan Commission, 1945; Klutznick, 1947). Eminent architects and planners also encouraged the application of the neighborhood concept. Walter Gropius (1945), Jose Luis Sert (1944), and L. Hilberseimer (1944), among others, wrote about neighborhood units as the way to organize the city.

The exhibit *Look at your Neighborhood*, mounted by the Museum of Modern Art (n.d.) in New York, defined in a number of panels what comprised a good neighborhood. Characteristics identified were good housing, a park, an elementary school, a community center, and a shopping center. The park should have safe pedestrian access from all sections of the neighborhood. The community center and school should be closely related to meet people's needs such as for photography, shop work, drama, sports, and forums. Shops in the shopping center should be grouped and include social-commercial facilities such as a theater and bowling alley. Light industry and service shops could be added provided they were clean and quiet. The exhibit emphasized that good neighborhoods could be completely new or result from the replanning of existing areas. Another later approach to defining the good neighborhood suggested that three dimensions are involved: the ambience of the physical environment, the nature and extent of social interaction among residents, and the choices provided in terms of lifestyle and living arrangements (Brower, 1996).

Praise for the Radburn concept came in two influential textbooks, the *Urban Pattern* (Gallion, 1950) and *The City of Man* (Tunnard, 1953). Radburn design heritage was also evident in the design of new communities authorized by the Housing and Urban Development Act of 1968 (Knack, 1998). These included Columbia in Maryland, Reston in Virginia, Jonathon in Minnesota, and Irvine in California. A recent textbook on contemporary urban planning recognized the status of Radburn as "we now take the idea of neighborhoods and of planning for neighborhoods for granted" (Levy, 1988, p. 142).

Outside the United States Magnitorogorsk in Russia, planned by Goldenberg and

Dolganoff in 1931, preceded the American Greenbelt Towns (Kaufmann, 1936). During the 1930s and 1940s, though, the neighborhood concept was widely accepted around the world but more in principle than in practice except in the British New Towns, according to Lewis Mumford (1954). British experience in the development of over thirty Mark I new towns, in translating ideals into reality, had valuable lessons for other countries around the world (Self, 1972; The Planning Exchange, 1997). These were evident in Canada (Architectural Forum, 1945; Architects' Journal, 1946a; [Regina] Community Planning Committee, 1946), Brasilia (Wiener and Sert, 1946), and Stockholm's new towns of Vallinby and Farsta. Clarence Stein worked directly with the Swedish planners. In South Africa the plans for the new towns of Sasolburg (1951) and Vanderbijlpark (1942-1953) in particular were strongly influenced by the Radburn plan (Floyd, 1966). Plans drawn up for new towns in Israel during the 1950s, Beersheba, Ashqelon, and Migdal, for example, were influenced by current trends in British planning (Shaked, 1970). Detached and semi-detached houses and the large amount of open space, though, proved unsuitable and led to the linear form of Arad, modelled on the British Mark II new towns of Hook and Cumbernauld.

Opportunistic Approach. Application of the neighborhood concept received significant recognition through the publication *Planning the Neighborhood* by the influential American Public Health Association (APHA, 1948). The APHA considered that the physical layout of the neighborhood could effect social relationships. One of eight specific criteria specified for a satisfactory neighborhood was the "[p]rovision of opportunities for normal family and community life" through the location of community facilities at a focal point (APHA, 1948, pp. vii & 72). Although not specifically related to neighborhood design, the work of Donald Appleyard and William Whyte, to name but two, typify the opportunistic approach. Appleyard showed that social interaction in streets was not related to street type, such as the cul-de-sac, but varied according to the amount of traffic flow and other variables (Appleyard & Lintell, 1972). Whyte pointed out the role of demographic factors in social behavior and the variables that went into making livable and lively public spaces that afford interaction (Whyte, 1980).

Results from empirical studies underscore the opportunistic nature of the interrelationship between neighborhood physical design and social interaction. Although Banerjee and Baer conclude that the neighborhood concept's "credentials are impeccable, its position preeminent, and its uses ubiquitous" there is a lack of empirical data on the needs and preferences of people who live in a residential area (Banerjee and Baer, 1984, p. 3). From a recent study the significant finding was that design, for mixed-use areas for example, does not directly influence interaction or community but only attracts individuals predisposed to social interaction (Nasar & Julian, 1995). Physical designs simply attract community-oriented residents, who may then choose to take advantage of the layout for social interaction, rather than foster the sense of community directly. Spatial features of a neighborhood may influence social interaction but interaction is more likely to vary according to demographic and behavioral variables. Individuals also vary in their perception of local area boundaries and neighborhood characteristics. Thus any image of a neighborhood will consist of a series of overlapping personal networks. What is not in question is the geographical basis of neighborhoods for the provision of community services of various kinds (Dickinson, 1942).

Comparative studies of new towns in the United States have revealed that elements of the

neighborhood unit concept played but a small role in residents' satisfaction (Gans, 1961; Lansing, Marans, & Zehner, 1970; Burby & Weiss, 1976). Also findings from a study of planned communities contradicted a number of neighborhood unit assumptions (Werthman, Mandell, & Dienstfrey, 1965). First, residents preferred shopping and community facilities to be located on the periphery of their area rather than at the center. Second, they were skeptical about the goal of social interaction. Neighborhood unit principles, furthermore, did not prove to be ideal settings for social interaction in British new towns (Goss, 1961: Garvey, 1969). Others have also found shortcomings in the neighborhood concept, for example, that residents' cognitive maps did not match the neighborhood unit (Willmott, 1962; 1967), its inflexibility, and that the primary group is not essential to the development of an adequate personality (Herbert, 1963). The research results from a comparative study of residents in planned residential environments that included Radburn, Reston, and Columbia, is quite revealing (Lansing, Marans, & Zehner, 1970). A major finding was that the idea of community was not the factor that attracted the majority of people to live in these three developments. In the case of Radburn the most frequent appeal was the recreation facilities and playgrounds for children. In neighborhood concepts the nearness of community facilities to residents' dwellings, as well as convenient footpaths, was considered important in promoting social interaction. Findings by Herbert Gans, however, point to homogeneity rather than propinquity in fostering interaction (Gans, 1968, Chapter 4). Social class, as reflected in levels of education and income, and stage in the life cycle were among the important factors. Other social science research studies also suggest that sociability and perceived similarities with neighbors are central to neighborhood interaction and satisfaction (Lansing, Marans, & Zehner, 1970).

All these studies show that physical factors play a role in neighborhood satisfaction but the variables involved are not those of the neighborhood concept. General maintenance level of the neighborhood, adequate outdoor space for family activities, and a quiet rather than a noisy environment, are the important variables. Despite the idealistic predilection of architects and planners attempts to create community through physical design the recent surge of gated neighborhoods points to residents preference for privacy and security, not community (Blakely & Snyder, 1998).

In the case of planning the Mark III new town of Northampton in England the author, an architect-planner with the consultants Wilson and Womersley, had extensive discussions with the noted British sociologist Peter Willmott. They focused on how to provide opportunities for social interaction in the design of the residential areas. To avoid the physical determinism that had plagued the planning of new towns in the 1950s they arrived at the idea of the enclave, a grouping of a small number of dwelling units (Hugh Wilson & Peter Womersley, 1968, Appendix 7, p. 69). This would replace the neighborhood as the setting for any potential socializing. Each enclave would have dwellings of a similar standard and more or less similar sorts of people to encourage mixing. Enclaves would vary in size and housing type with dwellings arranged around a small open space or cul-de-sac. A number of enclaves would be grouped into districts that would be designed with functional considerations in mind, including vehicular-pedestrian separation, provision of workplaces, and viable service areas for schools, shopping and other community facilities.

Deterministic Approach. How did it happen that the physical and social dimensions were

conjoined? One of many declarations that encouraged the conjunction was the statement made at the influential President's Conference on Home Building and Home Ownership in 1931 (PCHBHO, 1932) that "[a] physical plan of this nature will tend to produce neighborhood organization and a local social control which are lacking in many parts of the modern city" (Birch, 1980, n.30). While the principles of Stein and Wright and those of Perry were adopted what was added was the belief that from the design or layout of a neighborhood people living there would develop a social identity as a result (Adams, 1934). Also the Federal Housing Administration (FHA) was instrumental in the application of the principles and shaping the physical form of cities through the publication of its bulletins, manuals, and other documents (FHA, 1936; 1941a; 1947). A major FHA policy was the adoption of curved roads and cul-de-sacs and the rejection of the gridiron layout as the latter was expensive and "creates a monotonous, uninteresting architectural effect and fails to create a community aspect" (FHA, 1936, p. 12).

In the United States it was the overall diluted application of the neighborhood concept in postwar public housing and urban renewal programs that set the scene for criticism. In the 1960s a number of critics, from Jane Jacobs to Herbert Gans, attacked the prevailing urban development theories (Birch, 1980). The noted urban sociologist, Catherine Bauer, was another critic pointing to the failure of the application of ideas of community to public housing (Birch, 1989). These critics, and others, criticized in particular the mindless application of the superblock and neighborhood unit principle in public housing. They discredited Radburn when they pounded the assumption that physical designs could promote social progress. Birch (1980) concluded that Radburn has been an important theory and intellectual influence since its inception but subsequently developers and practitioners misapplied the concept or failed to apply it convincingly. Architects and planners tended to integrate the physical and social dimensions of a neighborhood into a single dimension (Blowers, 1973). Although "critics were troubled by the physically deterministic tenet of the neighborhood unit concept" they did not dismiss it outright (Banerjee and Baer, 1984, p. 28).

The neighborhood concept was given a new life in the 1990s by the New Urbanists who "attempt to replace suburban sprawl with the time-tested model of the neighborhood, no more and no less" (Duany/Plater-Zyberk in McLain, 1996, p. 22). Attributes of their neighborhood include having a center and an edge, limited size based on a one-quarter mile walking distance, a balanced mix of activities, a fine network of interconnecting streets, and priority given to public space with the appropriate location of civic buildings (Duany & Plater-Zyberk, 1994). The purpose of the neighborhood is to form "complete and integrated communities containing housing, shops, work places, schools, parks, and civic facilities" (Ahwahnee Principles quoted by Dunlop, 1997). New Urbanism projects (Calthorpe, 1993; Katz, 1994) were summed up by one reviewer as "much less about reinventing the design of community than previous twentieth-century movements, and it is much more about reviving earlier typologies and patterns." (Kelbaugh, 1997, p. 142). Another reviewer had problems with the housing densities proposed by the New Urbanist movement, with their aim of achieving walkable communities, with the practicality of mixed land uses, and whether the movement is actually "new" and "urban" rather than suburban (Kaliski, 1996/97). Also, references to Jane Jacobs' *The Death and Life of Great American Cities* with respect to densities and other matters, according to another critic, are contradictory (Montgomery, 1998). In a debate held at the Seaside Institute in September 1998, one of the criticisms was "that physical form

alone does not guarantee community or a local lifestyle" (Dunham-Jones, 1998, p. 11). The Disney Company drew on New Urbanism principles in building its new town of Celebration in Florida. The town represents an attempt to foster a sense of community through the design of the physical environment. What this "sense" is has been questioned as "a real community is messy, ever changing and inevitable political. Disney has created a script it can only partly control"(Pollan, 1997, p. 56). An evaluation of two neotraditional examples, Kentlands and Laguna West, led to the conclusion that the "New Urbanists speak of community and neighborhood as physical rather than social entities, as if community resulted from the built form rather than from the people who inhabit it" (Southworth, 1997, p. 43). There is also some doubt as to whether the walkable neighborhood would reduce automobile dependence or solve regional and environmental problems. While the physical designs for Neotraditional towns "have been handsome" as alternatives to the drab physique of many American suburbs, there is a lack of convincing evidence that design influences travel behavior – walking, transit riding, and fewer trips by automobile (Webber, 1998). Seeking to emulate small town life, for example, is also precarious. While these and other intentions are thus in question, the objective of neotraditionalism to create a sense of place is in keeping with the earlier efforts of, among others, Olmsted, Unwin and Parker, and Stein and Wright.

In Britain the mistakes of the housing program between the two world wars led to a re-evaluation of the approach to public housing (Sharp, 1940; Walter, 1945; Ling, 1945; Stephenson, 1946). During the 1930s there was a growing awareness that community life during the years of World War I had enhanced the sense of "togetherness" in the face of danger (Cherry, 1974). British academics interest in the neighborhood unit plan in the mid-1930s (Elliot, 1935; Dougill 1934, 1935; Fawcett, 1944) led to acceptance of the idea as a way to correct past mistakes (Keay, 1945). Barry Parker had already applied the neighborhood principle in his design for a satellite town for Manchester at Wythenshaw in 1927 (Tetlow, 1959). A comprehensive explanation of neighborhood theory appeared in *The Size and Social Structure of a Town* in 1943 (Tetlow, 1959). Design guidelines were published in the Dudley report *The Design of Dwellings* (1944) and the report's proposals were incorporated in the Ministry of Town and Country Planning's *Housing Manual* (1944). The neighborhood unit plan thus became a central feature for rebuilding of old towns and in planning of new developments after World War II. "This sensible proposal had great influence on post-war residential layout in Britain and elsewhere" (Wright, M., 1982, p. 204). Arguments for the social notions of "sense of neighborhood" and "social balance" were apparent in the Dudley Report. It was believed that the proper organization of a neighborhood's physical form "will aid in every way the full development of community life and enable a proper measure of social amenities to be provided" (Wolfe, 1945, p. 25). Not everyone, however, was in agreement about the "quite outrageous claims at this time that physical plans could determine social patterns" (Cherry, 1974, p. 132). Lewis Keeble, in his influential textbook *Principles and Practice of Town and Country Planning*, hoped that the functional aspect of the neighborhood unit concept would prevail and that no one will fall into "the error of supposing that the neighborhood idea is a kind of romantic attempt to introduce a village green atmosphere into town life, as has sometimes been suggested" (Keeble, 1964, p. 93).

The famous County Plan for London by the venerable planner and academic Patrick

Abercrombie upheld the application of the neighborhood unit plan (Forshaw and Abercrombie, 1943; Abercrombie, 1945). Other British cities followed the London example of placing the neighborhood unit plan at the core of redeveloping existing residential areas and in the development of new areas (Architects' Journal, 1946b). C. H. Reilly's plan for Birkenhead proposed a physical setting of small village greens, where schools would be located, to create neighborly contacts and do away with family isolation (Wolfe, 1945). New towns were conceived as part of a national policy of land development based on the Barlow Report of 1940 and Abercrombie Plan for London of 1944 (Merlin, 1973). The Reith Report stated that residential areas in New Town were to be planned in the form of neighborhood units with the aim of developing a sense of community. These units became a central feature in the first generation or Mark I New Towns (Willmott, 1967; Burke, 1971). New Towns as a group represent the most consistent examples of the application of neighborhood theory (Herbert, 1963). Clarence Stein influenced the planners designing the new towns through his participation in many professional meetings in England.

In Britain studies of public housing areas (council housing estates) showed the divergence between theory and practice. Town planners and housing authorities set up neighborhood units so that their inhabitants could become good neighbors and friends as a result of interaction at home and at the shops. But it was found that "(s)uch planning and ideology seeks to impose an idealized version of village life on the town dweller in council estates" (Frankenberg, 1969, p. 197). Murray Stewart (1972) came to the same conclusion in summarizing a number of readings on the social aspects of city planning. Referring to studies by Dennis (1958), and Keller (1968) in particular, he wrote that "there is widespread acceptance that there remains little validity in the concept of an urban neighborhood, or a local community, seen as a self-contained unit comprising jobs, shops, recreational and cultural facilities, delimited by physical boundaries and functioning in terms of the spatial arrangement of the buildings" (Stewart, 1972, p. 32). Physical arrangements, Stewart pointed out, can influence the way individuals and groups behave but local physical arrangements were clearly not the main determinants of particular urban communities.

Soon after the completion of the New Town program in Britain architects, developers, and sociologists found much to be desired in the results. While architects criticized the low density and lack of urbanity, developers doubted the commercial viability of the neighborhood shopping centers. Then the sociologists "questioned the somewhat doctrinaire acceptance of a neighborhood of 3,000 to 12,000 people as a satisfactory unit in terms of community development" (Burke, 1971, p. 165). Social surveys revealed that residents did not experience any sense of belonging to a community of neighborhood size. A study of the new town of Stevenage showed that the neighborhood was not a significant area for friendship patterns or other forms of social activity (Willmott, 1967). In response to the criticisms an alternative to the neighborhood unit was proposed in the Mark II new towns of Hook (London County Council, 1961) and Cumbernauld (Cumbernauld Development Corporation, 1958). The idea of the self-contained neighborhood was abandoned with the emphasis on people living within walking distance of the central area of the town. Although Hook was never built the thinking behind the plan was reflected in the design of Cumbernauld, designated in 1956. The basic concept in both plans was that of a compact town center surrounded by residential units of a fairly high density. A linear form was adopted for the central area so that it could be within walking distance for most people.

Residents were to be within a maximum ten minute walking distance of the town center. There was thus no need for neighborhood centers as the shops in the main center would replace the traditional local shops. Open space and school playing fields were located on the periphery of these inner housing areas. Vehicular and pedestrian traffic were completely separated. A change in government policy, though, led to the designation of the Mark III New Towns, really expanded towns. The Town Development Act of 1952 favored town extensions to take advantage of existing physical, social, and economic features rather than attempting to create them *de novo* as in the first batch of new towns. Physical neighborhood unit principles were applied as far as possible. Thus routes for vehicles and pedestrians were separated and community facilities placed along footpaths.

Comparisons

Clarence Stein acknowledged that "in these [Greenbelt] towns for the first time were amalgamated the three basic conceptions from which new towns are being evolved: the Garden City, the Radburn Idea, and the Neighborhood Unit ... Applications of these three conceptions varied, often with contrasting emphases" (Stein, 1939, pp. 119 & 123). Principles of the Garden City were planning for living and industry, a permanent greenbelt, limited size, and public ownership of land. Radburn principles were the superblock with its central green, separation of streets and paths, and a road hierarchy. The planned Neighborhood Unit focused on a center that contained a school and other public buildings, a size determined by the need to support an elementary school, and a one-half mile walking distance from each house to the center.

There are similarities in the physical features of the two forms of the neighborhood concept. Important characteristics of both forms were the limited or fixed size of the neighborhood, defined boundaries, significant amount of open space, a neighborhood center, and a road system that did not allow through traffic and was safe for pedestrians. Influences in shaping the thinking of Stein and Perry were also similar. Stein was involved in civic, social and tenement reforms and concerned about the impact of the automobile. Perry was part of the community center reform movement and also troubled about the effects of the automobile. Stein and Wright, and Perry, each referred to Hampstead Garden Suburb in London by Unwin and Parker as an exemplar of neighborhood design.

A critical distinction between the Radburn neighborhood concept of Stein and Wright and Perry's neighborhood unit concept was the kind of neighborhood boundary each envisaged. Whereas Stein and Wright preferred the use of natural forms to form the boundary, Perry used arterial streets. Another important difference was that Perry envisaged the neighborhood as a separate unit. When a number of units were amalgamated they would form the city. Stein and Wright, on the other hand, conceived the Radburn neighborhoods as overlapping one another and grouped into districts to support large-scale facilities. Other differences between the concepts were the treatment of public open space and size of the neighborhood. In British examples open space was peripheral and acted as neighborhood boundaries whereas the American concepts envisaged open space as parks at the center of the neighborhood. Sixteen years after the official adoption of neighborhood theory in Britain an evaluation revealed that the Dudley Report, the Housing Manual, and the Reith Report recommendations differed radically from the fundamental principles set forth by Clarence Perry (Goss, 1961). First, neighborhood shops were placed in the

neighborhood center instead of on the edge of the neighborhood. Second, public open space was situated on the perimeter of the neighborhood to act as a buffer between neighborhoods instead of an open space connected with the neighborhood center. Third, and most significantly, the size of the neighborhood was close to ten thousand people with more than one elementary school, whereas Perry clearly based the size of his neighborhood unit on the population to be served by one elementary school, from three to nine thousand people.

Conclusion

Why, then, did the neighborhood concept succeed although it did not have a scientific or empirical basis? The concept appealed as it was simple and a means to order and organize the city into units or subareas that seemed to satisfy a number of physical and social concerns. It "is a relatively simple idea, apparently sociologically sound, readily conceptualized, and, theoretically at least, eminently manageable as a unit for filling the residential spaces of new towns" (Porteous, 1977, p. 75).

From empirical studies it is clear that the approach to residential area design should focus on the users – their preferences, values, and attitudes. This focus entails recognition that different groups within the population have varied preferences that are satisfied by differing physical elements in the spatial environment. Perceptions of the residential environment differ depending on stages in family cycle, from young households with and without children to the elderly (Banerjee & Baer, 1984). People conceive their residential environment more from a social than a physical point of view. That is, there is more concern on who the neighbors are than with the spatial layout. In addition, the neighborhood unit is not *a priori* the natural spatial element for analysis. In contrast to the neighborhood unit principle of self-contained urban cells demarcated by major roads, some residents see these roads as a central spine for activities while others see the street system as a web or a network with links to other parts of the city. Also reasons most commonly given for living in a neighborhood are social – sociability, friendliness, family environment, and social homogeneity. While the qualities of the physical setting are important in influencing environmental satisfaction they are of little if any significance in people's evaluation of their neighborhoods (Gans, 1968; Keller, 1968; Webber, 1964). There may be exceptions at the microspatial level all other things being equal (Dyckman, 1961; Festinger et al., 1950; Kuper, 1951). In a study of Los Angeles neighborhoods it was found that "social classifications, not physical design, were the predominant means of organizing respondents' concepts" (Banerjee & Baer, 1984, p. 158). In Stevenage there was no evidence that neighborhoods "do anything to create 'community' or 'neighbourliness', or indeed that they have any special social significance" (Willmott, 1962, p. 126).

The preferred opportunistic approach to physical design and social interaction can thus best be provided primarily at the micro-neighborhood level. In an enclave or court of three to twelve dwellings grouped around a common focal point, such as a courtyard, children and adults can best get to know each other if they so wish. Neighborly bonds may also be formed by frequent travel along mutual pathways or in shared activities and events at common meeting places. Instead of a deterministic approach it as well to remember that "[i]n the well-planned neighborhood, friendships are spontaneous" (Simonds, 1994, p. 21). Physical design should aim at creating a sense of place along with considerations of functionality and efficiency. The aim of the Congress

of New Urbanism for sensible development patterns in both urban growth and redevelopment should be considered as well as neotraditional street designs and parking arrangements that challenge conventional traffic engineering standards. A sense of neighborliness or community is something that residents themselves will achieve. Overlapping areas of physical and social spaces may occur where designers seek not to determine human behavior but to provide opportunities for social interaction in selected small scale settings.

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FIGURE 1: TYPICAL RADBURN SUPERBLOCK

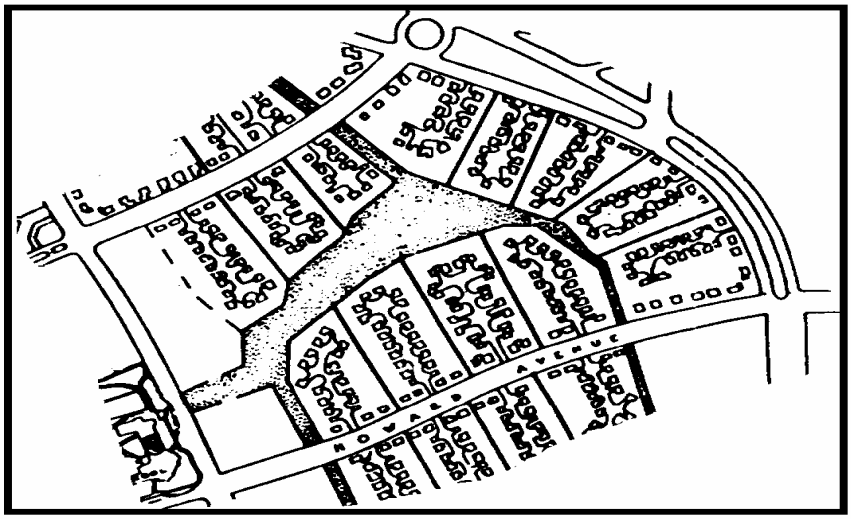

FIGURE 2: TYPICAL RADBURN NEIGHBORHOOD

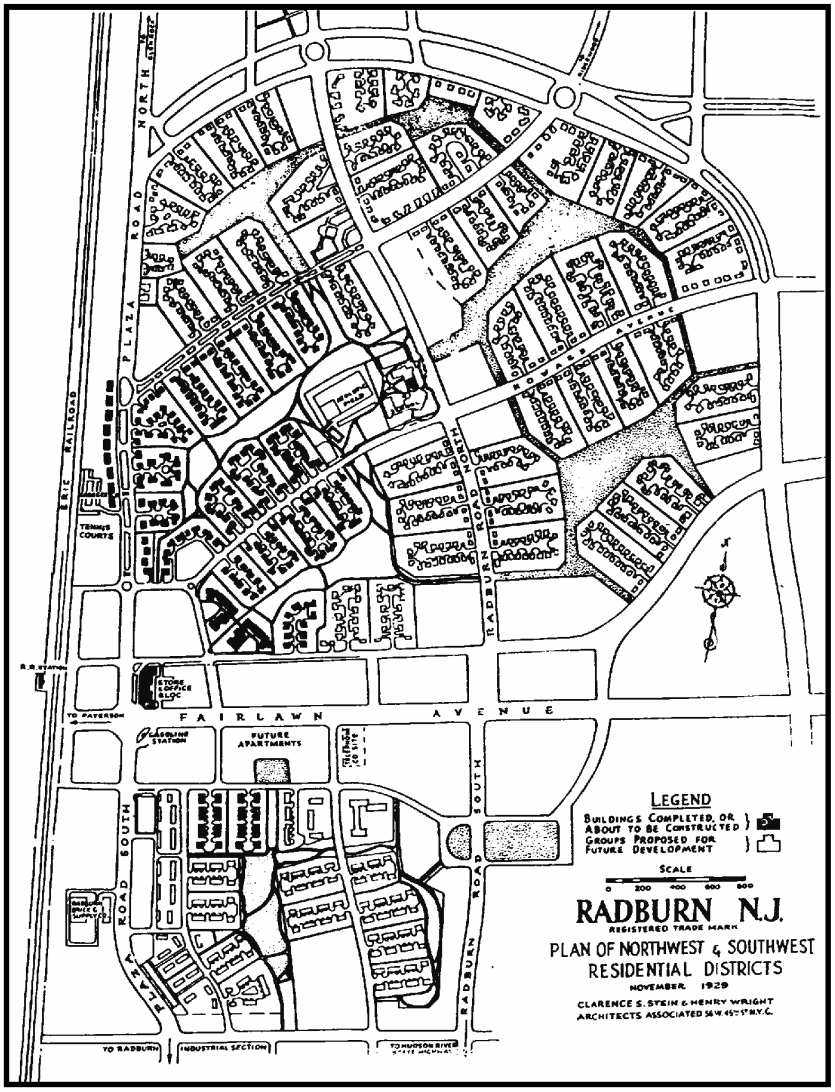

FIGURE 3: OVERLAPPING NEIGHBORHOODS IN RADBURN

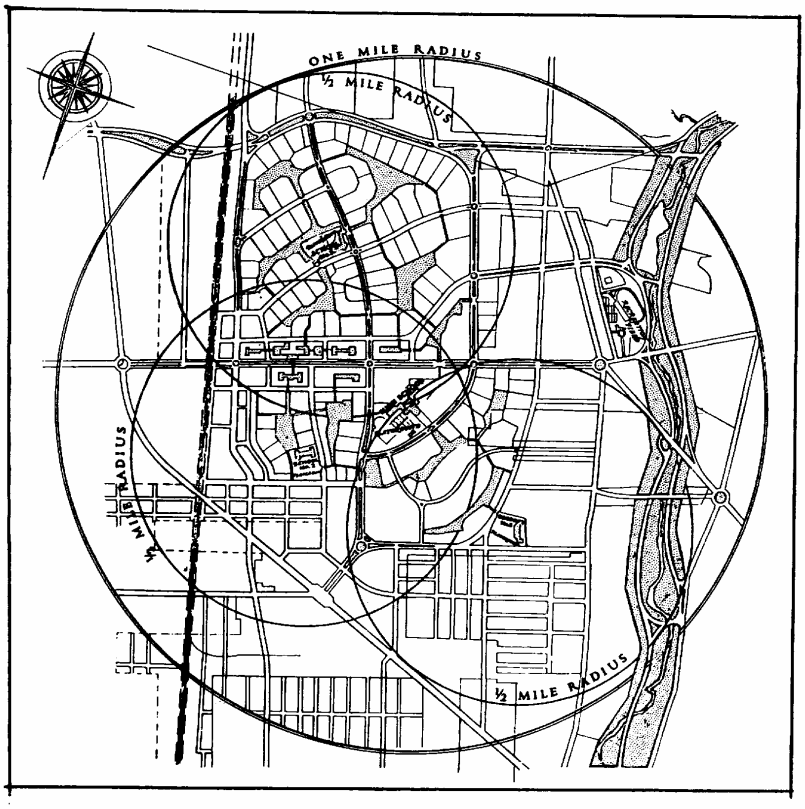

FIGURE 4: MODEL NEIGHBORHOOD UNIT, CLARENCE PERRY