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ABSTRACT

This paper addresses the broad shift that took place in architectural theory and education in the 70s, where models of the discipline asserting the autonomy of architecture eclipsed models privileging architecture's ties to other disciplines, particularly technology and the social sciences. With Frank Duffy's Princeton thesis on open office planning (1974) as a focus, the paper explores the theoretical and institutional contexts of this shift and offers a critical reappraisal in light of contemporary issues facing architecture.

While the focus of this paper is on the context of the writing of a single dissertation, Frank Duffy's 1974 thesis on office planning at the then-named School of Architecture and Urban Planning at Princeton University, my aim is to address two tendencies often viewed as oppositional within architecture culture of the 1960s and 1970s. The first of these follows Duffy's thesis topic, where planning methods, which were generally treated within the architecture schools of the time as taking place at the urban scale and under the patronage of the state, were extended to the more intimate scale of space planning and to the sponsorship of private industry. In advocating the use of social science methodology in the analysis of organizational behavior as a prelude to design, Duffy's thesis could be read as part of a tendency, including for example the design methods movement, which sought to further integrate architecture with other disciplines, especially the social sciences and technology. In adapting specialized knowledge from other disciplines for use in the architectural design process, this tendency challenged the Beaux-Arts idea of the architect as a professional generalist form-giver, assuming instead a continual re-evaluation of the architect's role in society in light of specialized knowledge, technological change, the changing needs of clients, and so on. Duffy's thesis, for example, proposes a model that blurs the distinction between architect and management consultant. The second tendency, which mostly won out in architecture schools, brought about a broad shift in architectural discourse around the idea of the disciplinary autonomy of architecture. Often associated with postmodernism, this shift brought with it a profound reformulation of what would constitute "architecture theory" and subsequently effected fundamental changes in architectural pedagogy and in the organization of the schools themselves. Most strikingly, this lead to the de-emphasis or outright removal of urban design and planning from the curriculum of many architecture schools, and, in a discipline that had only recently begun to adopt study at the PhD level, a new delimitation of the methodologies and aims that would define advanced research.

This is not to say there were no attempts to find middle ground between the two tendencies. It is interesting to note that this period has recently received renewed attention from architectural theorists, perhaps on account of the growing reliance of architecture on computing and media technology and the subsequent re-appraisal by

theorists for precedents where architects explicitly addressed systems thinking.[i] Rather, architecture theory was the zone of contention between two separate discourses, integration and autonomy, or to use sociologist Robert Gutman's terminology, "simulators" and "purifiers": the first referring to the reconciliation of architecture to "the expectation and choices of clients in an advanced industrial society," and the second to the distillation of architecture discourse to basic principles and cultural "ideal-types."[ii] For Gutman, this contrast could be illustrated with two documents from 1966: a report on architectural education commissioned by the American Institute of Architects and directed by Robert Geddes (who had recently become the first Dean of the Princeton School of Architecture and Urban Planning) and Bernard Spring, and Robert Venturi's seminal *Complexity and Contradiction in Architecture.* The Geddes-Spring report advocated the integrated studio, a studio co-taught by an architect and by a specialist in another field such as engineering or the social sciences, as a way of training students "to comprehend the continuing changes in the social, economic, political, scientific, and technological setting of our society." The overall goal was to develop a larger context for the education of architects, which they identified as "environmental design:"

> "We understand today how the changing of any part of our environment affects and interacts with every other aspect of that environment…no decision about physical design is wholly independent. That is why this study has chosen to deal with education for environmental design rather than separately with architecture, engineering, planning or any other of the traditional disciplines. As our knowledge grows, of the way that the work of the traditional disciplines must always interact in the real world, it becomes difficult to put the educational problems of these disciplines in separate compartments." [iii]

For Venturi, however, the integrative approach is only "staking a claim for architecture rather than producing architecture. The result has been diagrammatic planning." Venturi targets "the platitudinous architects who invoke integrity, technology, or electronic programming as ends in architecture, the popularizers who paint 'fairy stories over our chaotic reality' and suppress those complexities and contradictions inherent in art and experience." Citing Geddes, Venturi writes: "I make no special attempt to relate

architecture to other things. I have not tried to 'improve the connection between science and technology on one hand, and the humanities and the social sciences on the other…and make of architecture a more human social art.' I try to talk about architecture rather than around it."[iv]

What was at stake in delimiting architecture theory was the setting of architecture's disciplinary boundaries, most directly in the context of university education, but also with wide reaching effect on architectural practice. That 'autonomy' emerged triumphant can be read not only in the institutional histories but also in the sense in which the practice of architectural theory is now understood. Architecture theory would advance typology, but not design methods.[v] For example, architectural theorist K. Michael Hays could write in 2000 of "the now highly specialized field of architecture theory" in the introduction to his survey of essays *Architecture Theory Since 1968.* Here recent architecture theory is presented as a lineage running from structuralism and phenomenology to poststructuralism and deconstruction, which, significantly, begins with an oppositional stance, "militating against the received models of modernist functionalism and the positivist analyses that had reemerged in the guise of behaviorism, sociology, and operations research in the 1960s." In a formulation reminiscent of Venice-based Marxian theorist Manfredo Tafuri, Hays characterizes the theorists he has curated as "individuals with some remaining faith in an engaged resistance to 'the system' yet still able to be titillated by the ecstatic surrender of the architectural subject to the very forces that threaten its demise." [vi]

In the end, architecture theory is discourse on architecture's engagement with society. Disagreement within a discourse, or between competing discourses, can always be framed as having to do with the means, aims, or lines of attack of this engagement, as these constitute the boundaries of a discourse. In titling this paper "Rules of Engagement," I hope to suggest both the freedom and limitation inherent to architectural theory, including but by no means limited to engaged resistance in a Marxian sense, to a Sartrean sense of engagement as the social and political responsibility inherent in intellectual work, to engagement in the sense of military and policing tactics governing when, how, and how much force is to be used. Also, I wish to emphasize the role of self-policing rules within any discourse or institution, which determine acceptable methods,

aims, stylistic preferences and so on, whether acknowledged explicitly by its practitioners or implicit in practice. This is in preparation for discussing an academic thesis that could no longer be supported at the institution in which it was completed, and in a discipline that due to its methods and wide range of interests and influences has long had difficulty in defining its fit in a university setting.

The Princeton School of Architecture and Urban Planning established its PhD program in 1967, shortly after the school separated from the Department of Art and Archaeology to become its own School with Geddes its first Dean, and began to offer a Master of Architecture (MArch) as its design degree where before it had offered a Master of Fine Arts (MFA). In setting up the school, Geddes found inspiration the Department of Architecture at Cambridge, then run by Lionel March, as the first architecture school set up on the liberal arts model, as well as the ideas of Princeton University president Robert F. Goheen on the qualities of a humanist university. [vii] Architecture was to be woven into the university as a whole, with links in particular to history, the social and behavioral sciences, and engineering. As a small school, its strength was to come through interdisciplinary study. [viii] The PhD as it was first established was limited in scope to the above three areas of competency. With the disciplinary shift from integration to autonomy, and coincidental to Geddes' replacement by Robert Maxwell as Dean of the School in 1982, the PhD soon exclusively supported work in history and theory. A list of PhD theses submitted to the Princeton School of Architecture demonstrates this clear break. Where earlier theses included *A Content Analysis of Environmental Concerns and Implications of Strategic Planning* (Ronald Puschak, 1981) and *Managing Urban Conflict: Toronto's Response to Housing Related Protests* (Hannah Shostack, 1983), later theses included *Sources of Modern Eclecticism: Studies of Alvar Aalto* (Demetri Porphyrious, 1984) and *Urbanism and Utopia: Le Corbusier from Regional Syndicalism to Vichy* (Mary McLeod, 1985). After this point, nearly all of the theses submitted to the Princeton School of Architecture are engaged in history and criticism; today this is entirely the case. From the start this approach would be marked by the need for architecture theory to carve out its own niche in academica. Richard Etlin's 1978 thesis, *The Cemetery and the City: Paris 1744-1804*, is illustrative here. With architectural historian David Coffin and architectural theorist Anthony Vidler as primary advisors, *The*

Cemetery and the City—which situates urban hygiene as a cultural as much as practical problem, and which uses techniques drawn from literary criticism to understand the Cemetery of the Innocents—signals the growing privileging within architectural theory of tools drawn from historical research, such as textuality and semiology, as means of understanding cities. In describing the aims of his thesis, Etlin is particularly concerned with differentiating his methodology—that of the architectural theorist—from the methodology of the historian: "the entire study may seem to belong to some neverland of academia which defies categorization. The true interests, though, of historical inquiry reside precisely in projects which extend beyond officially sanctioned limits of departmental territoriality."[ix] In adopting methods drawn from history, Etlin is at the same time critical of these methods as not allowing for the kind of cultural synthesis architectural theory seems to demand. He suggests that history "attempt the integration of the disciplines" in order to understand "the *mentalité* of past societes."[x] Etlin's methodology, though it limits its objects of study to the historical past, still holds to architectural theory's promise of reconciliation through an act of synthesis located in the present. "By attentively examining the architecture of this period in its relationship to social, political, cultural, and spiritual motivations," he argues, "we can contribute to our understanding of a *mentalité* which encompasses both collective attitude and individual accomplishment."[xi] While, to be sure, one of the main intents of this thesis is to unpack a particular historical context, it is also deemed necessary that the context be framed within a set of contemporary issues. Thus understanding Paris in the late 18th century becomes a way of revealing, as though archaeologically, the ideological foundations of the contemporary city.

Yet it could be argued that just as the historical mode of architectural theory utilized by Etlin sought to frame historical criticism through the concerns of the present, so the mode of social science based architectural theory this historical mode would displace made use of its own production of the present as a methodological device. The present served to frame the social sciences, essentially in adapting the social sciences to those issues pressing to architecture at the time. As much as this is the case, I would argue, the social sciences provide material to be drawn upon by architectural theory that is just as valid as that material drawn from historical and literary criticism. Despite the

charge that the methods and concerns of urban planning had diverged enough from those of architecture to justify splitting the two departments, which eventually led in the late 1970s to the transfer of the entire department of Urban Planning at Princeton University out of the School of Architecture and into the Woodrow Wilson School of Policy and International Affairs, we can identify theses done under the aegis of planning rather than historical criticism that are engaged in architectural theory. An example of this is the thesis submitted by Frank Duffy in 1974: *Office Interiors and Organizations: a Comparative Study of the Relation between Organizational Structure and the Use of Interior Space in Sixteen Office Organizations*.

Frank Duffy, who was born in England in 1940, began his architectural education at the Architectural Association (AA) in London.[xii] In the early 1960s, planning was an important component of British architectural discourse, with the soundness of planning methods demonstrated by the seeming successes of the postwar rebuilding effort. At the time, nearly half of British architects worked for public departments. In London in particular, the London County Council (LCC) wielded a great deal of authority over housing development, city planning, and education. As London grew, the mandate of the LCC greatly increased with the Greater London Development Plan of 1963 and its subsequent reformation of the LCC as the Greater London Council (GLC) in 1965. In this environment, many of the design studios at the AA focused on state-funded programs such as schools and social housing. The intellectual climate at the AA was particularly rich at this time, with a number of influential architects and theorists counted among its faculty, including Alison and Peter Smithson, Archigram, and Cedric Price. Also at the AA were Robert Maxwell and Alan Colquhoun, who would eventually take faculty positions at the Princeton School of Architecture (with Maxwell serving as Dean from 1982-1989). Planning played a pivotal role in the architectural imagination of the time, whether cast in positive, fantastical, or critical terms. The architects Alison and Peter Smithson were known for a body of writings and projects built and unbuilt exploring contemporary issues of education, housing, and city planning; their most influential works included the Hunstanton School (1949-54), a project addressing contemporary educational theories through an architectural style soon labeled "New Brutalist" by architectural theorist Reyner Banham, and a competition entry for the Golden Lane Estate

housing project (1952), which proposed an urban condition making use of elevated walkways dubbed "streets in the sky."[xiii] Archigram, a group of young architects based at the AA, produced speculative urban-scaled projects (such as "Plug-In-City" and "Walking City," both of 1964) that explored new space-age technologies, urban megastructures, and consumer culture through an aesthetic heavily influenced by science fiction, comic books, and the proto-Pop Art interests of the Independent Group of artists based at the Institute of Contemporary Arts in London. Architect and writer Cedric Price drew from cybernetic discourse in theorizing an architecture that would be mobile, modular, and transformable according to the needs of its users in such projects as "Fun Palace" (1965). He would later co-author *Non-Plan* with Banham, journalist Paul Barker, and planner Peter Hall, an influential critique of top-down planning in the name of personal freedom, with a laissez-faire approach to city planning advocated in its place.[xiv]

1. Cover, *Architectural Review: AR Euromart* (May, 1963)

Duffy's interest in an industry-funded program—the office—began with a studio at the AA run by John Winter, who had previously worked in Chicago for SOM, and who proposed as the studio's program 150,000 SF of office space. While the collaboration between architects and government agencies had produced a great deal of research—the National Building Agency, for example, which sought to rationalize building through the use of prefabricated systems, freely published a set of guidelines for house plans that took into account a wide range of housing typologies—Duffy was amazed from the outset of

his research at how little systematized study had been done on the space planning and functioning of the office, and at the apparent lack of innovation at that level of office design. He discovered office landscaping in a single paragraph written by Banham in *Architectural Review* that introduced a new type of office planning coming out of Germany. This mention was part of a special issue of *Architectural Review* titled *AR Euromart*, compiled and edited by Banham and published in May 1963, shortly after Britain's initial exclusion from the European Common Market. For Banham, the prospect of a borderless Europe would have profound and mostly positive implications for Britain, ranging from the technical aspects of building to the formation of cultural identity, as "trade affects the business of building and the practice of architecture as much as it does other parts of the British economy and professional practice, and involves both with developments that are currently revolutionizing the life, the labor, and the appearance of the whole of Western Europe."[xv] British architects would not only have access to an expanded range of goods and technologies, but would also find themselves as continuing a long tradition, owing to "the high degree of professional mobility that European architects have always shown," of cross-border cultural fertilization:

> The present generation of Mercedes-born consultants were preceded by Gothic masons on loan from one diocese to another, Renaissance *uomini universali* who found Italy to small or too hot for them, *stuccatori* or *ébénistes*, professional draughtsmen and lordly amateurs to whom the whole of Rococo Europe was a single architectural scene, Scots civil engineers and North Country railwaymen who changed the face of Europe and at the same time brought its extremities closer together, Art Nouveau designers working the circuit of international exhibitions and *Kunstgewerbe* schools.[xvi]

Here, Banham treated the continuous everyday transfer of technical ideas and professional practices as being far more significant to this cross-border exchange of ideas than any formal adoption of cultural norms; thus *AR Euromart* dealt "less with architecture and design, as such, than with the trades and professions, products and organizations that bear directly or indirectly on the way in which architects conceive and detail their designs."[xvii]

Banham's paragraph on the German office planning system, titled "Office Cluster" and published with plan that struck Duffy as almost "biological," was part of a dossier of recent developments in Europe including Swedish social housing, drawings by J. P. Bakema illustrating his town-planning ideas, industrial buildings in Hungary, a controversy between so-called "Rationalists" and "Empiricists" brought on by the decision to award the interior design of the Faculty of Architects building in Barcelona to different architects on a floor-by-floor basis, and the influence on architects of Yona Friedman's proposal to erect a space-frame above Paris. Banham happened upon the German "free-association office-plan" in the January 1963 issue of *Bauen und Wohnen*, and found it to be "one of the most unexpected and intriguing thoughts to be let loose in Europe recently."[xviii] As opposed to the American open office plan, or the
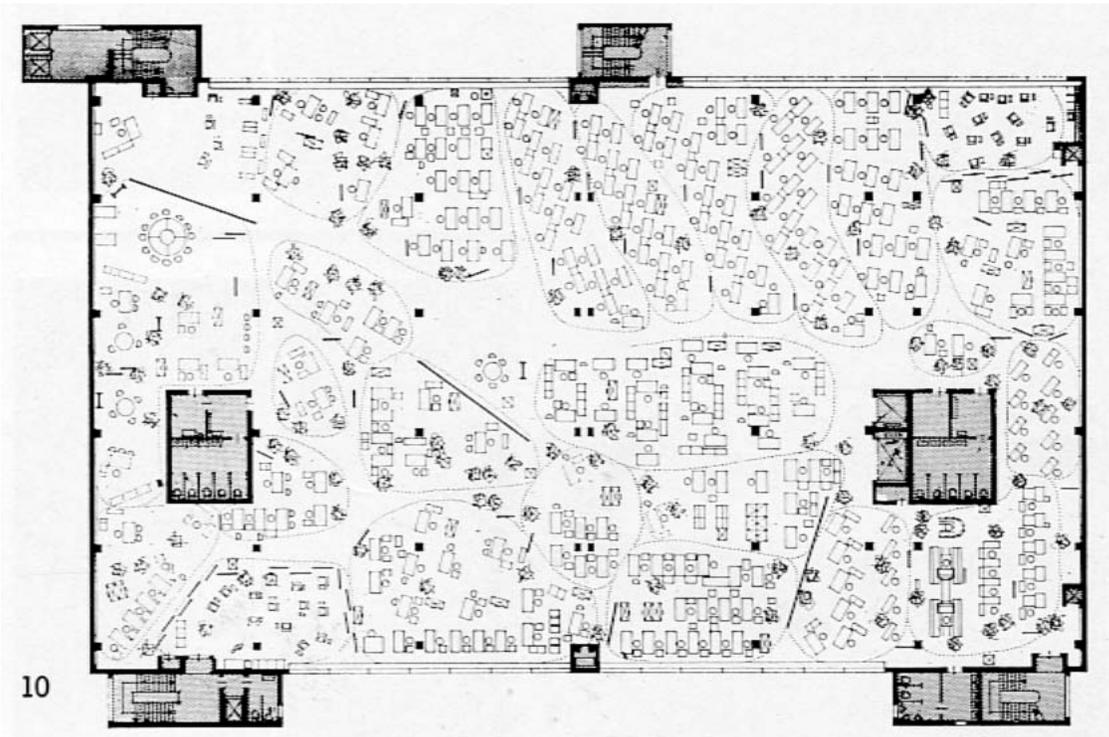

2. The "free-association office-plan," indicating the clustering of work groups, shown in *AR Euromart*. Executed by the Quickborner Team in 1961 for *Buch und Ton*, a German mail-order firm.

"concept of a large office space organized into regular ranks of desks and partitions," the creators of the new office plan, management consultants Eberhard and Wolfgang Schnelle and architect Werner Henn, proposed "a planning method that seems to have affinities with the theories of natural clustering employed by Kevin Lynch in the US or the Brutalists in Britain." For Banham this was a very promising idea; "theoretical

justifications of all sorts, from cybernetics to circulation, are available," while "with right basic decisions, and intelligent adjustment later, there might well emerge a pattern of working and occupying space that would manifest a clear and unmistakable functional order."[xix]

The office planning idea, called *Bürolandschaft* (literally: office landscape), proposed an expansive, open, partition-free office space, with simple office furniture and low movable partitions arranged according to a set of rules meant to enhance the flow of information through the office. The rules of *Bürolandschaft* would allow as well for varying degrees of privacy and openness through the control of sightlines and the use of partitions, and would carefully modulate the ambient acoustics of the workspace through the use of carpeting and acoustical ceilings, and the lack of interior walls. The planning
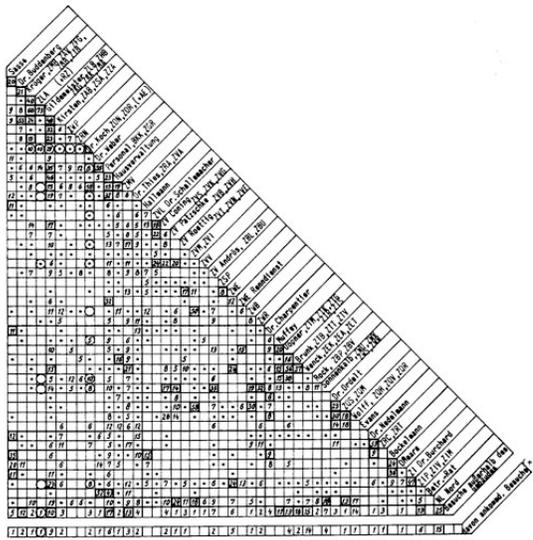
3. (Left) A matrix chart used by the Quickborner Team in the analysis of work flow between groups.
4. (Right) A model of the *Buch und Ton* office floor, as shown in *AR Euromart*.

process began with a detailed study of the requirements and procedures of the office work being done, as well as of the organizational hierarchy itself. Its practitioners would be management consultants as much as they would be designers; *Bürolandschaft* would essentially animate as a spatial strategy a number of the American managerial ideas that had taken hold in Germany after the Second World War. Duffy, then in his fourth year at the AA, visited around a dozen *Bürolandschaft* offices in Germany. Following the interest aroused by Banham's brief article, *Architectural Review* commissioned him to write a full article, which would appear in the February 1964 issue. Here Duffy opposed

Bürolandschaft to the more rigid and surveillance-driven American open office plan, with *Bürolandschaft* reflecting "the realization that office work is essentially a ritual in which people do things *together*, involving a continuous flow of work from one table to the next. It has been developed from work-study technique and the furniture arrangements it produces, though 'free' in appearance, are in fact arrived at by work-study methods."[xx] In *Bürolandschaft*, this realization would have implications at all levels of office organization: instead of providing either complete privacy or total surveillance, there would be the use of carpeting and screens to allow gradated levels of "local intimacy"; in place of a rigid time schedule, the inclusion of a *Pausenraum*, a small refreshments area situated in the middle of the office floor, would dispense of "all office hours" with the idea that "it is better for people to break off their work when they feel inclined and to leave their immediate workplace than…to have an official break."[xxi] In relaxing the rigid hierarchies embedded in earlier office designs and propagated in earlier management theories, *Bürolandschaft* would ask of workers a greater degree of self-motivation, and encourage more fluid and spontaneous interactions with co-workers and team members. Essentially, "people in *Bürolandschaft* are expected to organize their own time."[xxii] Shortly after the publication of this article, Harry Cemach of Anbar Publications, a small press that identified as its specialization "organization, management, and methods," commissioned Duffy to write a short monograph on *Bürolandschaft* that would be published in 1966 as *Office Landscaping: A New Approach to Office Planning*.[xxiii]

Having established an interest in office planning before arriving at Princeton to write his thesis, Duffy would be further influenced by his time at the University of California at Berkeley, where he went to study architecture in 1967 under a Harkness Fellowship. While at Berkeley, he studied with Christopher Alexander and statistician and planning theorist Horst Rittel, who were engaged in debate over design methods and Alexander's pattern language, with Rittel maintaining from the basis of systems theory that Alexander's pattern language was too deterministic, and therefore too brittle, to fully capture or model complex environments.[xxiv] Duffy found at the time, however, that the kinds of "generic relationships and patterns" suggested by Alexander were useful to architectural design, and published a paper in *Building Research* in 1968 that he described as "carried out under [Alexander's] guidance and reflect[ing] his ideas."[xxv]

Essentially, these patterns would become methods for transmitting established knowledge about office design; they would be "building blocks, resolved problems that may be fitted together in an infinite variety of ways, to build the design of an office floor or an office building."[xxvi] This knowledge would be collected through the social sciences, which would yield "applied research, that is useful, that is not too difficult or expensive, and that is conducted within the framework of a model of relationships between job, worker, and building."[xxvii]

At the same time, gathering data on the social effects of environmental factors was by no means simple. Duffy first of all called into question the straightforward "architectural determinism" he saw as prevalent among architects: the view that "buildings determine people's behavior." For Duffy, this attitude could only be "cheerfully paternalistic at best, or grimly exploitative for the sake of productivity at worst."[xxviii] Against this view he would position "those few social scientists who are sufficiently interested to admit that buildings may influence behavior but who regard buildings as something independent of human activity — like music to a film, parallel but not a shaping force. And these social scientists are undoubtedly considerably more in touch with the data."[xxix] The idea that buildings could not overtly be a "shaping force" was reinforced in the social sciences by the Hawthorne studies, a series of experiments at Western Electric's Hawthorne Plant outside Chicago in the 1920s and 1930s on the effect of changing light conditions on worker productivity. The most widely publicized conclusion to come out of these studies, often referred to as the "Hawthorne effect," was that worker productivity increased simply with the workers' knowledge that their work was being observed and that their opinions were being taken into account. For Duffy, the fact that social scientists could no longer "conduct environmental research which dealt only with overt stimuli and response," there resulted in organizational research "a swing away from human engineering to human relations; among social scientists there was a rapid decline of interest in environmental variables; architects became even more cut off from the stimulus of good empirical work in their own field."[xxx]

In 1968, Alexander's pattern language would provide Duffy with both a methodology for bringing empirical social science into play in architecture, and a possible theoretical justification of office landscaping. In a second article published while

at Berkeley, he outlined a three-step method for charting relationships within an office environment, derived from *Bürolandschaft*: first, the collection of "technical variables" such as staff numbers, job descriptions, office equipment, space requirements; second, "mapping interrelationships" between and among the various workers, equipment, and services within the office, in a graphic language of "nodes" and "links" between those nodes; and third, determining "node proximity," or a satisfactory spatial layout of the elements of the office environment.[xxxi] The language of nodes and links, with respect to a particular office program, would essentially translate into patterns, allowing designers to "draw upon their past experience, expressed rationally in terms of patterns," and subsequently "assemble from these patterns new and acceptable forms."[xxxii]

The PhD program at Princeton allowed Duffy to further develop and test out these ideas. Following on his earlier work at the AA and Berkeley, his thesis, *Office Interiors and Organizations*, would seek to elaborate "the relationship between one kind of physical environment, the office layout, and one kind of social dynamic, the office organization."[xxxiii] Geddes describes the late 60s and early 70s as a time of great rapport between the social sciences and architecture, with urban planner Chester Rapkin and sociologists Robert Gutman and Suzanne Keller particularly active.[xxxiv] The School also benefited from the Institute for Advanced Study, which began to include the Social Sciences in 1970, bringing in figures such as Clifford Geertz and Michael Walzer. An interdisciplinary lunchtime lecture series brought in other faculty from around the university, such as Thomas Kuhn. The PhD faculty also included Anthony Vidler and Kenneth Frampton in the history area and David Billington and Robert Mark in technology. At Princeton, Duffy took classes in architectural history with Frampton at the same time that he studied the quantitative tools used in urban planning and the social sciences. His thesis advisors at Princeton were Geddes, Gutman, and psychologist John Darley. In the course of his thesis, he would consult with Alexander and Rittel, as well as with psychologists ERFW Crossman of Berkeley Eric Trist of the University of Pennsylvania, both of whom were involved with the London-based Tavistock Institute, which addressed practical problems through interdisciplinary social science. As with his earlier work, Duffy would attempt in his thesis to reconcile architectural theory with the social sciences. Balancing between the two would place a number of demands on his

thesis. While it would be formulated in the language of social science, Duffy held that "the research had to be relevant to topical issues which were of practical importance to architects and designers." Rather than seeking cause and effect type relationships, he sought to demonstrate through case studies "a relationship between people and buildings" by utilizing a "comparative format for both social science and architecture data." Most importantly "equal weight had to be given to both social science and architectural variables." Otherwise, "the research would have lapsed into the common fault of losing sight of the relationship between people and buildings because of a bias toward investigation on one side or the other."[xxxv]

Although his thesis would deal with theoretical issues, including for example a history of the "scientific management" of the workplace and a discussion of contemporary issues in organizational theory, it would primarily formulate itself as an empirical study:

> The hypotheses which are tested are that organizational *Interaction* is strongly related to *Subdivision* and that the degree of organizational formality and stiffness (*Bureaucracy*) is strongly related to physical *Differentiation* between workplaces and layouts.[xxxvi]

From there, he would propose a model relating different types of office layout and office organization:

> Assuming the independence of these two basic pairs of dimensions — Interaction and Subdivision, and Bureaucracy and Differentiation — a hypothetical model is constructed which distinguishes between types of office organization (highly bureaucratic and highly interactive; highly bureaucratic but low in interactivity, etc) and types of layout (highly differentiated, low in subdivision; highly differentiated, highly subdivided etc.) The model allows the correspondences between types of organization to be examined systematically.[xxxvii]

Finally, he would propose a method of measuring aspects of the office environment, along with office behavior:

> To test these hypotheses, measures of physical Differentiation and Subdivision were invented. These were based on Area, Expense, Work

Settings, Equipment, Enclosure, and Accessibility of each workspace. From the sociological literature measures of Bureaucracy were borrowed and adopted. These were Centralization, Formalization, Complexity, and Routine.[xxxviii]

This hypothetical model would then be tested on sixteen existing offices, representing a variety of programs, located in Princeton, Trenton, and New York City.

"The results," wrote Duffy, "were not entirely expected." *Bürolandschaft* had often been justified theoretically by recent arguments in organizational theory, which held, as in Douglas McGregor's "Theory Y" of 1960, that "people will exercise self-direction and self-control in the achievement of organizational objectives to the degree that they are committed to those objectives."[xxxix] As opposed to "classical" management techniques, which were concerned with maintaining tight control over employees' time and work flow, Theory Y type arguments emphasized affective bonds, communications, and participatory management: all ideas in play with the rise of cybernetics. In the office landscape, the near elimination of architecture as a device of spatial differentiation — along with the total redefinition of spatial proximity on the office floor into the language of communication theory and organizational change — would be a spatial embodiment of this new de-hierarchized and participatory model of bureaucratic organization. For the proponents of *Bürolandschaft*, "anyone using an organization chart which illustrates the divisive more than the unifying character of the organization as a basis for layout is on the wrong track."[xl]

Duffy, however, was unable to establish any clear relationship between spatial differentiation and worker interaction. In addition, he found that many offices indicated as "non-bureaucratic" contained a high degree of spatial differentiation. Finally, it seemed that the fullness of worker participation in the office could not necessarily be judged from the frequency of interactions:

> These results demonstrate that the more participatory an organization is, the less its work is standardized, the more professionally trained and active its staff, the less interaction goes on within it whether measured by percentage of people contacted (DAYCOM) or by frequency and importance (FREQ IMP). One would not have expected this to be the case especially in the field of

office design where participation and interaction are thought to go hand in hand.[xli]

His results might have been confounded somewhat by the comparison of case-study office environments too dissimilar from one another to work within his hypothetical model, and his results might have been different had his case-study examples been more of the same kind, or had the model taken account of a greater number of variables (and thus demanded a greater number of case studies). It is difficult, for example, to compare a data entry firm, where the work is for the most part highly bureaucratic, routinized and secretarial, to a law office, where the work is case-based and professional, and where the client generally demands, perhaps for traditional reasons, the use of a highly spatially differentiated office typology designed around the requirement of individual offices for associates and partners. Several of Duffy's observations point to this disparity—for example that "organizations which in aggregate are non-bureaucratic tend to be comprised of high status people whose workplaces are well endowed physically."[xlii] Thus, a law office might, due to the nature of the work, score high in participation while scoring low in interactivity, and high in spatial differentiation while scoring low in bureaucratic criteria.

Yet these reservations do not take away from Duffy's skepticism, on both practical and theoretical grounds, of architecture's ability to directly affect social behavior. On the "relationship between buildings and people," he borrows from architect Amos Rapoport's description of the "low criticality" of architecture:

> There is, in other words, usually a wide range of choice in any design situation. Generally several solutions are possible, all of which satisfy such basic physical requirements as controlling temperature and excluding rain, and which all meet basic user requirements for convenience, space, and essential adjacencies. Once a fit has been provided between design and these "critical" requirements and once economic and technological problems have been solved, an area of "slack" is available within which design decisions are a matter of the expression of values: conveying meanings, indulging design whims, expressing individual creativity, or simply being arbitrary.[xliii]

In addition, the relative permanence of architecture to the constantly changing demands of program means "a gap will inevitably occur between developing requirements and the residual long-lasting building shell."[xliv] Duffy turns his skepticism against the more dogmatic elements of Alexander's position, quoting one recent criticism:

> [This position] seemed to be claiming that the objective structural analysis of the functional requirements of a social organization would, *ipso facto*, generate the design of a building or environment to accommodate it. That is to say, if we knew enough about the elaborate relations between pupils, pupils and staff, members of staff, and so on, we could design a school.[xlv]

Duffy concludes that "the relationship between buildings and people is a wide ill-defined field which can be studied in as many ways as there are branches of social science—from cultural anthropology to the boundaries of clinical psychology—but with little chance of clear-cut or guaranteed success."[xlvi] As for the empirical findings of his PhD thesis, "the results also confirm that the symbolic capacity of office layouts (and perhaps of other architectural variables) to express values such as status is greater than their capacity to achieve operational results such as more or less internal interaction."[xlvii] While Duffy—who went on to co-found in 1973 an architectural consultancy, DEGW specializing in workplace design, now with branches in 13 cities, and who served as president of the Royal Institute of British Architects (RIBA) from 1993 to 1995—advocates the engagement of the social sciences in architecture, he does so from the theoretical stance of an architect: that in the end, architecture is a synthetic act covering a range of influences and disciplines, and irreducible to any single one.

The office landscape, like other planning ideas, may be interpreted as a symbolic cultural work, as much as it may be positioned as an instrumental technique. While *Bürolandschaft* would be tarnished in Germany by the post-68 Workers Councils, which fixed on privacy as a primary goal for office workers, its legacy would continue, both in practice, in subsequent office planning ideas and in the invention of systems furniture, as well as metaphorically: as a new kind of spatial order, rule-based and heuristic, a synthesis of ideas drawn from communications, information, and management theory, and an expression of a contemporary fascination with the biological and the cybernetic. The continued influence of *Bürolandschaft* upon designers is evidenced by the inclusion

of a 2007 conference celebrating it at the contemporary art exhibition *Documenta 12*, sponsored by the magazine *Arch+*.[xlviii] An architectural theory solely informed by the tools of textuality and criticism, with their preoccupation with issues of authorship, would tend to overlook the kinds of "anonymous" cultural production represented by office planning (just as Philip Johnson once dismissed space planning firms like JFN Associates as "hacks"). A more balanced inclusion of the social sciences, and other technical fields, in architectural theory would allow the re-consideration of such cultural precedents in light of current issues, especially those dealing with economic or technological change. If the shift in architectural theory away from the social or technical sciences and toward critical theory was in part progressive, opening up new and fruitful lines of research in the social and political role of architecture, others were perhaps only reactive to transformations in the outside world, shifts in the rules of engagement that had defined the relationship between architectural practice and society over which architectural theory had little control. For all the faults architectural theory found with postwar urban planning, planning was likely most damaged by neo-liberal government policy and privatization—as when the Greater London Council was abolished by Margaret Thatcher in the years of 1984-86—a situation which de facto made it more difficult for architects to consider solutions to urban problems. In the situation of our own present, where globalization and technological change are affecting at all points the practice of architectural production, a re-evaluation of the place of the social sciences in architectural theory (to be accompanied it would be hoped by more attention given to architectural issues amongst social scientists) is in order. Architecture theory should not be afraid to re-engage with its socio-technical past, and to do so while remaining fully engaged with its current disciplinary concerns, as there is in the end no incommensurate contradiction between its use of history, theory, and criticism and of the social sciences as means of understanding the cultural production of architecture.

[i] Examples of recent architecture theoretical re-appraisals of this period of disciplinary change include Felicity Scott's essay on Emilio Ambasz's "Universitas Project," which theorized an "experimental university" conjoining "Architecture + Technology + Theory," and Sean Keller's essay on Lionel Marsh's attempt to found an architectural science along cybernetic lines at Cambridge. See Felicity Scott, "On the 'Counter-Design' of Institutions: Emilio Ambasz's Universitas Symposium at MOMA," in *Grey Room* 14, Winter 2004, pp. 47-77, and Sean Keller, "Fenland Tech: Architectural Science in Postwar Cambridge," in *Grey Room* 23, Spring 2006, pp. 40-65.

[ii] Robert Gutman, "Educating Architects: Pedagogy and the Pendulum," in Nathan Glazer and Mark Lilla, eds., *The Public Face of Architecture: Civic Culture and Public Spaces* (New York: The Free Press, 1987) 453-4.

[iii] Robert L. Geddes and Bernard P. Spring, *A Study of Education for Environmental Design: A Report by Princeton University for The American Institute of Architects* (Princeton University, December 1967), 9, 4.

[iv] Robert Venturi, *Complexity and Contradiction in Architecture* (New York: The Museum of Modern Art, 1966), 20-1.

[v] See Alan Colquhoun, "Typology and Design Method," in *Perspecta* Vol. 12 (1969), pp. 71-4.

[vi] K. Michael Hays, "Introduction," in K. Michael Hays, *Architecture Theory Since 1968* (Cambridge: The MIT Press, 2000), xii-xiii.

[vii] See Robert F. Goheen, *The Human Nature of a University* (Princeton: Princeton University Press, 1969).

[viii] Information on the Princeton School of Architecture and Urban Planning under the direction of Dean Geddes is based on a telephone interview with Robert L. Geddes, March 2008.

[ix] Richard Allen Etlin, *The Cemetery and the City: Paris 1744-1804* (PhD thesis, Princeton University, 1978) 4.

[x] Etlin, 5.

[xi] Etlin, 8.

[xii] The biographical information on Frank Duffy cited in this essay is based on personal interviews in April 2003 (at a seminar run by Robert Gutman) and October 2003, and via email in May 2005.

[xiii] The urban theories of the Smithsons would later meet with significant public criticism; a similarly-conceived public housing complex, Robin Hood Gardens (1969-1972), also designed by the Smithsons, would later become a symbol of the failures of planned public housing.

[xiv] Reyner Banham, Paul Barker, Peter Hall, and Cedric Price, "Non-Plan: An Experiment in Freedom," in *New Society*, vol. 38 no. 338, March 1969. See also Jonathan Hughes and Simon Sadler, eds., *Non-Plan: Essays on Freedom, Participation, and Change in Modern Architecture and Urbanism* (Oxford, Architectural Press, 2000).

[xv] Reyner Banham, "Europe: The Relevant Continent" in *The Architectural Review,* vol. 133 no. 795, May 1963, 313.

[xvi] Banham, "Europe: The Relevant Continent," 315.

[xvii] Banham, "Europe: The Relevant Continent," 313.

xviii Reyner Banham, "Europe: Office Cluster" in *The Architectural Review,* vol. 133 no. 795, May 1963, 306.

xix Banham, "Europe: Office Cluster," 306.

xx Francis Duffy, "Skill: Bürolandschaft" in *The Architectural Review*, vol. 135 no. 804, February 1964, 148.

xxi Duffy, "Skill: Bürolandschaft," 148.

xxii Duffy, "Skill: Bürolandschaft," 154.

xxiii Frank Duffy, *Office Landscaping: A New Approach to Office Planning* (London: Anbar Publications, 1966).

xxiv For a sense of the issues involved in the debate over pattern language between Rittel and Alexander, see Jean-Pierre Protzen, "The poverty of the pattern language," and Christopher Alexander, "Value," in *Design Studies*, Vol. 1 No. 5 (July 1980) pp. 291-8.

xxv Francis Duffy, "Architects and the Social Sciences (1968)," collected in Francis Duffy with Les Hutton, *Architectural Knowledge: The Idea of a Profession* (New York: Routledge, 1998), 11. First published as "Architect, Developer, User, Government, Manufacturer, and the Office Building" in *Building Research*, July 1968.

xxvi Duffy, "Architects and the Social Sciences (1968)," 12.

xxvii Duffy, "Architects and the Social Sciences (1968)," 21.

xxviii Duffy, "Architects and the Social Sciences (1968)," 8.

xxix Duffy, "Architects and the Social Sciences (1968)," 8.

xxx Duffy, "Architects and the Social Sciences (1968)," 9.

xxxi Francis Duffy, "Petrified Typologies (1969)," collected in *Architectural Knowledge*, 28-29. First published as "A Method of Analyzing and Charting Relationships in the Office," in *Architect's Journal*, March 12, 1969, 693-699.

xxxii Duffy, "Petrified Typologies (1969)," 32.

xxxiii Francis C. Duffy, *Office Interiors and Organizations: a Comparative Study of the Relation between Organizational Structure and the Use of Interior Space in Sixteen Office Organizations* (PhD dissertation, Princeton University, 1974), iii.

xxxiv Interview with Robert L. Geddes, March 2008.

xxxv Francis Duffy, "Office Design and Organizations (1974)," in *Architectural Knowledge*, 49-50. From revised introduction drawn from Francis Duffy's Princeton dissertation. First published in this form as "Office Design and Organizations: I. Theoretical Basis," in *Environment and Planning B*, 1974, vol. I, 105-118.

xxxvi Duffy, *Office Interiors and Organizations*, iii. Italics underlined in the original.

xxxvii Duffy, *Office Interiors and Organizations*, iv.

xxxviii Duffy, *Office Interiors and Organizations*, iv.

xxxix Douglas McGregor, "Theory Y: The Integration of Individual and Organizational Goals" in *The Human Side of Enterprise* (New York: McGraw-Hill Book Company, 1960), 56.

xl H. J. Lorenzen and D. Jaeger, "The Office Landscape," *Contract Magazine*, April 1968. Quoted in Duffy, "Office Design and Organizations (1974)," 48.

xli Duffy, *Office Interiors and Organizations*, 227.

xlii Duffy, *Office Interiors and Organizations*, v.

xliii Duffy, "Office Design and Organizations (1974)," 33.

xliv Duffy, "Office Design and Organizations (1974)," 48.

xlv I. March and P. Steadman, *The Geometry of the Environment* (London: RIBA Publications, 1971), 9. Quoted in Duffy, "Office Design and Organizations," 45.

xlvi Duffy, "Office Design and Organizations (1974)," 48.

xlvii Duffy, *Office Interiors and Organizations*, vi.

xlviii The symposium describes *Bürolandschaft* as "one of the few internationally acclaimed post-WWII contributions to German architecture. "Office Landscape: A forgotten reform strategy of German post-war modernism" (*Symposium Bürolandschaft: eine vergessene Reformstrategie der deutschen Nachkriegsmoderne*) was held in July 2008 in Kassel, Germany, with Frank Duffy as one of its invited participants.