As of March 1, 1993, we've received 110 renewals or new subscriptions for a total of $1,067, of which $297 were donations. To all readers who contributed beyond the base subscription rate, we are most grateful. Our 1993 financial situation is now secure.
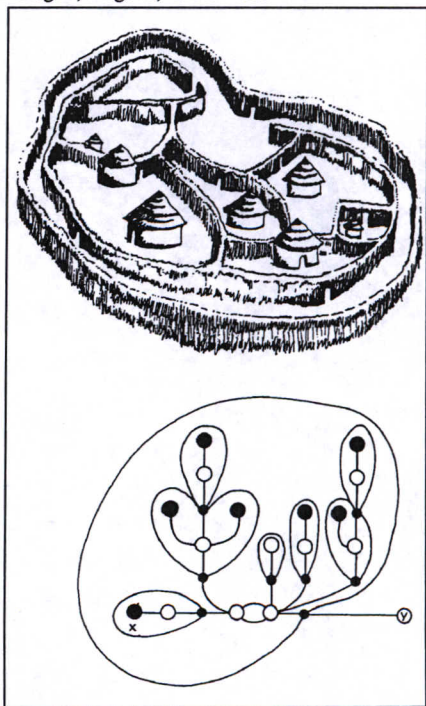
A central theme of this issue of *EAP* is the many qualities, both of people and world, that transform a physical, spatial, and geographical environment into a lifeworld, community, and place. Psychologist Louise Million reviews Gerald Pocius' *A Place to Belong*, a sensitive study of a Newfoundland fishing village and an invaluable model for place studies. We also feature essays and commentaries by environment-behavior researcher Herb Childress, architect Gary Coates, and *EAP* editor David Seamon, who explores the phenomenological implications of architect Bill Hillier's "space syntax," an innovative theory that examines the relationship between spatial and social qualities of community. We end with a poem by writer David Kherdian.

Please note that *EAP* Editor David Seamon will be on sabbatical during the 1993-1994 university year. After May 25, 1993, readers should send news, essays, reviews, and other contributions to:

> David Seamon
> PO Box 1345
> Hudson, NY 12534
> tel. 518-828-6706

The upper figure, right, illustrates a compound of the African Ik, while the lower figure illustrates the same compound in the notation of Bill Hillier's space syntax. He and Hanson explain: "In spite of [the compound's] density and contiguity, the syntax of boundaries, spaces, and permeabilities guarantees that the conduct of everyday life will exclude accidental contact with neighbours as neighbours. Whatever contacts may occur accidentally--and the axial breakup of the space guarantees that these will be as little as possible--are projected away from the dwelling itself"(Hillier & Hanson, 1984, pp. 132-33). See p. 10.

PHENOMENOLOGY CONFERENCES

The annual conference of the **Society for Phenomenology and Existential Philosophy** (SPEP) will be held October 21-23, 1993, at Loyola University in New Orleans, along with the annual meetings of the **Society for Phenomenology and the Human Sciences** (SPHS). SPEP contact: John Caputo, Philosophy Dept., Villanova Univ., Villanova, PA 19085. SPHS contact: Kenneth Lieberman, Sociology Dept., Univ. of Oregon, Eugene, OR 97403.

ITEMS OF INTEREST

The **Institute for Deep Ecology Education** announces a summer school in "Applied Deep Ecology," to be held August 1-4, 1993, in Philo, California. The program offers "skill building in eco-psychology, restoration ecology, [and] community intervention." Write: IDEE, Box 2290, Boulder, CO 80306 (303-939-8398).

The **Institute for 21st Century Studies** seeks "a future for the Earth that is sustainable socially, politically, economically, and ecologically." Toward this end, the group supports long-term studies, for both industrialized and developing countries, that "explore alternative strategies for sustainable development and security." Address: 1611 North Kent Street, Suite 610, Arlington, VA 22209-2111 (703-841-0048).

Geography of Religions and Belief Systems is a specialty group of the American Association of Geographers (AAG). The group's newsletter of the same name includes information and reports on such topics as sacred space, geography of pilgrimage, and environmental ethics and religion. Non-AAG individuals may become members for a fee of $5/yr. Address: Dr. Carolyn Prorok, Geography Department, Slippery Rock University, Slippery Rock, PA 16057-1326 (412-738-2048).

The **Seed Newsletter** is published by the New York chapter of the Institute of Business Designer's Council on the Environment. The newsletter provides information in regard to "social-ecologically effective design" as expressed in product use, manufacturing processes and design applications. For example, the summer 1992 issue features articles and news in regard to furniture refurbishing and remanufacturing. Write: Asher Derman, Seed Editor, 500 W. 43rd Street, #31B, NY, NY 10036 (212-268-4944).

Manna is a quarterly journal that "promotes ideals of a holistic view of truth and beauty." Specific areas of interest include nature, religion, and psychology, especially their interfaces as expressed through essays, poetry, and drawings. Write: Dr. Richard D. Kahoe, ed., Route 1, Box 548, Sharon, OK 73857.

MEMBERSHIP NEWS

John Steele is an archeologist and a practitioner of *aromatherapy*--"the use of scents and natural oils to promote psychological well-being and physical healing." He believes that human beings "are on the threshold of an olfactory renaissance. We are rediscovering the dimension of scent." He is co-author of *Earthmind* (Harper & Row, 1989). One recent article he has written about his work is "Environmental Fragrancing," in the *International Journal of Aromatherapy*, 4, 2 (summer 1992): 8-11. Address: 3949 Longridge Avenue, Sherman Oaks, CA 91423 (818-986-0594).

R. Murray Schafer, Canadian composer and soundscape educator, has published two new books: *A Sound Education*, which provides some 100 exercises in listening and soundmaking; and *Voices of Tyranny, Temples of Silence*, a collection of essays that considers the "creation and destruction of sound, the dialectics of the soundscape, music and the soundscape, and soundscape design." Both books are published by Arcana Editions, Indian River, Ontario K0L 2B0 CANADA.

Jeffrey Ediger is with the Institute of Communications Research at the University of Illinois at Urbana-Champaign. He writes: "My primary research interest is the phenomenology of communication, specifically listening.

"I became quite intrigued by [Gaston] Bachelard's poetic investigation of interior space as a poetic image of the human soul. At the time I was working closely with problems of perception in an attempt to confront the bias of western culture and thought in favor of sight to the neglect of hearing. The culmination of this was my identification of the door as a poetic image of the ear.

"As my interest has grown, I've begun to realize what an important source of insight the study of architecture as a form of embodied space provides for the study of communicative space.... As I have no formal training in architecture, I am eager to make contact with persons in the field so as to strengthen this interdisciplinary venture."

Ediger's address is: ICR, 505 East Armory Avenue, Champaign, IL 61820-6295 (217-333-1549).
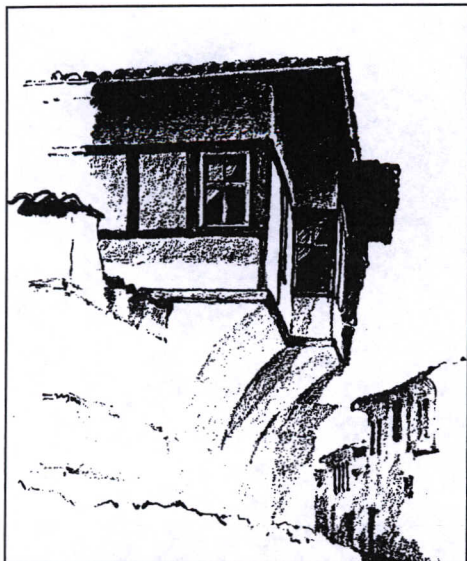
A guild-built house in northern Greece, from Ron Walkey's "A Lesson in Continuity," in *Dwelling, Seeing, and Designing.*

Ediger included the following description of a recent colloquium presentation,"The Turn of the Ear as a Door: Hospitality, Limnality, & Listening."

In the *Poetics of Space*, Gaston Bachelard develops themes relevant to a poetics of the house, which, he suggests, is "a tool for analysis of the human soul." He adds: "Our soul is an abode. And by remembering 'houses' and 'rooms', we learn to 'abide' in ourselves." Hence, it is not so much that the "home is where the heart is" but that "my heart is my home."

Emmanuel Levinas also recognizes the significance of the private domain as that place of a person's "being at home with himself" but emphasizes that the home is an inwardness, an interiority, which also borders on an exteriority. The private domain of one's being opens out to the world.

Following these phenomenological explications of home as a metaphor of spirit, I will explore the significance of the door in relation to communication. Just as the house has an "address" which helps to find it, so we "address" each other in speech. Our approach is by means of the door on which we knock.

My focus in upon the door which opens inward to receive the voice of the other, i.e., the "welcoming" of listening. As a point of departure, then: while the eye may be the "window of the soul," the ear is the door. I explore some "reverberations"of this metaphor in auditory perception and listening.

FIRST VOLUME IN SUNY SERIES

We hope that *EAP* readers will be interested in *Dwelling, Seeing, and Designing: Toward a Phenomenological Ecology*, the first volume in the State University of New York Press monograph series, "Environmental and Architectural Phenomenology." Edited by *EAP* Editor David Seamon, the thirteen chapters in this collection focus on the question of how people might see and understand the natural and built environment in a deeper, more receptive way. The chapters and contributors are:

- "Dwelling, Seeing and Designing: An Introduction," by David Seamon;
- "Modernity and the Reclamation of Place," by Edward Relph;
- Thoughts on a Non-Arbitrary Architecture," by Karsten Harries;
- "'If the Doors of Perception Were Cleansed': Toward an Experiential Aesthetics for the Designed Landscape," by Catherine Howett;
- "The First Roof: Interpreting a Spatial Pattern," by Murray Silverstein;
- "Toward an Architectural Vocabulary: The Porch as a Between," by Robert Mugerauer;
- "A Lesson in Continuity: The Legacy of the Builders Guild in Northern Greece," by Ronald Walkey;
- "Toward a Phenomenology of Landscape & Landscape Experience: An Example from Catalonia," by J. Nogué i Font;
- "Toward a Holistic Understanding of Place: Reading a Landscape Through Its Flora and Fauna," by Mark Riegner;
- "Different Worlds Coming Together: A Phenomenology of Relationship as Portrayed in Doris Lessing's *Diaries of Jane Somers*," by David Seamon;
- "Putting Geometry in Its Place: Toward a Phenomenology of the Design Process," by Kimberly Dovey;
- "Sacred Structures and Everyday Life: A Return to Manteo, North Carolina," by Randy Hester;
- "Designing for a Commitment to Place: Lessons from the Alternative Community Findhorn," by Clare Cooper Marcus;
- "Promoting a Foundational Ecology Practically Through Christopher Alexander's Pattern Language: The Example of Meadowcreek," by Gary J. Coates & David Seamon.

To guarantee the continuation of the monograph series, it is important that this first volume sell well. We hope *EAP* readers will consider purchasing the volume and request that their libraries place an order. Paperback price is $19.95 (ISBN 0-7914-1278-4). For ordering information, call 1-800-666-2211.

BOOK REVIEW

Gerald L. Pocius, 1991, *A Place to Belong: Community Order and Everyday Space in Calvert, Newfoundland.* Athens, Georgia: University of Georgia Press. ISBN 0-8203-1330-0.

As a phenomenological psychologist, I hold to the view that a coherent sense of the universal in human life emerges through the particular instance--through the concrete rather than the abstract. In folklorist Gerald Pocius' *A Place to Belong*, this particular instance is Calvert, a harbor village nestled in the rocky coastline of eastern Newfoundland's Avalon Peninsula, and home to some five hundred people whose livelihood depends on the waters of the Atlantic. Pocius seeks to explore this community--the title's "place to belong"--as it can be interpreted as a living relationship between a particular geographical landscape and the daily lives of its inhabitants. In seeking to highlight this intimate exchange between people and their world, Pocius' book is an important contribution to the study of place.

Subdivisions of Calvert as understood by its inhabitants.

Pocius's commitment to study the transformation of geography into inhabited place is evident in his method. As a regular visitor to Calvert for over a decade, he participated in the village's daily life, watching and doing what the people of Calvert do, listening to what they had say about who they and their place are. Throughout the book, I was drawn further into the life of Calvert via a wonderful series of hand-drawn maps and black-and-white photographs.

Pocius begins his "reading" of Calvert by "going back in time." He seeks to situate the village in a historical as well as a geographical context. Next, he provides a concrete and detailed examination of the "social activities that contribute to how space in the community is actually produced, with specific units involving particular kinds of knowledge and work." I found his discussion of gender difference particularly interesting. Finally, Pocius explores what he calls "consuming spaces"--the emergence of public and private domains at various levels of place as, for example, domestic interiors and exteriors.

Besides being a well written investigative study, *A Place to Belong* is an enjoyable read because it tells the story of a community so clearly. My only regret is that Pocius hesitates to follow through on the understanding that place is a constituted phenomena and not, for example, a series of "units" that are "p r o d u c e d." Periodically, his language implies an objectification of place that I do not think he intends.

The theoretical outcome of Pocius's work is a critical stance towards the current scholarly tendency to draw distinctions between traditional and modern (as well a postmodern) on the basis of artifacts: "We often want objects to be the ultimate communicator of social relationships in the culture we are researching." This perspective is both abstract and also the view of an outsider. In great contrast, insiders--those who belong--see artifacts as simply not that important. In regard to new machinery, building styles, commercial products and so forth, the people of Calvert do not "have to distinguish between leaving the past behind or rejecting the new. Instead both are possible, eliminating any cognitive necessity for creating categories like traditional and modern."

People in Calvert can live in both worlds because, *for them*, the two are one. For example, they see
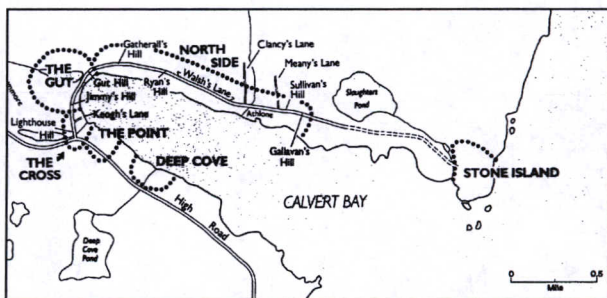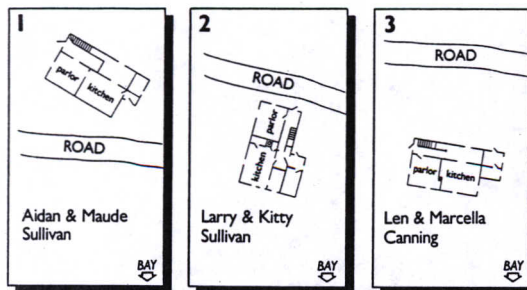
The same house type but different orientation to harbor and road.

nothing contradictory about living in standardized, federally-subsidized bungalows yet continuing to participate in the traditional Christmas ritual of mummering; about never locking their doors yet permitting instant access to all visitors, neighbors and strangers alike; about the fact that much of Calvert's land is neither private nor federally owned ("crown land"), but of uncertain ownership status that allows it to be used in an informal but efficient way.

Pocius's work illustrates that inhabited landscapes change over time. New objects and ways of doing things are taken into everyday living. In Calvert, a microwave oven and a wood cook stove belong in the same kitchen, a half ton "pickup" truck and a horse-drawn "slide" sit side by side in the yard. It is this living process, like a fabric woven and rewoven over time, that emerges as a seamless whole one calls home--a place to belong.

Louise Million
10707 60 Avenue
Edmonton, Alberta T6H 4S7
Canada
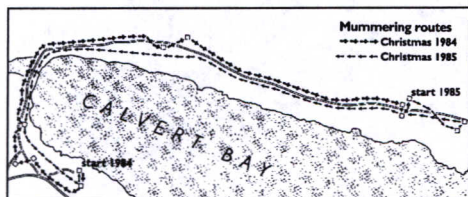
Houses visited by one group of mummers, 1984 and 1985.

FROM A PLACE TO BELONG: "THE ORDER THAT MAKES ALL PLACES FAMILIAR..."

Calvert residents see the familiar around the harbour; close to the edges on cleared patches of land the houses nestle, built along the single road that skirts the water's edge. One can walk along this road...for three or so miles and see all the houses that make up the clustered settlement pattern of the community. One can see and be seen, for faces will peer out of windows to observe the passerby, whether stranger or friend. House is located close to house, stable to stable, and house to stable. Nearer the water, old buildings where fishing gear is stored still stand, some in good repair, others not.

To those unfamiliar with the place, the landscape seems confused; the order of experience often looks like chaos to an outsider. The order of ownership appears to have given way to the disorder of use: stable in the front yard of a house, house close to another with space to spare. No clear lines exist, no clear beginnings or ends, just meadows, gardens, lawns, paths; cattle here, sheep there, sometimes penned in, other times roaming the lanes. Horses graze on the roads, cows near houses, waiting to be milked....

Yet, within this apparent confusion, residents know the order that makes all places familiar. Men walk into the woods, cut for several hours, and then eat a hearty lunch before resuming their work. Out in the harbour, a boat steams quickly to its own fishing space even in the fog, and men reach down into the icy water to slowly haul a net filled with cod.

Visitors are frequent, always arriving at the back door, where entry is made without knocking, simply a few steps into the kitchen. Kitchens are warm, noisy, crowded, filled with many people and few objects. And the stranger is usually ushered into the parlour: cold, dark, cluttered with things, not persons, a space with formal chairs, formal conservation, formal drinks, where ancestors stare silently at visitors....

Calvert is this: cluster settlement, crowded kitchen, cluttered parlour. Fields are worked here and there, friends visit next door or across the harbour,

wood is cut and left in the forest for half the year--untouched. Travel is by foot, by horse and sled (slide), by pickup. Teenagers walk the road to visit, to court, to watch others. The textures of artifacts quickly change as one moves from outdoors to indoors: fences with bark still on the rails, a painted house facade, shiny varnished ceilings.

The sharing of a cluster of spaces links those who "belong" to "Calvert: spaces filled with the human acts of entertainment, solemnity, and subsistence. Mr. John Ryan rhymes off the recitation about mummers as a bottle of black Demerara rum travels the spotless kitchen. Aidan Sullivan is waked in his front room, a stream of neighbors, relatives, and friends wishing the family condolences... But others repeat humorous anecdotes about Aidan: he would no doubt sit up in his coffin if his old nemesis, politician John Crosbie, came to pay respects. Tom Sullivan squeezes the last drop of milk from the family cow Rose, who shifts impatiently during the daily ordeal that takes place in the family's stable just a few short steps from the house.

The land and the sea are still crucial for Calvert's daily life. For the shiny kitchen wood stoves, young men cut black spruce along the steep faces of Cape Boyle Head in the fall of the year; families pick partridge berries near the marshes or on the islands in the harbour...; brothers and sisters both lend a hand to make the hay on hot July days.

In short, Calvert..., to the stranger, is a bewildering mixture to the stranger of rooms, yards, fields, and forests. Daily experience fragments for the scholar into categories like "artifact" or "space", but for Larry Sullivan hauling wood with horse and slide on a snowy November morning, knowledge is not abstract but an experiential series of familiar places: the morning warmth from the crackling stove and bubbling tea, a step to the outside and the cold air, a few steps to the stable where the horse waits, and finally the ride...to the patches in the woods where good timber can be cut.

Where one belongs to, the place of home, is fundamentally a series of emotionally based meaningful spaces (pp. 3-7).

LIFE ON EARTH:
SAN FRANCISCO, OOSTBURG, AND THE
FIGURE-GROUND REVERSAL

Herb Childress

Herb Childress is a doctoral student in Architecture at the University of Wisconsin at Milwaukee. His research focuses on interpretive ways to read landscape and place, particularly in rural environments. Address: 1706A E. Belleview Place, Milwaukee, WI 53211.

While walking to work in San Francisco, I used to make a game of imagining the landscape as it might have been two or three hundred years ago. Among all cities, San Francisco might seem to lend itself most readily to such a pastime. The steep hills are still prominent, the ocean and bay envelop the city on three sides, the wind and fog are always close at hand, and the native grassland and shoreline marsh systems are evident and vital parts of nearby places.

And yet I found it very difficult to dream away the city and see deer trails on the grassy hillsides--all I could see were buildings and cars and overhead trolley guides. I had played this game elsewhere with great enjoyment and assumed my blockage was due

to the height and density of the never-ending skyline. It wasn't until five years later, while studying the landscape history of a small Wisconsin village, that I discovered why San Francisco was impervious to my dreams: It isn't on the Earth.

Earth, or more specifically the Earth's surface, is not a part of the San Francisco landscape. Only occasionally does a patch of green emerge from the concrete, and when it does it is as likely to be on a penthouse or atop a parking garage or sunken below sidewalk level as it is to be "on the ground." Gardens are found almost as often indoors as out. Because of this unpredictability and rarity, all plantings become disconnected from the Earth: yards, parks--even

Olmsted's enormous and lovely Golden Gate Park-- are simply set into fabricated niches in the hardscape, spaces that were cut out of the city grid and filled with plants as though they were window boxes. Soil and plants are the artificial elements that occasionally interrupt the city's natural concrete datum.

This horizontal irrelevance of the Earth is accompanied by a vertical disconnection as well. We go below the street to catch trains and trolleys, the sidewalk opens up for cartons to be shuttled downward, and the "ground floor" and plaza gardens of the Alcoa Building are on the third floor roof of a parking garage. Surprisingly, this feeling of disconnection is validated, even strengthened, whenever you get a chance to see below grade. When a building is demolished in the center of the city and the wreckage is excavated down twenty feet or so below sidewalk level, the datum exposed is still human in origin--party walls of adjacent buildings, utility conduits, retaining braces and struts and stanchions, almost anything but dirt. David Macaulay's wonderful civil-engineering picture book, *Underground* (Houghton Mifflin, 1976), illustrates exactly the experience of surface life in San Francisco: A thin crust of paving hovering over a plenum filled with pipes, tunnels, utilities and storm drains. Earth is nonexistent; the sphere is a hollow, engineered shell.

There is an old joke about an Englishman in India who asks a local resident about Hindu cosmology. The world rests on the shoulders of an elephant, he is told. "What does the elephant stand upon?" "The elephant stands upon the back of a great turtle." "And what does the turtle stand upon, pray?" "Oh, after that, sahib, it is turtles all the way down." In San Francisco, one could take an auger and drill down seemingly for miles and miles and retrieve nothing but the lost evidence of human occupation. In short, city all the way down.
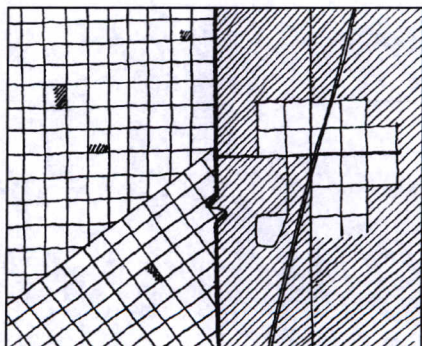
REVERSAL AND SOLID EARTH

Oostburg, Wisconsin, is a farming village of some 2,000 people about 45 miles north of Milwaukee. There, the city's modes of object and ground are reversed. Buildings and roads are laid cautiously onto the soil in small encroachments. Earth is solid in Oostburg, unlike the hollow ball of the city. The ground is dense, to be plowed or shoveled only at great expense of time and strength. The few marks made by humans have merely been painted onto the surface. It's easy to see Center Street as a six-mile-long piece of black tape pulled taut and laid from township line to township line, and just as easy to imagine it all gone, the land unmarked, covered with blackberries and marshy swamps.

Human occupation is a tenuous act in the country, marked by small, sometimes timid, moves to occupy a portion of the Earth. The city builders have more confidence (some would say chutzpa), redefining the coastline with landfill, building up into the sky and down through the crust re-forming the face of the planet.

But what does it mean to live on Earth if Earth is nowhere to be seen? Is one's concept of Earth related to urban and rural styles of living? Cultural landscape writers show how human decisions about the environment, both built and natural, reflect the values and beliefs of the builders and inhabitants. What does it say about modern urban culture, then, when the ground itself becomes an arbitrary feature of the cityscape? It would seem to be no coincidence that we speak of homeland and native soil, of people being rooted or well-grounded.

With all of the current work on place attachment, including my own studies of rural villages, it will be interesting to see whether place narratives reflect the respective degrees to which the horizontal and vertical surety of Earth as datum has been overcome or replaced by the engineered uncertainty of concrete as datum.

REFLECTIONS ON RESETTLING AMERICA

Gary J. Coates

In 1981 I edited a book, *Resettling America: Energy, Ecology and Community* (Andover, MA: Brick House), which argued that industrial civilization embodies a self-centered way of life based on materialistic values, inaccurate descriptions of reality, and institutionalized forms of exploitation of the earth and the majority of its peoples.

In my introductory chapters, I concluded that urban-industrial civilization is inherently unsustainable and argued that, only by changing our current values, institutions and settlement patterns, could we make the transition to a meta-industrial society in which present human needs could be met without diminishing the prospects of future generations.

Since peoples' problems often come home to roost in the places where they live, I argued that the great task was to create ecologically sustainable buildings, towns, cities and bioregions powered by renewable forms of energy. I called for a "resettling of America" based on the principles of equity, justice, cooperation and the sacredness of all creation.

The articles in *Resettling* provided case studies demonstrating how cities could be destructured into more self-reliant neighborhoods and how rural new towns and sustainable agricultural landscapes might be created. Taken as a whole, the book showed that it is both necessary and possible to integrate gracefully our architecture and human settlements within the energy flows, material cycles and biological rhythms of the natural world.

THE CULT OF NARCISSUS

When *Resettling* was published, I believed that we were poised on the brink of such a radical transformation of nature, self and society and that such a book could help inform and inspire these changes. I believed that the shifts envisioned in the book offered a way to avoid the approaching social, economic and ecological catastrophes.

With the vision of hindsight, I realize that I completely underestimated our compulsive commitment to the addictive and self-destructive rituals of the consumer society. Rather than a time of social and spiritual renewal, the 1980s became the decade of Reaganomics--an era in which materialistic greed and the denial of ecological limits combined to create
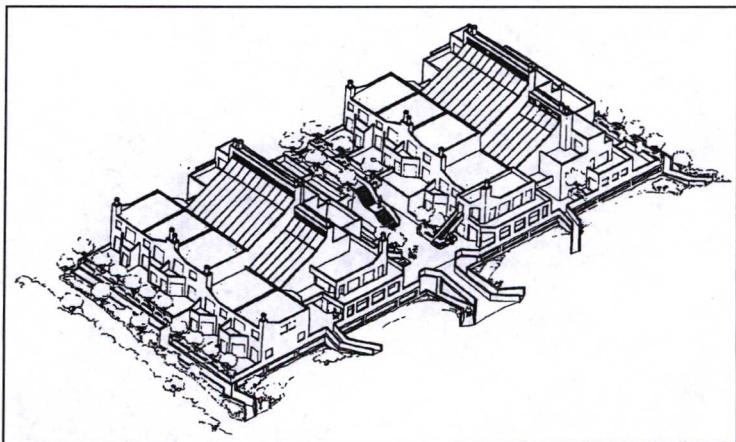
From *Resettling America* (p. 324): A design by Van der Ryn, Calthorpe & Partners for solar-atrium apartments that provide 100 percent solar access, private yards, and shared open space.

a kind of collective trance state.

America was resettled, yes, but according to the logic of Narcissus, the separate and self-centered self. Rather than creating the pedestrian-scaled, locally self-reliant, and ecologically-derived cooperative communities called for in *Resettling*, we built what journalist Joel Garreau has called *Edge City* (Doubleday, 1991)--a sprawling post-industrial landscape of corporate campuses, regional shopping malls and residential enclaves segregated by age, race, lifestyle, and income.

In these fragmented landscapes where the majority of Americans now live and work, the monopoly of automobile, airplane, television, and electronic communication is nearly complete. Distances are so great and path and pod-development patterns so daunting that walking as a means of transportation finally has become obsolete, although jogging trails and fitness clubs abound.

As these edge cities solidified, however, the health and viability of the earth's living systems of the earth worsened, outstripping even the most pessimistic predictions I made in *Resettling*. We have entered an unprecedented era of ecological and social instability that threatens the continuation of life on this planet as we now know it.

A REVOLUTION IN CONSCIOUSNESS?

In a speech to the United States Congress in 1990, Vaclav Havel proclaimed that:

> Without a global revolution in the sphere of human consciousness, nothing will change for the better in the sphere of our being as humans, and the catastrophe toward which this world is headed--be it ecological, social, demographic or a general breakdown of civilization--will be unavoidable.

While we still have the power to create a sustainable society that works for all the world's peoples, it is obvious that we have failed to demonstrate the will to do so. I no longer believe that a revolution in human consciousness will occur as a way of avoiding the catastrophes that now appear inevitable. During the 1980s, we lost precious time in which to build a bridge to a sustainable future. Every day that passes without fundamental change only hastens and deepens the looming crisis.

Having chosen not to prevent the catastrophes that face us when we had the chance, we are left with the question of what to do when things really do get bad. Will we transcend ourselves to realize our highest possibilities, or will we succumb to our worst tendencies? Or, will we see some strange mix of both possibilities in a world turned suddenly upside down?

Will we, for example, find ways to build self-reliant local communities when skyrocketing costs and declining supplies of fossil fuels combine to disrupt the global economy? What will be our response when wars over scarce resources (already begun) become chronic threats and pervasive realities? In short, what will happen when the current society finally collapses under the sheer weight of its life-denying tendencies? This is the question everyone alive today will have to answer.

If we do experience Havel's spiritual revolution, it will probably occur not as a way to avoid catastrophe but, rather, as a way to grasp that catastrophe's meaning and to transcend its motives and implications. Perhaps in the face of the terminal crisis of our technological society, we might finally understand that there is no separate self--that the independent ego we have so hard-programmed into our architecture and communities is a fiction and form of suffering.

Perhaps, through experiencing the almost unimaginable effects of the disruption of the whole planetary web of life, we shall finally understand that what we do to each other and the earth, we also do to ourselves. We might come to see that the pursuit of happiness through the unlimited consumption of material goods and the addictive acquisition of experience is doomed to fail. We might even realize that this search itself threatens our continued existence as a species on this planet.

Perhaps, by grace, we might learn to release our fearful attachment to the bondage of self so that we can simply stand free, capable of expressing love in all relations. Only then will a full human life be possible and only then can we begin to create the kind of world envisioned in *Resettling America*.

THE LIFE OF THE PLACE:
A PHENOMENOLOGICAL COMMENTARY ON
BILL HILLIER'S THEORY OF SPACE SYNTAX

David Seamon

One of the most important 20th-century works on urban life and design is Jane Jacobs' *The Death and Life of Great American Cities*.[1] This book, an implicit phenomenology of the urban lifeworld, argued that streets are the heart of the city and should be alive with pedestrian activity that accepts both residents and visitors, insiders and outsiders. Jacobs argued that the foundation for a vital street life is *diversity*--a lively mix of land uses and building types that supports and relies on a dense, varied population of users and activities. She also believed that integral to diversity and lively streets are particular qualities of the *physical* city--for example, doors directly entering the street, small walkable blocks, and the opportunity for pedestrians to turn corners frequently.

Since the mid 1970s, a group of researchers at the Bartlett School of Architecture and Planning, University College, London, have provided powerful conceptual and empirical support for Jacobs' more intuitive claim that the physical-spatial environment plays an integral part in making active streets and an urban sense of place.

Largely the work of architects Bill Hillier and Julienne Hanson, this research examines the relationship between physical space and social life, or, more precisely, "the social content of spatial patterning and the spatial content of social patterning" (Hillier & Hanson, 1984, pp. x-xi). Most often, this work has come to be called Bill Hillier's **theory of space syntax**, the phrase used in this commentary.

Unfortunately, most environmental designers and scholars have ignored Hillier's work or have conveniently discarded it through the inaccurate charge of "environmental and architectural determinism." In fact, Hillier's work is equal in conceptual and practical power to Jacobs' urban vision and may well be more significant because Hillier appears to provide incontrovertible evidence that a settlement's particular spatial layout contributes to the kind of place and community which that settlement becomes.

If this conclusion is true, Hillier's work points toward two revolutionary possibilities: first, that urban designers must deal with space before they deal with form; second, that in dealing with the importance of space, designers must understand the settlement's overall pathway network first. Only then will they be rightly able to establish the best layout for the particular part of the city being designed or reworked.

Some readers familiar with space syntax may wonder why a phenomenological publication would wish to review Hillier's work, since it is positivist conceptually and emphasizes aggregate measurement, quantitative validation, and societal-spatial structures that appear to be at least partly grounded in a Marxist-structural stance.

There are at least three reasons for phenomenological interest. First, Hillier demonstrates once and for all that the built environment, particularly through its spatial qualities, plays a significant role in supporting a lively street life. Second, Hillier and his colleagues use quantitative evidence in such a way that the student can see clearly why the relationship between physical and human worlds makes such a difference and why particular city streets and street networks are more or less active.

Third, Hillier identifies the type of street network

that supports a lively public life. A phenomenological complement to Hillier's work would examine this type of street network *experientially* in terms of the lifeworld and everyday experiences that are supported, especially the relationship among physio-spatial qualities, pedestrian movement, chance encounters, informal sociability, and formal social structures. In short, Hillier's work goes far in helping one understand how the dynamic between environmental order and serendipity fosters place and community.
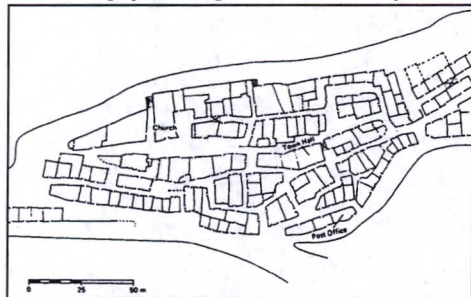
VILLAGES & BEADY RINGS

These phenomenological issues will resurface later, but first it is useful to summarize Hillier's central argument. All of his work seeks to explore the relationship between social pattern and the built environment. He wonders if there is some "deep structure of the city itself" that contributes to urban life (Hillier 1989, p. 5). Hillier's interest in this "deep structure" at least partly began in southern France as he studied village layouts there--for example, the small town of Gassin in the French region of Var (map, above). Hillier wondered whether there was any sort of underlying spatial order to Gassin, or was its physical arrangement largely determined by *non*-physical socioeconomic factors like requirements of livelihood and structures of family and kinship?

To answer this question, Hillier examined several villages of the Var region for underlying commonalities. He found the following:

1. All building entrances face directly onto the village open spaces; thus, there are no intervening boundaries between building access and public space.
2. The villages' open spaces are continuous but irregular in their shapes; they narrow and widen, like beads on a string.

3. The spaces join back on themselves to form a set of irregularly shaped rings.
4. This ring structure, coupled with direct building entry, gives each village a high degree of permeability and access in that there are at least two paths (and, typically,

several more) from one building to any other building.

In time, Hillier's research group studied large numbers of traditional settlement patterns throughout the world and concluded that many of these places incorporated the same four features present in Gassin and other French villages.[2] Because of the irregularly-shaped spaces linked by irregularly-shaped rings, Hillier came to call this recurring spatial pattern the *beady-ring structure*.

A COMPUTER SIMULATION

This necklace pattern is the first central concept in Hillier's theory of space syntax. The next question he asked is why this beady-ring structure recurs. Particularly, he wished to establish whether or not there are some set of geometric rules that, *in themselves*, contribute to the recurring pattern.

To answer this question, Hillier and his colleagues developed a computer-simulation model that, through statistical probabilities grounded in simple spatial rules, mimicked the beady-ring structure of real-world settlement layouts. These spatial rules were two:

(1) a one-doored building whose entry attaches to an equally-sized unit of open space;
(2) the random aggregating of these building-space "doublets," but with the stipulation that each new doublet attach itself to either a building side or an open side of a doublet already in place.

The figure on the next page illustrates the first four stages of one such simulation. One notes that, by the fourth stage, a beady-ring structure has appeared.[3] Through this computer simulation, Hillier argued that he had established rules of the "urban object itself" (Hillier 1989, p. 5). In other words, he claimed that

the beady-ring pattern has self-generated through a set of simple, underlying geometric events. *Morphology* is the word Hillier uses to describe the underlying spatial coherence that provide settlement layouts with an underlying geometric pattern and connectedness.
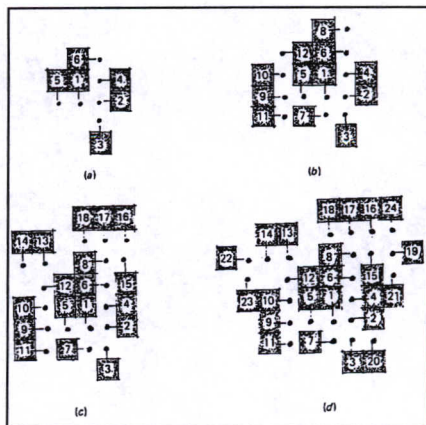
At the start, one must realize that this geometric coherence *runs beneath* a spatial network like the hand beneath a glove provides its organized form. This geometric coherence is not additive but synergistic: invisible

and whole throughout, it is *always already there* to support one dynamic of street movements rather than some other. We shall see shortly that one problem of the modern Western city, according to Hillier, is that designers and planners have allowed this invisible fabric to deteriorate or to collapse. The result is lifeless streets and districts.

AXIAL AND CONVEX SPACES

Next, Hillier asks how this morphological regularity can be understood in terms of mapping and measurement. At the start, one faces a difficult recording problem: in terms of everyday function, a settlement's open space is one continuous unit but, formally and spatially, this network is composed of different sorts of parts--streets, alleys, squares, plazas, and the like. How can this unwieldy collection of spaces be identified and measured without destroying the seamless nature of the settlement's open space?

In dealing with this problem, Hillier makes several major contributions toward a language of settlement morphology. Here, I want to focus on his identification of two contrasting types of spaces--*convex* and *axial*--because they are the empirical base for his more sophisticated spatial measures.
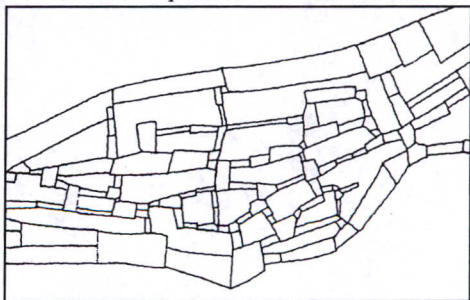
First, there are what Hillier calls *convex spaces*, which relate to the *two*-dimensional nature of open space and are best exemplified by parks, plazas, and squares. Convex spaces can be identified geometrical-

ly by areas inside of which no line drawn between any two points goes outside the area. This geometric quality means experientially that all points within a convex space can be seen from all other points, thus, for example, all building entrances on a convex space will be visible from all other entrances on that space.

In that they can have considerable breadth in relation to width, convex spaces relate to the *beadiness* of the beady-ring structure. By identifying the least number of convex spaces accounting for all public outdoor space (including streets and pathways), one can construct a *convex map* like the one below for Gassin.

In contrast to convex spaces are what Hillier calls *axial spaces*, which relate to the *one*-dimensional qualities of space and are, therefore, best illustrated by long narrow streets. An axial space can be represented geometrically by the maximum straight line that can be drawn through an open space before it strikes a building, wall, or some other material object. An *axial map*, therefore, is made by drawing the smallest set of straight lines that pass through each convex space and link all pathways together as in Gassin's axial map (next page, top). In terms of the beady-ring structure, axial spaces relate to its *stringiness*.
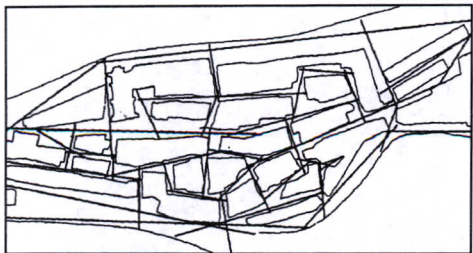
AXIAL & CONVEX PHENOMENOLOGICALLY

Hillier's depiction of axial and convex spaces is important phenomenologically because their identification provides important insight into experiential dialects like movement/rest, inside/ outside, and dwelling/journey.

The phenomenological interest in axial spaces is their relationship to lived-movement from place to place within the settlement and their role in contributing to one's awareness of the settlement *as a whole*. How many ways are there of getting from one place to another in the settlement and which routes are used for what trips for what reason? What are these various traversals like experientially? For example, what and whom does one encounter on these various traversals and at what points and places does he or she linger, hurry, look, notice, enjoy, become concerned, fall into obliviousness, and so forth?

In contrast, convex spaces more often relate experientially to rest, locality, and events-*in-place*. Long, narrow streets possess convexity and may have some sense of place, but their one-dimensional axial shape more typically involves them with movement and circulation flow. On the other hand, "fatter" convex spaces are traditionally places that support events and occasions--for example, the square where older people sit or children play; the piazza where the weekly market is held. If axial spaces more often relate to the experiential exchanges and interactions among districts and neighborhoods of the settlement as a whole, then convex spaces relate more often to the nature of these parts, districts, and neighborhoods as they are within themselves, particularly as they evoke a sense of place and locality.

In seeking to understand how the buildings shaping a convex space relate to that space in terms of move-ment and potential encounter, Hillier draws on what he calls an *interface map* (below), which uses lines and dots to identify the spatial relations between building entries (solid dots) and convex spaces (unfilled dots).
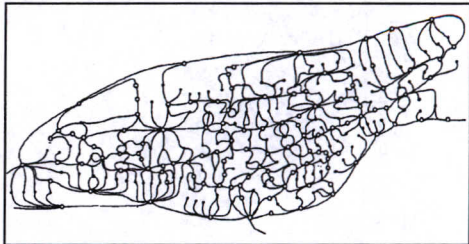

If one studies Gassin's interface map above, one notes that nearly all convex spaces have direct access to at least one building entrance. Gassin's pattern demonstrates that the same spaces that serve to link the settlement together as a whole (or *globally*, to use Hillier's word) can also serve an important local value in that there is an immediate spatial relation between individual buildings and the adjacent public spaces of street or square. This direct abutment is what Hillier calls *shallowness*--a situation where one can move directly from one space to another. The opposite possibility is *depth*--the situation where, to get from one space to another, one must pass through some other space or spaces (as with the Ik compound illustrated on p. 1).

Hillier points out that in modern urban design, there is typically much less shallowness than in cities of the past (see box, next page). One result is that the fluidity between building entries and street is less and there are potentially fewer encounters--both between localites and localites, and localites and outsiders. This fact is crucial, phenomenologically, because it immediately suggests one reason why so many urban districts today possess little street vitality. I want to make more of this point below, but first it is important to see how Hillier gives more precision to axial and convex spaces through creative mathematical descriptions.
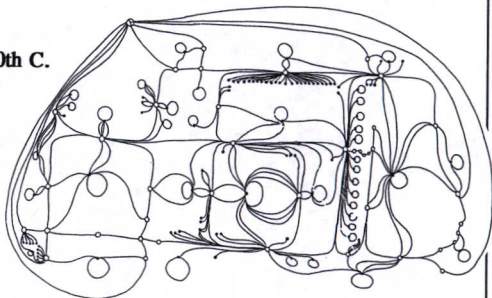
LONDON'S SOMERSTOWN: FROM WHOLENESS TO FRAGMENTATION
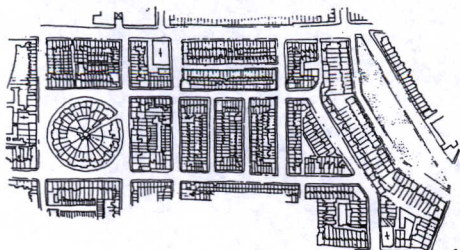
19th C.
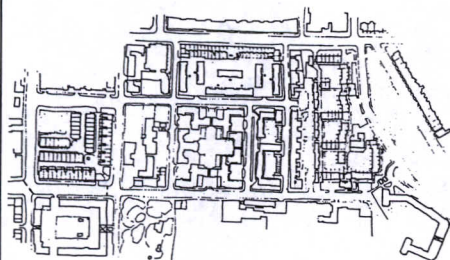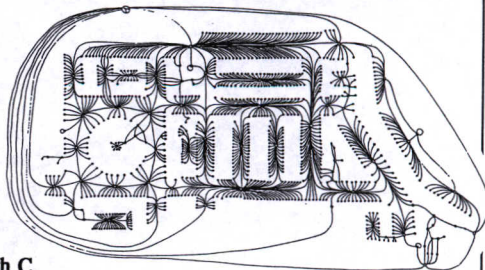
20th C.

These maps from *The Social Logic of Space* illustrate the shifting space syntax for London's Somerstown, a 19th-century residential neighborhood (upper maps) gradually redeveloped in the 20th century (lower maps). In the dramatically-different interface maps, right, one is immediately struck by the great shift from shallowness to depth in terms of the number and manner of the building entrances' relationships to open spaces and streets (in the lower map, a dot with a loop joining the dot to itself represents the boundary of each estate, several of which include high-rise buildings). Hillier and Hanson explain:

> [In 20th-century Somerstown] the structure of open space everywhere intervenes...between the small isolated groups of dwellings, whereas [in the 19th century] the spaces constituted by the--much larger--groups of dwelling were continuous....
>
> The problem of the modern urban surface lies in its complete reversal of virtually every aspect of the spatial logic of urban forms as they evolved. The [19th-century] system that was shallow from the outside has become remarkably deep [in the 20th century]; also, the system that was distributed, or ringy, has become more and more treelike, or nondistributed, as movement occurs from the streets inward.
>
> In spite of its superficial appearance of greater order, the modern surface is characterised above all by a loss of the global structure that was so pronounced a property both of an organic town and an area of piecemeal redevelopment in 19th-century London. It is extraordinary that unplanned growth should produce a better global order than planned redevelopment...
>
> The inference seems unavoidable that traditional systems work because they produce a global order that responds to the interface of inhabitants and strangers. The principle of urban safety and liveliness is a product of the way both sets of relations are constructed by space. Strangers are not excluded but are controlled....The controlled presence of passing strangers polices space, while the directly interfacing inhabitants police the strangers. For this reason, 'defensible space' based on exclusion of strangers and only on surveillance of spaces by inhabitants can never work (p. 138, p. 140).

MEASURING LIVELY AND QUIET PLACES

A central criticism of Jane Jacobs' conception of the city was that her evidence was anecdotal and that she offered no precise empirical proof for her claim that the physical environment played a pivotal role in supporting urban diversity and lively streets. One of Hillier's most important contributions to place studies is his inventing clear cartographic and mathematical procedures for recording axial and convex spaces and for establishing empirical measures as to how particular spaces do or do not establish larger movement and interaction patterns, both locally and city-wide.

Axial, convex, and interphase maps provide one example of Hillier's inventiveness and, in fact, establish the primary empirical base around which he constructs a wide range of numerical measures and indices to pinpoint both local and global patterns for a particular settlement.

Because an active street involves movement and flow, Hillier is particularly interested in measurements that will identify which pathways in a settlement make themselves most readily accessible to other pathways and thereby integrate the locality with the wider surroundings. At the same time, Hillier devises measures to identify the pathways that make themselves less accessible to their surroundings and thereby, typically, have less street activity.
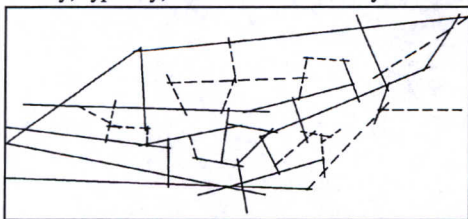
Hillier's quantitative procedures for establishing measures of integration and segregation are sophisticated, and the interested reader is directed to chapter 3 in *Social Logic* (Hillier & Hanson, 1983).[4] For the less gifted mathematically, there are maps that distill these calculations spatially. For example, the above map of Gassin that summarizes the streets of greater and lesser activity as Hillier has identified them through his statistical procedures [49]. The streets marked by solid lines depict the village's *integration*

core--those streets that most powerfully draw the movement of other streets to themselves and, therefore, are alive with commerce, street activity, and public life. In contrast, the hatched lines indicate Gassin's *segregation core*--the streets that deflect activity away from themselves and, therefore, indicate pockets of quiet and seclusion.[5]

THE DEFORMED WHEEL

Phenomenologically, these cores have crucial significance because they provide one empirical indication of the degree of activity for particular parts of a place. Hillier next asks if these lines of more and less activity indicate some larger morphological structure for the settlement *as a whole*. In fact, after studying the integration and segregation cores of many settlements, both Western and non-Western, Hillier concludes that such a larger global structure exists, and he calls it the *deformed wheel*. This discovery is perhaps Hillier's greatest contribution to a phenomenology of place and environmental activity.

The rim, spokes and hub of this wheel are the pathways with high integration values (in the map, left, the solid lines). Typically, these streets are the most used by residents of the settlement and are also the main entry routes into the settlement and therefore heavily used by strangers. Also, most of the largest convex spaces and location-dependent uses, like shops, are on the streets of the deformed wheel.

From a phenomenological perspective, what is perhaps most striking about the deformed wheel is that, in the interstices between the most active streets are *the most segregated, less used pathways* (in the map, left, the hatched lines). Hillier concludes that, for many traditional settlements, the most active areas abut the most quiet areas: the places of street life, publicness, and strangers' mixing with residents are a short distance from the more private areas used mostly by residents only. Movement and rest, activity and place, difference and locality lie apart yet together! Hillier explains:

By linking the interior of the settlement to the periphery in several directions--and always in the direction of the main entrances to the settlement and the neighboring towns--the effect of the integrated lines is to access the central areas of the town from outside, while at the same time keeping the core lines close to the segregated areas, in effect linking them together. Since the

core lines are those that are most used by people, and also those on which most space-dependent facilities like shops are located, and the segregated areas are primarily residential, the effect of the core is to structure the path of strangers through the settlement, while at the same time keeping them in a close interface with inhabitants moving about inside the town. The structure of the core not only accesses strangers into the interior of the town, but also ensures that they are in a constant *probabilistic* interface with moving inhabitants. Indeed, it seems reasonable to propose that the spatial structure of the settlement exists in order to construct this interface (Hillier, 1989, p. 11).

ENVIRONMENTAL DETERMINISM?

For many architects and environment-behavior researchers (many of whom continue to be caught up in the dubious conceptual assumption that the built environment is but a small dependent subset of "culture"), Hillier's space syntax has not been popular because it suggests that the physical environment plays a central role in making human worlds what they are. In this suggestion perhaps lies Hillier's most courageous contribution to design and to environment-behavior research: *he has been brave enough to raise again the question of how, exactly, the material and human worlds are related*.

Hillier is well aware that he is susceptible to deterministic charges and, throughout his work, states his case with great care. The heart of his argument is that a settlement's physical environment sets up, largely through its pathways, a spatial field, the nature of which has bearing on the relative amount of human movement, interaction, and encounter. Physically, this spatial field is expressed through the deformed wheel and the pockets of quiet within its interstices.

In one particularly encompassing passage, Hillier dismisses the argument that the material environment plays no role whatsoever in human life. He then pinpoints the way in which space syntax provides a way to understand the significance of the physical world:

I argue that the belief that spatial form has *no* effects on people and society is patently absurd. If this were the case then we could design every monstrosity without penalty. My proposal is that the determinable effects of spatial form on people are both limited and precise. Spatial form, I argue, creates the *field of probable--though not all possible--encounter and co-presence within which we live and move*; and whether or not it leads to social interaction, this field is in itself an important sociological

and psychological resource (Hillier, 1989, p. 13).

To describe this field of potential encounters as it is grounded in a settlement's physical layout, Hillier uses the term *virtual community*. He chooses the word "virtual" because this spatial field is always present, though sometimes only "latent and unrealized" (ibid., p. 16). For environmental design, Hillier's crucial point is that the virtual community is a "direct product of spatial design" (ibid., p. 13). The design and planning need is, first, to understand the significance of space syntax in the life of the city; and, second, to use physical design to "construct the field of potential encounter and co-presence that we call the virtual community" (ibid., p. 16).

CONCEPTUAL AND DESIGN IMPLICATIONS

For thinking about and designing the virtual community, Hillier's most important notion is the deformed wheel, which links local street life and interpersonal encounter with the larger global structure of which the locality is a part.

"It is the global pattern," says Hillier (1989, p. 218) "that seems most to affect how towns *work* and create the patterns of use and movement that we identify as urban." To facilitate an active street life, urban designers should proceed from larger to smaller scale, since it is the deformed wheel *as a total structure* that juxtaposes liveliness and quiet. Individual developments should first be considered in terms of how their path systems strengthen or weaken dynamics of the deformed wheel and only then be worked through in detail:

If we want to recreate urban life, then we have to learn to design from the global to the local, that is, we have to start by reading the large-scale pattern of an area, then design the internal structure of new developments to take advantage of [the large-scale pattern]--not fixing [it] forever, but adapting [it] with understanding as well as good intentions (Hillier, Hanson, & Peponis 1987, p. 231).

Yet Hillier and his colleagues (e.g., Hillier & Hanson, 1983, pp. 133-40; Holanda 1989; Miller 1989; Peoponis 1989) go on to demonstrate that most modern architectural and planning practice are oblivious to the global level and consider only the locality or individual architectural forms: "Everything is

invested in what the local spaces are like, and little attention is given to the global system per se"(Hiller, 1989, p. 230).

Hillier points out that conventional urban and planning history largely blames the automobile for the destruction of both the global and local dimensions of urban place. In a strikingly different way, he argues that the real culprit is a taken-for-granted social and political ideology "based on the paramount values of hierarchy and privacy" (ibid.). This transformation in thinking "began in the middle of the 19th century, fifty years at least before the car" (ibid.). In this ideology,

Not only are individuals and families said to require seclusion--which does happen in traditional urban forms--but also local groups of neighbours, whole neighbourhoods and even whole communities are also said to require it above all else--which does *not* happen in most traditional urban forms. The multi-level segregation of the modern urban landscape, often achieved in spite of high population densities, seems to many theorists an ideal to be aimed at (ibid.).

There is no doubt that Hillier is at least partly correct in this conclusion (see box on p. 14), which is perhaps most clearly demonstrated in the modernists' urban designs--e.g., Le Corbusier's "Radiant City." More recently, however, this "isolationist" ideology has also underlaid environment-behavior research and design--for example, architect Oscar Newman's theories of "defensible space" and "communities of interest."[6]

In addition, there are other styles of "isolationism"--for example, formalist architects like Aldo Rossi, Andre Duany, or Leo and Rob Krier (who seek to mimic the spatial structure of pre-modernist cities but have no real understanding and produce piecemeal counterfeits) or postmodernist and deconstructionist architects like Robert Venturi and Peter Eisenman (who believe, for contrasting reasons, that place-bound community is a tedious anachronism and thereby discard propinquity and wholeness of place entirely).[7]

On the other hand, there are some designers and thinkers who point toward much agreement with Hillier's perspective. The most obvious example is Jane Jacobs, whose work still holds a strong place in urban and community design. Her emphasis on street life, physical diversity, and small blocks has much in common with Hillier's deformed wheel and its areas of activity and rest. Also kin is the pattern language of Christopher Alexander, especially his efforts toward a "new theory of urban design."[8]

At the same time, Hillier's work is in some ways incomplete. One of the most awkward problems is its bias against the formal and functional dimensions of urban design and architecture. Hillier may well be right in arguing that global qualities as they are expressed in a settlement's layout must be established before smaller-scale architectural and activity-use decisions are made. On the other hand, specific formal and functional qualities of the built environment also contribute significantly to a sense of place and human identity, and these dimensions must be part of a complete environmental and architectural theory.[9]

Another lacuna in Hillier's work relates to the experiential fabric of the beady-ring structure and the deformed wheel. Associated with Hillier's contrasting pathway patterns must be contrasting environmental experiences and senses of place. How are networks of integration and segregation alike and different in terms of spatial behaviors and experiences?[10] What sorts of events, encounters,moods, and so forth, are associated with what patterns of integration and segregation? What would lifeworlds be like for the inhabitants and visitors of a highly integrated traditional urban district vs. a more recent planned housing estate that generates a high measure of segregation?

Hillier's space syntax offers invaluable insight for understanding how pathway patterns contribute to making a place what it is. He also demonstrates how smaller parts of a place are integrally bonded to the whole through circulation and morphological structure. The need is to integrate this emphasis on movement and spatial connectedness with other conceptions of urban and community design. In this sense, the phenomenological interpretation of place, in its ability to gather together the many various parts of the physical and human worlds, is perhaps the best organizing framework.[11]

FURTHER READING

The central study of space syntax is Hillier and Hanson's 1984 *Social Logic of Space*, a ground-breaking book that is difficult to master yet provides a radically new understanding of the city.

Few of the writings on space syntax are easy. Currently, there is no simple introduction to the approach, though *Responsive Environments* (Bentley et al. 1985) is perhaps the first effort to apply some of Hillier's ideas practically to real-world urban design. This book's chapter on "permeability" is the single-most accessible introduction to Hillier's space syntax, though its presentation is mostly implicit.

In the last several years, there have appeared two special journal issues on space syntax--in *Architecture and Behavior* (1987) and *Ekistics* (1989). The list that follows identifies some of the most helpful discussions of space syntax. Perhaps the single most useful introduction is Hillier, 1989.

- I. Bentley, A. Alcock, P. Murrain, S. McGlynn, & G. Smith, 1985. *Responsive Environments: A Manual for Designers*. London: The Architectural Press [reviewed in *EAP*, 2, 2 (spring 1991): 11-13].
- B. Chua, 1991. Modernism and Vernacular: Transformation of Public Spaces and Social Life in Singapore, *Journal of Architectural and Planning Research*, 8, 203-221.
- J. Hanson & B. Hillier, 1987. The Architecture of Community. *Architecture and Behavior*, 3, 233-250.
- B. Hillier, 1985. The Contingent and the Necessary in Spatial Form in Architecture. *Geoforum*, 16, 163-78.
- B. Hillier, R. Burdett, J. Peponis, & A. Penn,1987. Creating Life: Or, Does Architecture Determine Anything? *Architecture and Behavior*, 3, 233-250.
- B. Hillier, 1989. The Architecture of the Urban Object. *Ekistics*, 56, 5-21.
- B. Hillier & J. Hanson, 1984. *The Social Logic of Space*. Cambridge: Cambridge University Press.
- B. Hillier & J. Hanson, 1989. Introduction: Second Paradigm. *Architecture and Behavior*, 3, 197-99.
- B. Hillier, J. Hanson, & J. Peponis, 1987. Syntactic Analysis of Settlements. *Architecture and Behavior*, 3, 217-32.
- F. de Holanda, 1989. Brasilia: The Daily Invention of the City. *Ekistics*, 56, 75-83.
- J. Miller, 1989. Growth and Renewal: The Swedish Model. *Ekistics*, 56, 56-64.
- J. Peponis, 1989a. Space, Culture, and Urban Design in Late Modernism and After. *Ekistics*, 56, 93-108.
- J. Peponis, 1989b. Introduction. *Ekistics*, 56, 4.
- M. Shoul, 1993. The Spatial Arrangements of Ordinary English Houses, *Environment and Behavior*, 25, 22-69.

NOTES

1. *The Death & Life of Great American Cities* (Vintage, 1961).

2. This pattern is true for settlements whose main function is practical livelihood (what Hillier calls "the production of everyday life"). settlements for religious or ceremonial purposes (called "the formal reproduction of social structures") do not follow this pattern; for many towns, both types of order are present. See Hillier, 1989, p. 11; Hillier & Hanson, chaps.2, 6.

3. By manipulating the probabilities to account for directional or building-group bias, Hillier could simulate a broad range of settlement forms that, on the surface, seem dramatically different in underlying morphology.

4. The derivation, number, and subtlety of these statistical measures is an achievement unto itself; suffice it to say that, from a phenomenological perspective, Hillier's work provides a powerful example of positivist-quantitative research that serves to allow the phenomenon to emerge (rather than submerge, distort, or misrepresent the phenomenon as so much positivist work typically does). Hillier claims that the empathy of his measures is so because he is "trying to describe an order that is already present in the system" (Hillier & Hanson, 1984, p. 45).

On the other hand, it is important to point out that most of Hillier's numerical measures are derived from the spatial arrangements of the convex and axial spaces themselves (e.g., the number of other streets that a street intersects); other important ingredients of place--e.g., adjoining activities, uses, and buildings types--are not considered. In this sense, the geometry of place in terms of pathways and open spaces is well served but not the full range of built qualities that contribute to a sense of place. One effort to incorporate Hillier's discoveries in such a widened sphere of possibilities, is Bentley et al., 1985.

5. One phenomenological project would be to establish, using Hillier's methods, the pathways of integration and segregation for specific urban districts or towns and then to study their activity patterns and lifeworlds. In this way, one might begin to understand better how other environmental and human qualities-- e.g., land uses, activity types, demographic characteristics-- enhance or weaken the pathway structure itself. In fact, in his latest work, Hillier (et al., 1987) has identified pathways of integration and segregation and then gone out and observed actual pedestrian activity. The next step, phenomenologically, would be a careful description of the lifeworlds of these path-ways, perhaps through participant observation. Also, see note 9.

6. O. Newman, *Defensible Space* (NY: MacMillan, 1973); *Community of Interest* (NY: Doubleday, 1980). In defense of Newman, it must be emphasized that he, too, sees street life and informal interaction as a crux to revitalized urban neighbor-hoods. If we assume Hillier to be correct, Newman's major blunder is to begin with the part (a particular housing project or

neighborhood) rather than the whole (the "virtual community" as it can become real through street layout and pedestrian activity). Many of Newman's design ideas (e.g., taken-for-granted surveillance through windows, major interior activity areas like the kitchen facing the street) are compatible with Hillier's approach; the need is a thorough discussion of similarities, differences, and a reconciled whole.

7. A good space-syntax critique is Peponis, 1989.

8. E.g., C. Alexander, *A Pattern Language* (NY: Oxford, 1977); *A New Theory of Urban Design* (NY: Oxford, 1987). As with Newman (see note 6), a critical examination of the similarities and differences between Hillier and Alexander would be a useful exercise, both conceptually and design-wise. One of the most striking commonalities is that both men insist that programming must first identify and design for large-scale concerns before dealing with smaller-scale issues.

Hillier himself attacks Alexander's work (e.g., Hillier & Hanson, 1983, p.xi), but one can imagine that the breadth of a revised pattern language might be able to include Hillier's insights and, in turn, make the pattern language and Alexander's theory of urban design much stronger and real experientially.

In this regard, the large-scale patterns in *Pattern Language* that deal with settlement layout as a whole seem, overall, idealistic when compared to Hillier's deformed wheel and axial and convex spaces. One preliminary effort to consolidate the work of Hillier and Alexander is Bentley et al., 1985.

9. For example, one of Jacobs' four conditions for diversity is several *primary uses*--i.e., anchor activities, like dwellings and work places, to which users *must necessarily go* (Jacobs, 1961, chap. 8). There must be various patterns of relationship among circulation layout and uses served, though Hillier makes little mention of this linkage. In regard to ways in which formal qualities of the built environment contribute to a sense of place, see, for example, T. Thiis-Evensen, *Archetypes in Architecture* (NY: Oxford, 1989); and Bentley et al., 1985, chap. 5.

10. As note 5 explained, Hillier has begun efforts in this direction, though they mostly involve aggregate counting of pedestrian behaviors and, thus, do not examine the *lifeworlds* of the streets as places or of those streets' residents and users.

11. It is important to mention that Hillier has also considered building interiors in terms of syntax. One aim is to examine "how a building works to interface the relation between occupants and those who enter as visitors" (Hillier & Hanson, 1984, p. 143). Though not considered here, this work, especially as it considers the relationship between inside and outside as facilitated by architecture, is also relevant to a phenomenology of place but is not yet as well developed as Hillier's work. The major discussion of architectural space syntax is chapters 4-6 in *Social Logic*; also see Shoul, 1993.

WHEN THESE OLD BARNS LOST THEIR INHABITANTS AND THEN THEIR PAIN AND THEN ALL SEMBLANCE OF DETERMINED HUMAN CONSTRUCTION

1.
They began to sway to the
forms of nature, desiring
some final ruin; desiring
some final ruin and return

2.
Their bodies ache and sway
to the rhythms of the
beckoning hills

3.
They carry in their burnt
wood the descending rays
of the setting sun

4.
Their windows are as small
as eyes

5.
They wish again to be a
falling tree

--*David Kherdian*

Kherdian is a poet and writer who lives in Blue Hill, Maine. His books of poetry include The Farm, Threads of Life *and* The Dividing River/The Meeting Shore.

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