

(Detta är ursprunget till den nedbantade och översatta versionen som publicerades i PLAN nr 4, 2002.)

For Urbanism, in Sweden

By Andres Duany

I have before me a special bookshelf reserved for recent publications of particular interest. It is currently stocked by planning documents that I consider to be excellent. Some of them are specific to a place, others are general reports. What they have in common is practical advice on creating communities that are compact, diverse and walkable; and they even deploy clear language and good graphics. Considering that these reports are quite slim, it is remarkable that this shelf now exceeds two feet in length. This is a good bit longer than what would have been possible five years ago.

It seems that these days more than a few planners know what they are doing. And these publications are not the only evidence of this happy phenomenon. The rigorous *New Urban News* identifies 213 neighborhood-scale communities under construction and an additional 162 undergoing permitting. Jane Jacob's statement that, "The pseudoscience of planning seems almost neurotic in its determination to imitate empiric failure and ignore empiric success" may have finally become obsolete.

But these superb publications seem somehow inadequate. There is a collective agenda that more of them must be written, as if a tipping point of sheer paper were necessary to overcome the dead weight of postwar American planning. And what of those New Urbanist communities already built? Do they not represent tangible successes to be emulated?

Apparently not. Each new project encounters resistance unabated; each requires a tremendous educational and political effort -- as if it were an experimental first attempt. Like Sisyphus, the New Urbanist planner must begin at the bottom -- pushing up against the civil engineers, municipal planners, developers, building inspectors, elected officials, neighbors, environmentalists, marketing experts, loan officers, and all the rest. The friction encountered is astonishing. Even after those gatekeepers are duly persuaded that the outcome of the current planning method has been socially dysfunctional, choked in traffic, hideous, reviled by the public and ecologically dismal -- there still is resistance. Even with everyone calling for change, modernist planning grimly hangs on. Why?

Always there are the generic explanations: intellectual sluggishness, bureaucratic inertia, skepticism because so many innovations have failed to keep their promise, and aversion to risk in a culture of liability. But there is something else here at work that is unique to the discipline of planning. There is behind the resistance something deeply embedded and systemic.

Evidence gathers around the interlocked objections of the disparate specialists. One notes that the analytical methodology of the traffic engineer is dependent upon the precise segregation of zoning. Environmental standards catalyze the urban discontinuities that perpetuate pod-like zoning diagrams, natural crossings are minimized by the deployment of exactly that dendritic system of thoroughfares that, as it happens, lends itself to traffic analysis. Lending institutions have standardized checklists that encourage those large, homogeneous projects that translate perfectly from the stair-step densities of the zoning categories. Realtors are conditioned to value precisely the standardized products created by those selfsame homogeneous zones. And

so on... there is evidence everywhere that what is assumed to be a neutral, market-oriented and technocratic system is, actually, heavily biased toward a certain model. What we have against our reform is, apparently, a unified theory.

ORIGINS OF THE CURRENT THEORY

The dominant historiography of modern planning presents a sequence of empirically evolved, quasi-inevitable practices that have converged and been rationalized into plans based on the segregated categorization of zoning and its reconnection by a dendritic thoroughfare system. This system has now congealed around the undeniable advantage that it is easy to administer, lending itself both to numerical prescription and to numerical analysis of potential outcomes. Its standardized “process” protocols and its statistical norms imply objectivity, coinciding perfectly with the postwar American desire to optimize equality of outcome.

Dismal though the results have been, we must agree that this model is conceptually very simple. Indeed, it is much too elegant to have organically evolved. There is another possible historiography; and there is: one that posits that modern planning did not gradually evolve empirically, but rather it arrived fully formed and hanging on the tail of the concerted, brilliant 30-year campaign to establish modernist architecture. It is plausible that behind the current system lies the comprehensive theory catalyzed by the architect Le Corbusier and his fellow polemicists of CIAM. This genesis may be incredible to the planning profession,^{1[1]} which believes that case law, protocodes, and a concatenation of reform movements formed its fertile sediment. That this is partially true does not preclude that sediment’s support on the firm theoretical bedrock provided by Le Corbusier. Modernist theory, in the immediate post-war period, cast aside both the empirical-organic tradition of planning as well as the City Beautiful that was its chosen polemical nemesis. It left standing only the City Healthy & Efficient of the municipal engineers, with whom it cross-bred to inherit a formidable technocratic credibility.

But this is not the place to detail this story. What is relevant is that there may be a deeply embedded theory coordinating the current planning system and allowing it to persist, despite its empirical failure; and that all the weight of New Urbanist reform will not tip the point until it, too, is coordinated by its own comprehensive theory.

Where is an alternate theory to be found? Is it not environmentalism? No doubt, but for the problem that the environmental movement has neglected to create a proposition extending into urbanism. Hence the failure of the Portland 20-year regional planning epic: most of what has been built within the urban boundary has been suburban sprawl. The recent retrofit movement, environmental in origin, isn’t equipped to create urbanism -- tending only to “green” it.^{2[2]} To cite the current Portland war cry, “We will not stop until there is a stream running beside every street and a forest in every square.”^{3[3]} Unfortunately, greening tends to

^{1[1]} See as documentation: *The CIAM Discourse on Urbanism – 1928-1960*, by Eric Mumford. A reason for the skepticism is that an identifiable individual could possibly be the genie behind so vast a curtain; and that this individual was an architect, no less! This is implausible to us only today, a time when architecture is so trivial. But we must remember that as late as the 1920s, before the planning profession came into existence as such, architects were the lords of creation. See as documentation: *The CIAM Discourse on Urbanism – 1928-1960*, by Eric Mumford.

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create, not the most livable cities, it tends to create suburbia. This is obvious to anyone that has attempted to design an authentic urban fabric while following current environmental standards.

This brings us to the present impasse: environmentalism is pervasive but, in an inadvertent alliance with suburban zoning as its development system, it paradoxically reinforces the longevity of sprawl by aestheticizing it.^{4[4]} What can be done? It is certainly not prudent to fight the environmentalist ethos; rather to extend it. To be efficient, the reform of urbanism should be based on the extension of its currently embedded environmental methodology. This would have the advantage of familiarity to the tens of thousands of planning departments, and it would be propelled by the overwhelming political energy of the millions dedicated to environmental reform.

What remains to be done is to extend the environmental protocol into the city. This should not be particularly difficult, as it would involve only the redeployment of an analytical environmental tool called the Transect.

SHORT HISTORY OF THE TRANSECT

The Transect is a natural law that can be observed anywhere and everywhere. A natural law is defined as a principle derived from observation of nature by right reason and thus ethically binding in human society.^{5[5]} The Transect emerged organically in human settlement, preceding its explicit conceptual formulation. That it is timeless and cross-cultural can be easily observed by walking from the center to the outskirts of Pompeii. It is illustrated in Chinese scrolls and assumed by the Spanish Law of the Indies. It is still inhabited in thousands of towns and cities in the United States. The Transect as a natural law may be immanent, but its suppression by modernist transportation and zoning has catalyzed the current need to re-present it as a viable alternative theory.

The first appearance of the Transect as an intellectual construct was the “Valley Section” conceived by Sir Patrick Geddes early in the 20th century. Sir Patrick crudely diagrammed a generic Transect as a geographic section taken from upland to river. It articulated a series of determined human societies ranging from hunters in the highlands, to farmers in the foothills, to tradesman along the shores. This model was palpably inaccurate. Even in its pre-industrial heyday such a Transect fails to account for the defense premium of a commercial hill town, or for the propensity of hunters to find prey in both wet and dry areas. It is curiously useless as a model for an age well into the industrial revolution.

Why so questionable a proposition from an otherwise multifaceted genius? It seems that Sir Patrick understood the ordering potential of the Transect, but he could not transcend the limits of a time when Nature was not conceived as a protagonist. Nature was there to be subjugated by man; in this both Darwin and the Old Testament agreed. With Nature having no operational standing, Sir Patrick was forced to illustrate the Transect as a declension of human societies, and only through them could he imply the fundamental rural-to-urban range which is its natural-law basis.

^{4[4]} The most nefarious anti-urban proposition being the cluster strategies of Randall Arendt.

^{5[5]} Despite being taken from a recent dictionary, this is an 18th century interpretation. Jefferson's, “We hold these truths to be self-evident,” is an allusion to natural law. Today, in less certain times, one would call the Transect a “hypothesis.”

The next great proposition of the Transect emanated a half-century later from another Scotsman, Ian McHarg. The Transect was embodied in the analytical methodology presented in *Design with Nature* (1962). McHarg's Transect was not only more sophisticated than Geddes', it was quite the opposite in its basis -- being entirely a declension of natural, rather than social habitats. A Transect is clearly articulated in an introductory chapter by way of explaining the workings of ecosystems (these were the ignorant early years, contemporaneous with Rachel Carson's *Silent Spring*). The Transect was made operational in the body of the book by means of a series of transparent overlays designed to discover a Transect gradient of the land. The intention was to sequentially remove tiers of progressively ecologically sensitive land out of the realm of potential development.^{6[6]}

Current environmental laws are based largely on the technocratization and legalization of this methodology. McHarg, however, never made a proposition for the residual areas to be urbanized. This confirmed the latent human/nature opposition that now pervades the environmental ethos: nature is sacred, the city is profane. The application of *Design With Nature* has therefore led to a series of communities that are environmentally responsible and greenly aesthetic, but otherwise identical to sprawl in their socioeconomic consequences. This is the reality of The Woodlands, Hilton Head, Amelia Island and others of that vintage. The urbanism of these places is extremely diagrammatic -- with market-segmented housing pods, shopping centers, and office parks interspersed in a matrix of McHarg-determined preserve areas. This model fails because of an utter absence of a corresponding proposition for the urbanized areas. Regardless of how impressive the statistical entity of such edge cities, they cannot coalesce into urbanism as the priority given to the natural connectivity cauterizes the urban pattern.^{7[7]}

A subsequent Transect proposition was made about two decades after *Design With Nature* by Christopher Alexander in *A Pattern Language*. This is by no means as explicit as the prior ones. It is rather a sideshow of that great work, only implied by the series of Patterns, principally Numbers 2, 13, 29 and 36. These taken together formulate a Transect, but it is lost among the other 252 patterns, and it has had little independent impact. Alexander, then concerned by process, did not value it as the general theory capable of reconciling urbanism and environmentalism.

Then this, the current manifestation of the Transect, is a result of the compilation of *The Lexicon of the New Urbanism* in 1994-1998.⁹

RE-EMERGENCE OF THE TRANSECT

^{6[6]} *Design With Nature* was the origin of land-ethic environmentalism as opposed to the subsequent concern with atmospheric quality. These two strands have only recently been concatenated through the land-use/transportation/vehicle emissions equation of the New Urbanism.

⁷ This insight has been developed and documented by Paul Murrain of the Prince of Wales' Institute.

⁸ The Transect has since been tested in a score of urban planning projects by several planning firms, both in greenfield and infill sites at the scale of the region and the sector. A first code has been written for it, the Smart Code, which includes the integration of public works standards, as well as a GIS compatibility protocol. The Transect could be made compatible with other analytical tools, such as William Hillier's *Spatial Syntax* and Eliot Allen's Index. The recently created Center for Applied Transect Studies will coordinate the work of the various specialists interested in building a comprehensive alternate system. It has also been harnessed as a taxonomy by the U.S. house plan industry.

⁹ The Lexicon of the New Urbanism: www.dpz.com

In 1994, the Congress for the New Urbanism was re-organized around nine task forces. One chaired by Andres Duany and Stefanos Polyzoides was chartered to establish a common nomenclature. This group proposed to create a Lexicon, conceived as an alphabetized list of relevant terms accompanied by their definitions.

This simple assignment soon foundered as it became apparent that most of the elements to be defined could be understood properly only in relationship to others. In authentic urbanism, as in true environmentalism, a tug on anything rustles something elsewhere. Rather than alphabetical order, urbanism called for its terminology to be classified as taxonomies of related terms.

This established, it seemed natural to order the terms within each taxonomy according to a declension inherent to each. For example, to array the open spaces according to environmental performance; thoroughfares by relative traffic capacity; and building types according to the ratio of commercial to residential function.

However, such disparate declensions, when they appeared in the Lexicon, did not support the organic conception displayed by authentic urbanism. They tended instead to confirm the isolation of each specialist -- those terms used by planners, traffic engineers, environmentalists, urban designers, landscapers, architects, land use attorneys, developers, bankers and marketing experts -- which has built the precarious Babel of modernist practice.

This was not considered a trivial problem, as this characteristic of modernist planning is the origin of its failure. Despite being implemented through a careful protocol that engages all the specialists, the communities that result are not properly blended. Each profession is permitted to impose its perquisites, with the result typically being a collection of urban elements rather than urbanism itself. Thoroughfares are designed exclusively for the projected traffic flow; the salvageable natural environment is scientifically circumscribed; shopping centers, office parks and residential enclaves are allocated in zoned isolation, to be developed by specialized builders; self-referential architects ignore the thoroughfares while ornamental landscapers ignore the buildings. Such places, called Edge Cities, may contain all the statistical elements of urbanism, but they are really cartoon versions of the real things.

The search for a theory to properly correlate the taxonomies yielded the chance re-discovery of the Transect. A Transect has heretofore been understood as an ordering system deploying a geographic gradient to arrange the sequence of natural habitats. This conception of the Transect proved to be extensible to the human habitat, as every component of urbanism also finds a place within a continuous rural-to-urban gradient (See Illustration 1). For example, a street is more urban than a road, a raised curb more urban than a swale, a brick wall more urban than shingled one, an allee of trees more urban than a cluster. And there is a full declension in between: even the character of public lighting can vary from metropolitan to rustic according to fabrication of streetlights from brightness and sculptured cast iron, to simple extruded pipe, rough wood posts, or the provision of nothing but the moon and the stars.

THE TRANSECT TODAY

Beyond being a system of classification, the Transect has the potential to become an instrument of design. The correlation of the various specialized components by a common

rural-to-urban continuum provides the basis for a new system of zoning, one that creates complex, contextually resonant natural and human environments.

There are benefits to such an integrated system of zoning. First, it would eradicate the self-referential standards of specialists. Second, each Transect zone would be an immersive environment, a place where all the component elements reinforce each other to create and intensify a specific character. Several such habitats within a single neighborhood would attract social diversity, in contrast to the vast homogenous tracts imposed by conventional zoning.

The most important contribution of the Transect as an underlying theory may be to implementation. Experience shows that New Urbanist projects are technically difficult to permit. The codes and standards now in place, despite their appearance of objectivity, recognize only the conventions of modernist urbanism. To introduce a complex community into such a system is akin to running a new computer program on an incompatible operating system -- requiring great effort to create an interface which is destined never to run optimally anyway.

The current dominant theory does not process authentic urbanism. An alternative based on the Transect, would. The Transect should be neither imposed nor protected, but confirmed through practice. With time, and the contributions of the many specialists, it could become as comprehensive as the current standard, as convenient to administer, and it would result in better places to live.

Andres Duany
Andres@dpz.com

Duany Plater-Zyberk & Company
Architects and Town Planners
1023 S.W. 25 Avenue
Miami, FL 33135
(305) 644-1023 tel.
(305) 644-1021 fax
www.dpz.com

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ILLUSTRATION 1: THE TRANSECT AS A MEASURE OF DIVERSITY

This diagram (a) shows a theoretical index of diversity for each Transect zone. Natural diversity is at the highest level in the Rural Preserve; and social diversity is highest at the Urban Core. The lowest level is the Sub-Urban where natural diversity, consisting of lawns and domestic animals, is relatively low; while social diversity, discouraged by the geography of zoning, is also quite low.

Conventional environmental indexing (b) has the Sub-Urban at the mid-point of a downward trend from the rural preserve to the urban core, with the dense, paved, core being the "least" environmentally sound with the Sub-Urban being superior because of the higher ratio of green. This interpretation is an incentive to sprawl.

ILLUSTRATION 2: THE FRACTAL IMPLICATION OF THE TRANSECT

The Transect is fractal allowing the creation of codes that are integrated at various scales: from regional plans, to community regulations, to architectural standards.

At the largest scale, that of the region, the Transect spatially allocates urban-to-rural geography spatially to accept varying degrees of development. There are environmentally-determined tiers that must remain as rural preserve, others that are suitable for hamlets (a.k.a. cluster development), or villages (a.k.a. TNDs), or town centers (a.k.a. TODs), and yet others that are for urban infill development.

At the middle scale, that of the community, the Transect can structure the urban fabric by allocating zoning categories that assure a declension of human habitats, some more urban than others, from the Sub-Urban, to the General, the Center and the Core.

At the smallest scale, that of building and landscape architecture, the Transect operates where the function, disposition, and configuration of the elements reinforce the rural to urban character of each zone. There is a great deal of difference between a split rail fence and wrought iron one, to give an extreme example. When used within inappropriate zones, design can undermine context, homogenizing options, as in suburbia.