LITTERA SCRIPTA MANET

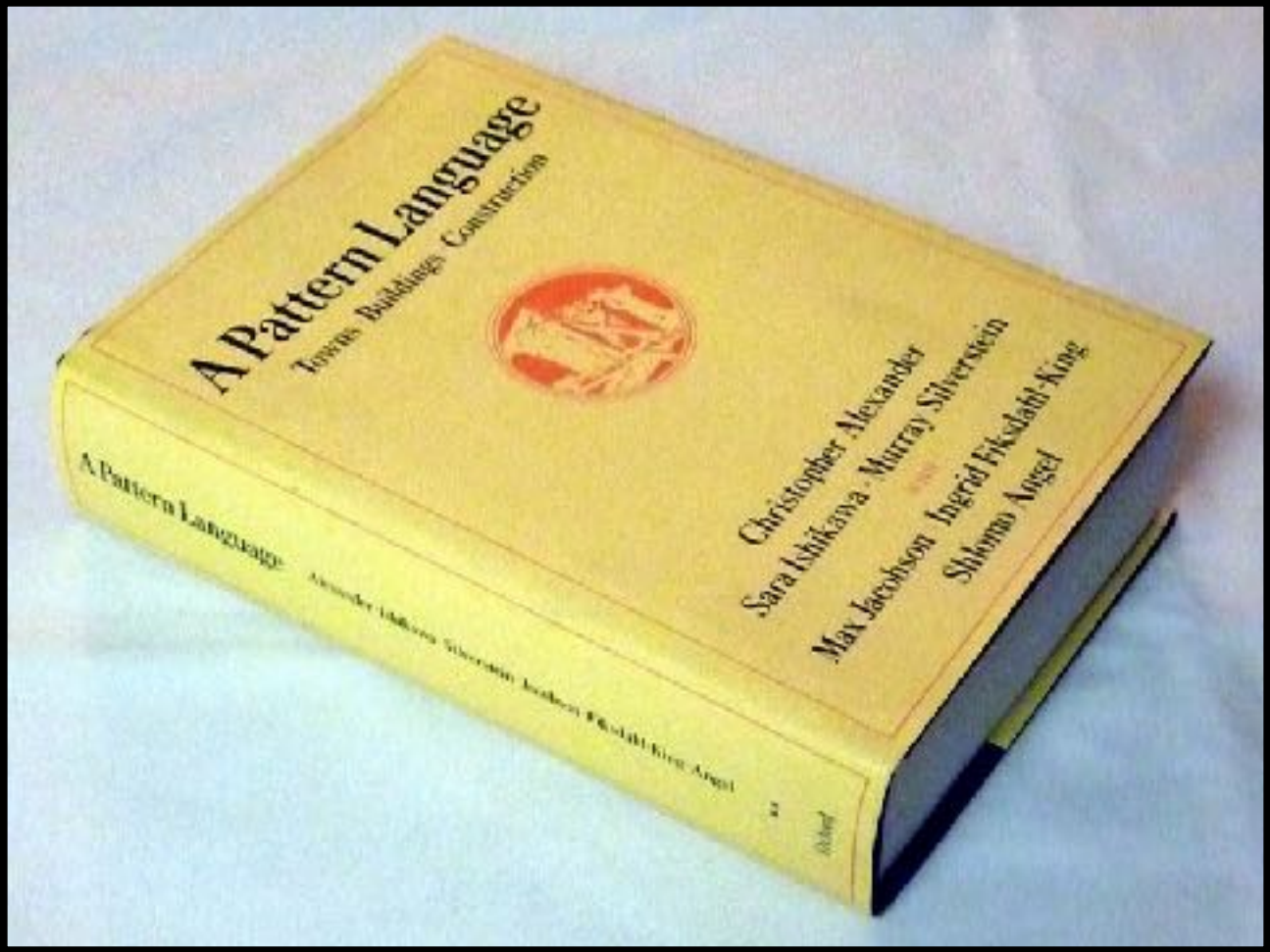
"The letter once written remains"

American Planning Association – Utah Chapter
Fall Conference 2021

"A City in Not a Tree"

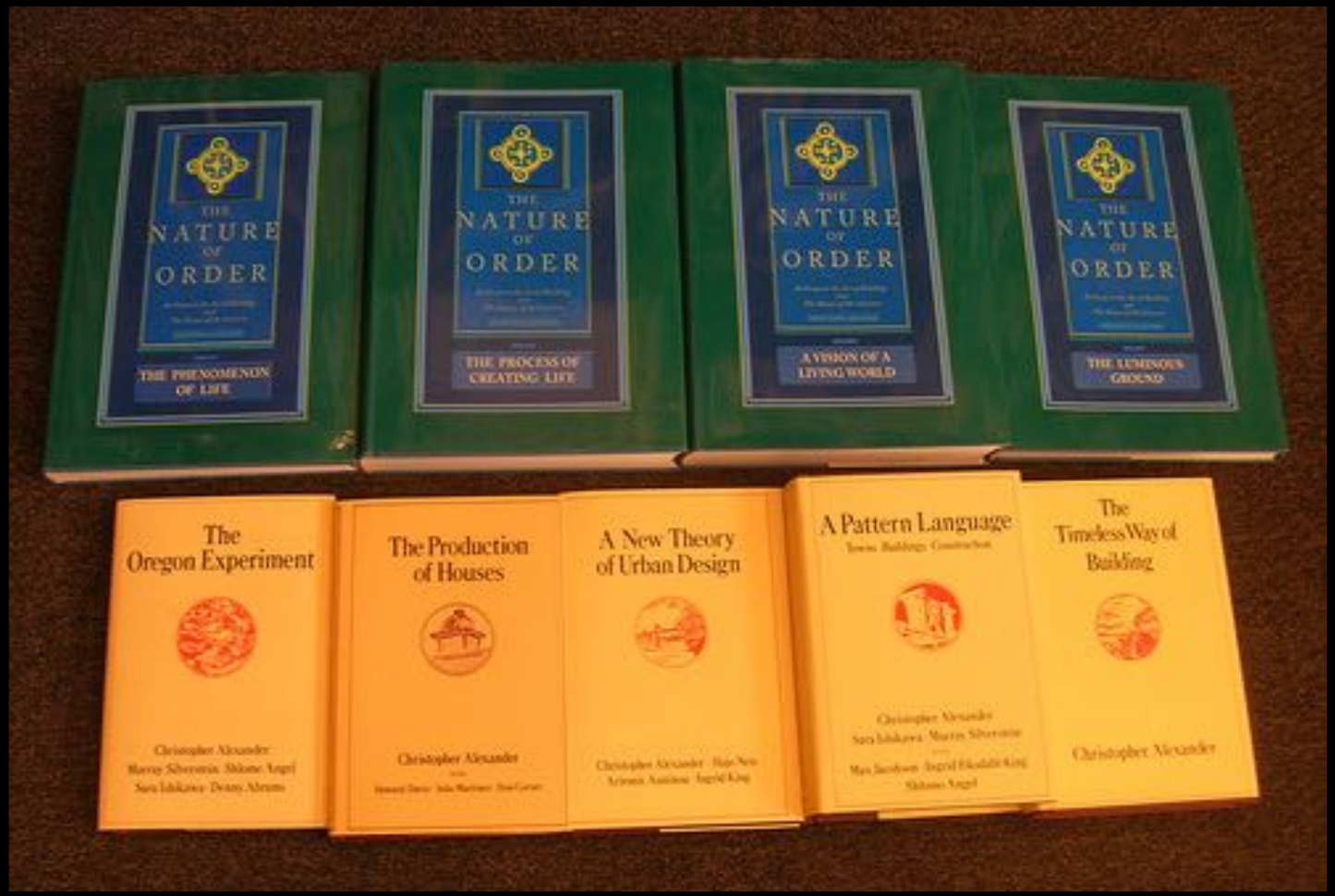

1977


STAR
WARS


A Pattern Language
Towns, Buildings, Construction
Christopher Alexander
Sara Ishikawa · Murray Silverstein
Max Jacobson · Ingrid Fiksdahl-King
Shlomo Angel
A Pattern Language


residential
architect
the 2001
leadership
awards


VIENNA
THE UPPER PLAIN
THE LOWER PLAIN


THE NATURE OF ORDER
THE PHENOMENON OF LIFE
THE NATURE OF ORDER
THE PROCESS OF CREATING LIFE
THE NATURE OF ORDER
A VISION OF A LIVING WORLD
THE NATURE OF ORDER
THE LUMINOUS GROUND
The Oregon Experiment
Christopher Alexander
The Production of Houses
Christopher Alexander
A New Theory of Urban Design
A Pattern Language
Christopher Alexander
The Timeless Way of Building
Christopher Alexander

A Pattern Language

Towns · Buildings · Construction

Christopher Alexander
Sara Ishikawa · Murray Silverstein
WITH
Max Jacobson · Ingrid Fiksdahl-King
Shlomo Angel

22. NINE PER CENT PARKING
23. PARALLEL ROADS
24. SACRED SITES
25. ACCESS TO WATER
26. LIFE CYCLE
27. MEN AND WOMEN

both in the neighborhoods and the communities, and in between them, in the boundaries, encourage the formation of local centers;

28. ECCENTRIC NUCLEUS
29. DENSITY RINGS
30. ACTIVITY NODES
31. PROMENADE
32. SHOPPING STREET
33. NIGHT LIFE
34. INTERCHANGE

around these centers, provide for the growth of housing in the form of clusters, based on face-to-face human groups;

35. HOUSEHOLD MIX
36. DEGREES OF PUBLICNESS
37. HOUSE CLUSTER
38. ROW HOUSES
39. HOUSING HILL
40. OLD PEOPLE EVERYWHERE

93. FOOD STANDS
94. SLEEPING IN PUBLIC

This completes the global patterns which define a town or a community. We now start that part of the language which gives shape to groups of buildings, and individual buildings, on the land, in three dimensions. These are the patterns which can be "designed" or "built"—the patterns which define the individual buildings and the space between buildings; where we are dealing for the first time with patterns that are under the control of individuals or small groups of individuals, who are able to build the patterns all at once.

The first group of patterns helps to lay out the overall arrangement of a group of buildings: the height and number of these buildings, the entrances to the site, main parking areas, and lines of movement through the complex;

95. BUILDING COMPLEX
96. NUMBER OF STORIES
97. SHIELDED PARKING
98. CIRCULATION REALMS
99. MAIN BUILDING
100. PEDESTRIAN STREET
101. BUILDING THOROUGHFARE
102. FAMILY OF ENTRANCES
103. SMALL PARKING LOTS


23 PARALLEL ROADS

I INDEPENDENT REGIONS**

Metropolitan regions will not come to balance until each one is small and autonomous enough to be an independent sphere of culture.

There are four separate arguments which have led us to this conclusion: 1. The nature and limits of human government. 2. Equity among regions in a world community. 3. Regional planning considerations. 4. Support for the intensity and diversity of human cultures.

1. There are natural limits to the *size* of groups that can govern themselves in a human way. The biologist J. B. S. Haldane has remarked on this in his paper, "On Being the Right Size":

> . . . just as there is a best size for every animal, so the same is true for every human institution. In the Greek type of democracy all the citizens could listen to a series of orators and vote directly on questions of legislation. Hence their philosophers held that a small city was the largest possible democratic state. . . . (J. B. S Haldane, "On Being the Right Size," *The World of Mathematics, Vol. II*, J. R. Newman, ed. New York: Simon and Schuster, 1956, pp. 952–62).

It is not hard to see why the government of a region becomes less and less manageable with size. In a population of N persons, there are of the order of N^2 person-to-person links needed to keep channels of communication open. Naturally, when N goes beyond a certain limit, the channels of communication needed for democracy and justice and information are simply too clogged, and too complex; bureaucracy overwhelms human processes.

And, of course, as N grows the number of levels in the hierarchy of government increases too. In small countries like Denmark there are so few levels, that any private citizen can have access to the Minister of Education. But this kind of direct access is quite impossible in larger countries like England or the United States.

We believe the limits are reached when the population of a region reaches some 2 to 10 million. Beyond this size, people become remote from the large-scale processes of government. Our estimate may seem extraordinary in the light of modern history: the nation-states have grown mightily and their governments hold power over tens of millions, sometimes hundreds of millions, of people. But these huge powers cannot claim to have a natural size.

Therefore:

Wherever possible, work toward the evolution of independent regions in the world; each with a population between 2 and 10 million; each with its own natural and geographic boundaries; each with its own economy; each one autonomous and self-governing; each with a seat in a world government, without the intervening power of larger states or countries.

* * *

Within each region encourage the population to distribute itself as widely as possible across the region—THE DISTRIBUTION OF TOWNS (2). . . .

within each region work toward those regional policies which will protect the land and mark the limits of the cities:

2. THE DISTRIBUTION OF TOWNS
3. CITY COUNTRY FINGERS
4. AGRICULTURAL VALLEYS
5. LACE OF COUNTRY STREETS
6. COUNTRY TOWNS
7. THE COUNTRYSIDE

4 AGRICULTURAL VALLEYS*

. . . this pattern helps maintain the INDEPENDENT REGIONS (2) by making regions more self-sufficient agriculturally, and it will create new COMPACT FORMS (5) almost automatically by preserving agricultural land in urban areas. But just exactly which land ought to be preserved, and which land built upon?

* * *

The land which is best for agriculture happens to be best for building too. But it is limited—and once destroyed, it cannot be regained for centuries.

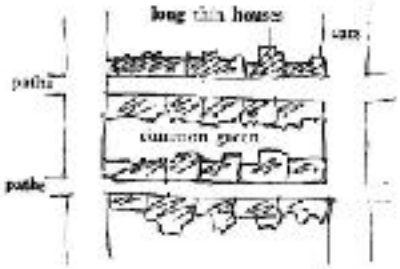
In the last few years, suburban growth has been spreading over all land, agricultural or not. It eats up this limited resource and, worse still, destroys the possibility of farming close to cities once and for all. But we know, from the arguments of early COMPACT PHASES (3), that it is important to have open farmland near the places where people live. Since the arable land which can be used for farming lies mainly in the valleys, it is essential that the valley floors within our urban regions be left untouched and kept for farming.

The most complete study of this problem that we know comes from Ian McHarg (*Design With Nature*, New York: Natural History Press, 1969). In his "Plan for the Valleys" (Wallace-McHarg Associates, Philadelphia, 1963), he shows how urban development can be directed to the hillsides and plateaus, leaving the valleys clear. The pattern is supported, also, by the fact that there are several possible practical approaches to the task of implementation (McHarg, pp. 77–93).

Therefore:

Preserve all agricultural valleys as farmland and protect this land from any development which would destroy or lock up the unique fertility of the soil. Even when valleys

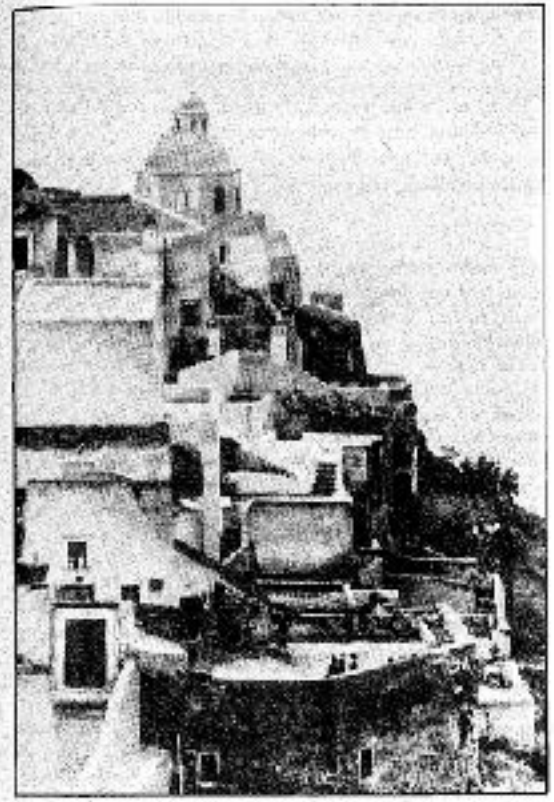
For row houses, place houses along pedestrian paths that run at right angles to local roads and parking lots, and give each house a long frontage and a shallow depth.



* * *

Make the individual houses and cottages as long and thin along the paths as possible—LONG THIN HOUSE (109); vary the houses according to the different household types—THE FAMILY (75), HOUSE FOR A SMALL FAMILY (76), HOUSE FOR A COUPLE (77), HOUSE FOR ONE PERSON (78); build roads across the green at right angles to them—PARALLEL ROADS (23), NETWORK OF PATHS AND CARS (22), with small parking lots off the roads—SMALL PARKING LOTS (105). In other respects build row houses in clusters—HOUSE CLUSTER (37), BUILDING COMPLEX (95). . . .

39 HOUSING HILL



. . . at the still higher densities required in the inner ring of the community's minority zones (20), and wherever densities rise above 50 houses per acre or are four stories high — FOUR-STORY LIMIT (21), the house clusters become like hills.

* * *

Every town has places in it which are so central and desirable that at least 30–50 households per acre will be living there. But the apartment houses which reach this density are almost all impersonal.

In the pattern YOUR OWN HOME (79), we discuss the fact that every family needs its own home with land to build on, land where they can grow things, and a home which is unique and clearly marked as theirs. A typical apartment house, with flat walls and identical windows, cannot provide these qualities.

The form of the HOUSING HILL comes essentially from three requirements. First, people need to maintain contact with the ground and with their neighbors, far more contact than high-rise living permits. Second, people want an outdoor garden or yard. This is among the most common reasons for their rejecting apartment living. And third, people crave for variation and uniqueness in their homes and this desire is almost always constrained by high-rise construction, with its regular façades and identical units.

1. Connection to the ground and to neighbors. The strongest evidence comes from E. M. Fanning ("Families in Flats," *British Medical Journal*, November 1955, pp. 382–86). Fanning shows a direct correlation between incidence of mental disorder and high-rise living. These findings are presented in detail in FOUR-STORY LIMIT (21). High-rise living, it appears, has a terrible tendency to leave people alone, stranded, in their apartments. Home life is split away from casual street life by elevators, hallways, and long stairs. The decision to go out for some public life becomes formal and awkward; and unless there is some specific task which brings people out in the world, the tendency is to stay home, alone.

Fanning also found a striking lack of communication between families in the high-rise flats he studied. Women and children were especially isolated. The women felt they had little reason to take the trip from their apartment to the ground, except to go shopping. They and their children were effectively imprisoned in their apartments, cut off from the ground and from their neighbors.

Contact is very valuable.

It seems as if the ground, the common ground between houses, is the medium through which people are able to make contact with one another and with themselves. Living on the ground, the yards around house join those of the neighbors, and, in the best arrangements, they also adjoin neighborhood byways. Under these conditions it is easy and natural to meet with people. Children playing in the yard, the flowers in the garden, or just the weather outside provide endless topics for conversation. This kind of contact is impossible to maintain in high-rise apartments.

2. Private gardens. In the Park Hill survey (J. F. Dreier, "Park Hill Survey," *C.A.P.*, February 1956, p. 235), about one-third of the high-rise residents interviewed said they missed the chance to putter around in their gardens.

The need for a small garden, or some kind of private outdoor space, is fundamental. It is equivalent, at the family scale, to the biological need that a society has to be integrated with its country-

build housing three or four stories high, build a hill of houses. Build them to form stepped terraces, sloping toward the south, served by a great central open stair which also faces south and leads toward a common garden . . .

* * *

Let people lay out their own houses individually, upon the terraces, just as if they were land—your own room (79). Since each terrace overlaps the one below it, each house has its garden on the house below—SOME GARDENS (118). Leave the central stair open to the air, but give it a roof, in wet or snowy climates—perhaps a glass roof—OPEN STAIRS (155); and place the common land right at the bottom of the stair with playgrounds, flowers, and vegetables for everyone—COMMON LAND (67), CONNECTED PLAY (68), VEGETABLE GARDEN (177). . . .

40 OLD PEOPLE EVERYWHERE**

that high speed roads must always be placed in such positions that at least one side of every local transport area has direct access to open country.

3. Most important of all, high speed roads must be shielded acoustically to protect the life around them. This means that they must either be sunken, or shielded by earth berms, parking structures, or warehouses, which will not be damaged by the noise.

Therefore:

Place high speed roads (freeways and other major arteries) so that:

1. **At least one high speed road lies tangent to each local transport area.**
2. **Each local transport area has at least one side not bounded by a high speed road, but directly open to the countryside.**
3. **The road is always sunken, or shielded along its length by berms, or earth, or industrial buildings, to protect the nearby neighborhoods from noise.**

* * *

Always place the high speed roads on boundaries between subcultures: AGRICULTURE BOUNDARY (13) and never along water fronts—ACCESS TO WATER (21). Place industry and big parking garages next to the roads, and use them, wherever possible, as noise shields—INDUSTRIAL EDGING (13), SHIELDED PARKING (

18 NETWORK OF LEARNING*

. . . another network, not physical like transportation, but conceptual, and equal in importance, is the network of learning: the thousands of interconnected situations that occur all over the city, and which in fact comprise the city's "curriculum": the way of life it teaches to its young.

\+ + +

In a society which emphasizes teaching, children and students—and adults—become passive and unable to think or act for themselves. Creative, active individuals can only grow up in a society which emphasizes learning instead of teaching.

There is no need to add to the criticism of our public schools. The critique is extensive and can hardly be improved on. "The processes of learning and teaching, too, have been exhaustively studied. . . . The question now is what to do." (George Leonard, *Education and Ecstasy*, New York: Delacorte Press, 1968, p. 30.)

To date, the most penetrating analysis and proposal for an alternative framework for education comes from Ivan Illich in his book, *De-Schooling Society*, and his article, "Education without Schools: How It Can Be Done," in the *New York Review of Books*, New York, 15 (12): 23–31, special supplement, July 1970.

Illich describes a style of learning that is quite the opposite from schools. It is geared especially to the rich opportunities for learning that are natural to every metropolitan area.

> The alternative to social control through the schools is the voluntary participation in society through networks which provide access to all its resources for learning. In fact these networks now exist, but they are rarely set for educational purposes. The crisis of schooling, I feel, is to have any positive consequences, will inevitably lead to their interpretation into the educational process. . . .
>
> Schools are designed on the assumption that there is a secret to everything in life, that the quality of life depends on knowing that secret; that secrets can be known only in entirely unconscious; and that only masters can properly reveal these secrets. An individual with a schooled mind conceives of the world as a pyramid of classified packages accessible only to those who carry the proper tags.

> *New educational institutions would invert this pyramid. Their purpose would be to facilitate access for the learner to almost him to look into the windows of the control room or the parliament, if he cannot get to the door. Moreover, such new institutions should be channels to which the learner would have access without credentials or pedigree—public spaces in which peers and elders outside his immediate horizon may become available. . . .*
>
> *While network administrators would concentrate primarily on the building and maintenance of roads providing access to resources, the pedagogue would help the student to find the path which for him could lead latest to his goal. If a student wants to learn spoken Cantonese from a Chinese neighbor, the pedagogue would be available to judge their proficiency and to help them select the textbook and method most suitable to their aims, character, and the time available for study. He can counsel the would-be airplane mechanic on finding the best places for apprenticeship. He can recommend books to somebody who wants to find challenging texts to discuss African history. Like the network administrator, the pedagogical counselor conceives of himself as a professional educator. Access to power could be gained by individuals through the use of educational vouchers.*

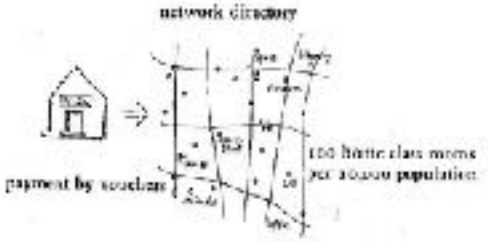
In addition to the tentative conclusions of the Carnegie Commission reports, the last year has brought forth a series of important documents which show that responsible people are becoming aware of the fact that schooling for worldwide career continues to be counted upon as the central educational device of a modern society. Julius Nyerere of Tanzania has announced plans to integrate education with the life of the village. In Canada, the Wright Commission on post-secondary education has reported that an "ideal system of formal education could provide equal opportunities for the citizens of Canada." The president of Peru has accepted the recommendation of his commission on education, which proposes to abolish late schools in favor of free educational opportunities provided throughout life. In fact he is reported to have insisted that this program proceed slowly at first in order to keep teachers in school and out of the way of true education. (Abridged from pp. 76 and 99 in *Deschooling Society* by Ivan Illich, Vol. 44 in World Perspectives Series, edited by Ruth Nanda Anshen, New York: Harper & Row, 1971.)

In short, the educational system as radically deschooled becomes congruent with the urban structure itself. People of all walks of life come forth and offer a class in the things they know and love: professionals and workgroups offer apprenticeships in their offices and workshops, old people offer to teach whatever their life work and interest has been, specialists offer tutoring in their special subjects. Living and learning are the

same. It is not hard to imagine that eventually every third or fourth household will have at least one person in it who is offering a class or training of some kind.

Therefore:

Instead of the lockstep of compulsory schooling in a fixed place, work in piecemeal ways to decentralize the process of learning and enrich it through contact with many places and people all over the city: workshops, teachers at home or walking through the city, professionals willing to take on the young as helpers, older children teaching younger children, museums, youth groups traveling, scholarly seminars, industrial workshops, old people, and so on. Conceive of all these situations as forming the backbone of the learning process; survey all these situations, describe them, and publish them as the city's "curriculum"; then let students, children, their families and neighborhoods weave together for themselves the situations that comprise their "school" paying as they go with standard vouchers, raised by community tax. Build new educational facilities in a way which extends and enriches this network.



* * *

Above all, encourage the formation of seminars and workshops in people's homes—HOME WORKSHOP (157); make sure that

each city has a "park" where young children can safely wander on their own—CHILDREN IN THE CITY (17); build safe public "houses" for children, one in every neighborhood at least—CHILDREN'S HOUSE (86); create a large number of work-oriented small schools in those parts of town dominated by work and commercial activity—NEIGHBORHOOD SCHOOLS (85); encourage teenagers to work out a self-organized learning society of their own—TEENAGE SOCIETY (84); treat the university as scattered adult learning for all the adults in the region—UNIVERSITY AS A MARKETPLACE (45); and use the real work of professionals and tradesmen as the basic nodes in the network—MASTER AND APPRENTICE (85). . . .

A Pattern Language is being spoken in Occidental

Near Occidental there is a beautiful sloping lot with views of nearby redwood and fir covered hillsides and a long view of Mt. Saint Helena.

On this exceptional site a new house is emerging. The house is being built by Laff Construction from Sebastopol and is designed by world-famous architect Christopher Alexander and his architectural firm in Berkeley, PatternLanguage.com.

The process of building a home based on PatternLanguage.com principles also takes into account the home's visual impact on the site and the comfort and needs of the occupants.

His book, *A Pattern Language*, has become a bible of sorts for architects, architectural students and design enthusiasts. *A Pattern Language* identifies those characteristics of a building which have universal appeal.

Window and door sizes and proportions, wall and ceiling heights, hallway widths and room sizes and shapes are some of the important design elements that Alexander discusses in his book.

A Pattern Language also recognizes and discusses the importance of the home's orientation on its site and in the larger landscape.

When these concepts are incorporated into a building, the design is developed first at the planning stage and then again on site during construction. Alexander has organized the building sequence into 32 distinct operations. At the beginning of each operation, the design for that stage is mocked up on site, and may be adjusted before the final design decision is reached. All of the design decisions are evaluated with an eye to the budget so that if an on-site design adjustment increases the cost, the additional money is taken from elsewhere in the building. For example, a window seat may be added while a fireplace hearth is simplified to pay for it.

The building design is flexible but the budget is managed carefully to

Please see page 6

Massive concrete beams seem to emerge from the soil

Occidental homesite offers a strong link to inside and outside of shelter

From Page 5

keep costs reasonable and stay within the owner's budget.

The project in Occidental is a 3,000 square-foot home made up of a two-story element with single story wings at each end. This creates a courtyard surrounded on three sides by the walls of the house.

There is a strong connection between the interior of the building and the exterior courtyard through the use of expanses of glass windows and doors.

Trellises and structures that Alexander calls "exterior works" add to the effect. The house is built with massive concrete beams and columns at the first floor forming a superstructure that appears to be emerging from the land on which it is built.

The in-fill walls and second floor are constructed with a lighter wood frame but also blend successfully with the home's surroundings.

The use of unconventional building materials such as the concrete beams and columns combined with the very careful on-going building design achieves a house with extended durability and functionality.

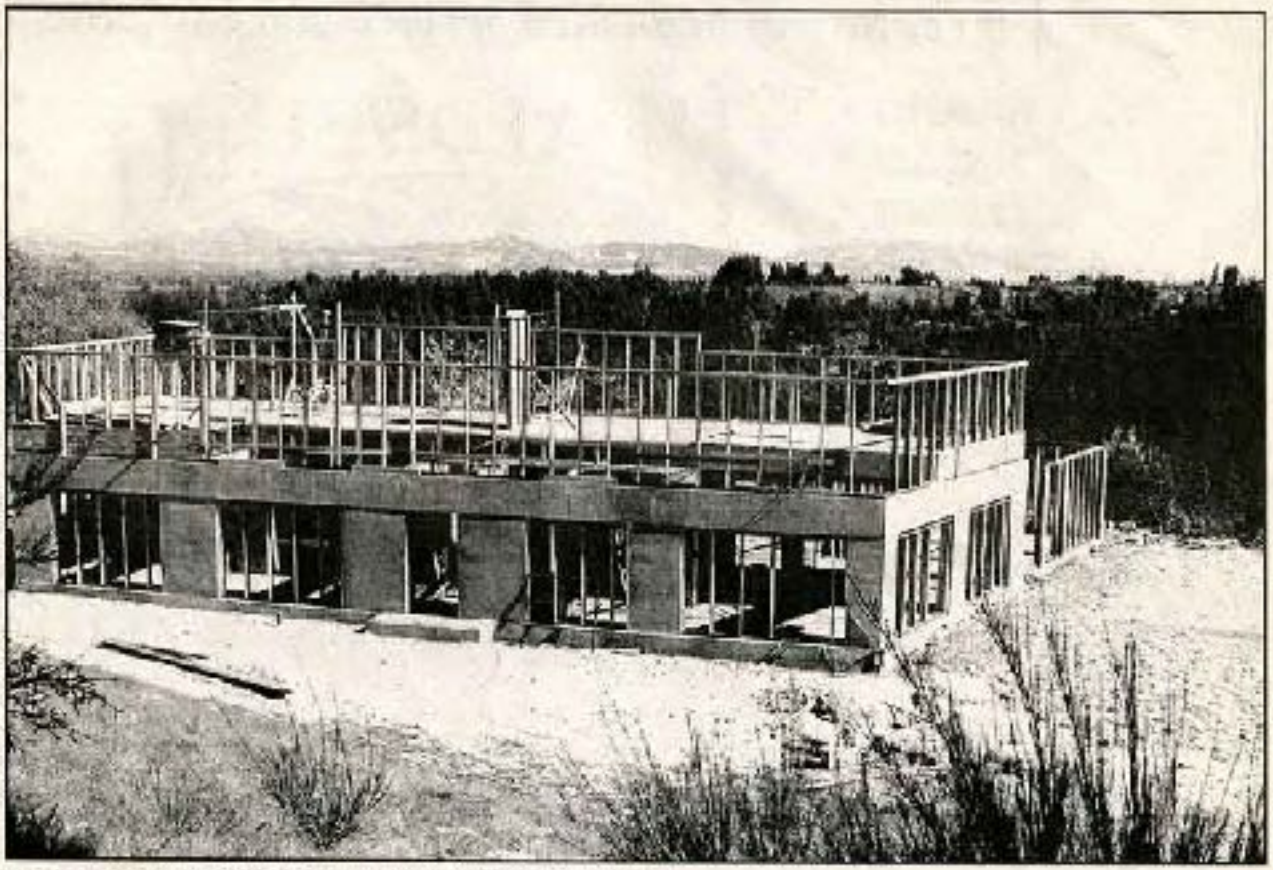
The process of building a home based on PatternLanguage.com principles also takes into account the home's visual impact on the site and the comfort and needs of the occupants.

Shown above is the unique detail of the overhanging eaves.

The result is a home that may not be easily identifiable in terms of its style, but when completed the structure will enhance the occupants lives and the surrounding landscape.

The timeless quality of the design of a PatternLanguage.com home and the care taken by Leff Construction to respect the philosophy of A Pattern Language insure that it will be in place many years after the more conventionally designed houses in the neighborhood are gone or have been drastically remodeled.

David Leff is owner of Leff Construction in Sebastopol. His telephone number is 823-4869.



Looking east toward Mt. St. Helena over the Santa Rosa plain.

NATIONAL BUILDING MUSEUM

Christopher Alexander

A City is Not a Tree:

50th Anniversary Edition

with
new commentaries by

Mike Batty • Luis Bettencourt • Howard Davis
Jaap Dawson • Bin Jiang • Michael W Mehaffy
Hans Joachim Neis • Sergio Porta • Yodan Rofé
Mariapia Vidoli • Dellé Odeleye
and other contributors

edited by
Michael W Mehaffy

Sustasis Press
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CHRISTOPHER ALEXANDER A CITY IS NOT A TREE: 50TH ANNIVERSARY EDITION

In 1965, the architect and design theorist Christopher Alexander published a landmark theoretical critique of modern urban design, and by extension, modern design in general. His critique was different from others of the day in that it was not based on a social or political argument, but on a structural analysis, rooted in then-emerging insights from the fields of mathematics and cognition.

Here, published again on its fiftieth anniversary, is Alexander's classic text, together with new interpretive commentaries and discussions by leading theorists and practitioners. This volume is destined to become an invaluable resource for a new generation of students and practitioners.

"One of the classic references in the literature of the built environment and associated fields."

— Resource for Urban Design Information (retired)

"At a time of increasing concern over the adequacy of design methods, 'A City is not a Tree' broke open and reoriented the debate."

— Charles Jencks and Karl Kropf

"It pointed clearly to a change in the way we need to think about cities – not as assemblies of one-off components that are hierarchically sorted, but as systems with global properties that manifest at local places. That, for me, is also the key insight and power of Space Syntax as a methodology."

— Bill Hillier, Chairman of the Bartlett School of Graduate Studies, University College London

"Seen from the distance of half a century, Christopher Alexander's 'A city is not a tree' remains a landmark in our thinking about cities and design... It is a new beginning. The first step on a journey – for Alexander and for urbanism - to discover what the city really is. Its daring novelty is to place the problems of architecture and urban planning on the same level of those in physics or biology and to seek answers using the scientific method, expressed in mathematical language."

— Luis Bettencourt, Santa Fe Institute

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A CITY IS NOT A TREE

BY CHRISTOPHER ALEXANDER

THE tree of my title is not a green tree with leaves. It is the name for a pattern of thought. The semi-lattice is the name for another, more complex, pattern of thought.

In order to relate these abstract patterns to the nature of the city, I must first make a simple distinction. I want to call those cities which have arisen more or less spontaneously over many, many years *natural cities*. And I shall call those cities and parts of cities which have been deliberately created by designers and planners *artificial cities*. Siena, Liverpool, Kyoto, Manhattan are examples of natural cities. Levittown, Chandigarh, and the British New Towns are examples of artificial cities.

It is more and more widely recognized today that there is some essential ingredient missing from artificial cities. When compared with ancient cities that have acquired the patina of life, our modern attempts to create cities artificially are, from a human point of view, entirely unsuc-

cieu's campaign against the way in which new construction and telegraph poles are wrecking the English town, based its remedies, essentially, on the idea that the spatial sequence of buildings and open spaces must be controlled if scale is to be preserved—an idea that really derives from Camillo Sitte's book about ancient squares and piazzas.

Another kind of remedy, in protest against the monotony of Levittown, tries to recapture the richness of shape found in the houses of a natural old town. Llewelyn Davies' village at Rushbrooke in England is an example—each cottage is slightly different from its neighbor, the roofs jut in and out at picturesque angles.

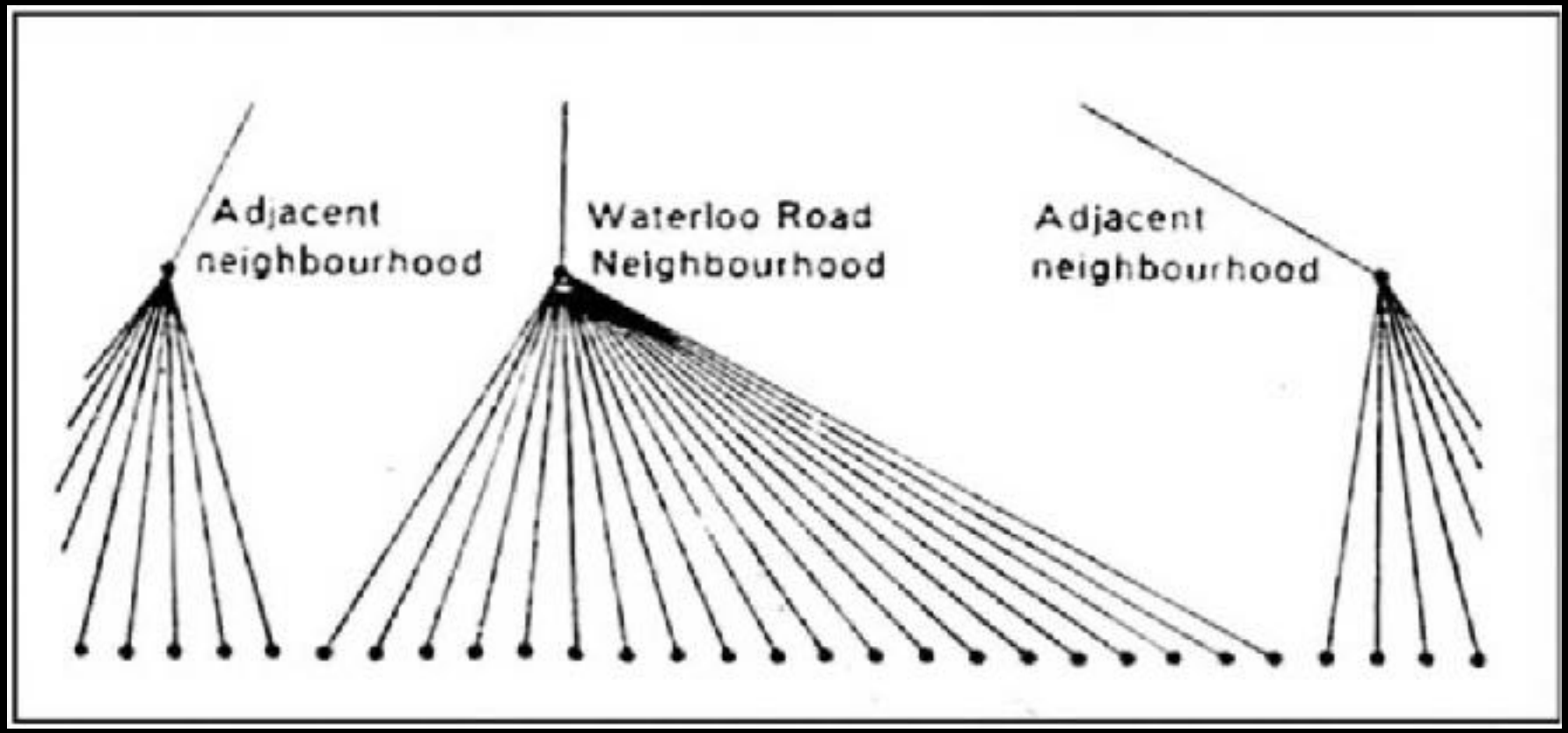
A third suggested remedy is to get high density back into the city. The idea seems to be that if the whole metropolis could only be like Grand Central Station, with lots and lots of layers and tunnels all over the place, and enough people milling around in them, maybe it would be human again.

Both the tree and the semi-lattice are ways of thinking about how a large collection of many small systems goes to make up a large and complex system. More generally, they are both names for structures of sets.

In order to define such structures, let me first define the concept of a set. A set is a collection of elements which for some reason we think of as belonging together. Since, as designers, we are concerned with the physical living city and its physical backbone, we most naturally restrict ourselves to considering sets which are collections of material elements such as people, blades of grass, cars, bricks, molecules, houses, gardens, water pipes, the water molecules that run in them, etc.

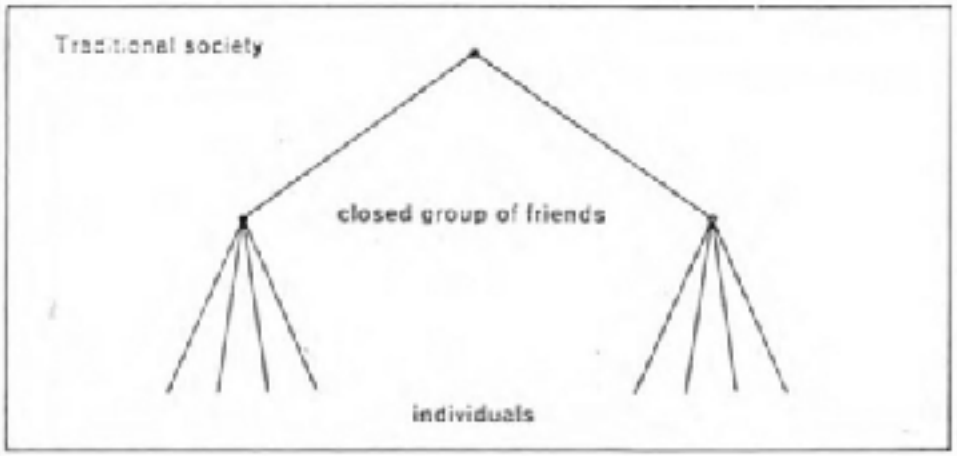
When the elements of a set belong together because they cooperate or work together somehow, we call the set of elements a system.

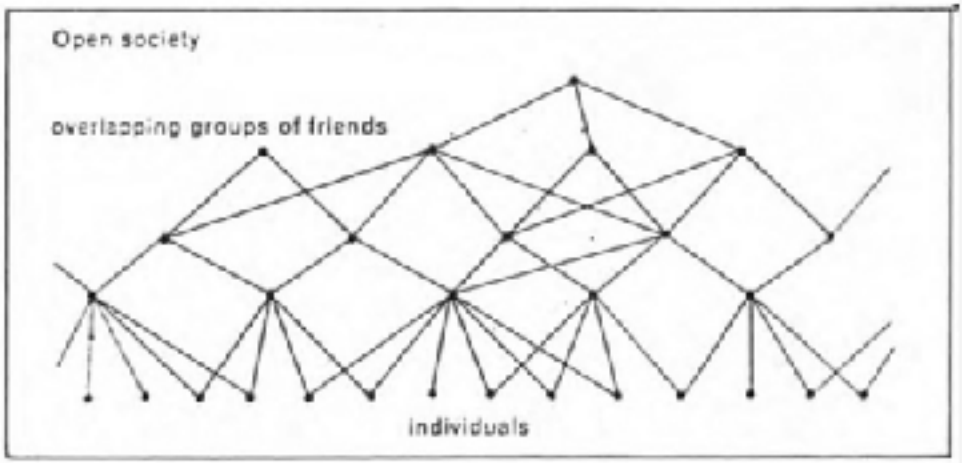
For example, in Berkeley at the corner of Hearst and Euclid, there is a drug store, and outside the drug store a traffic light. In the

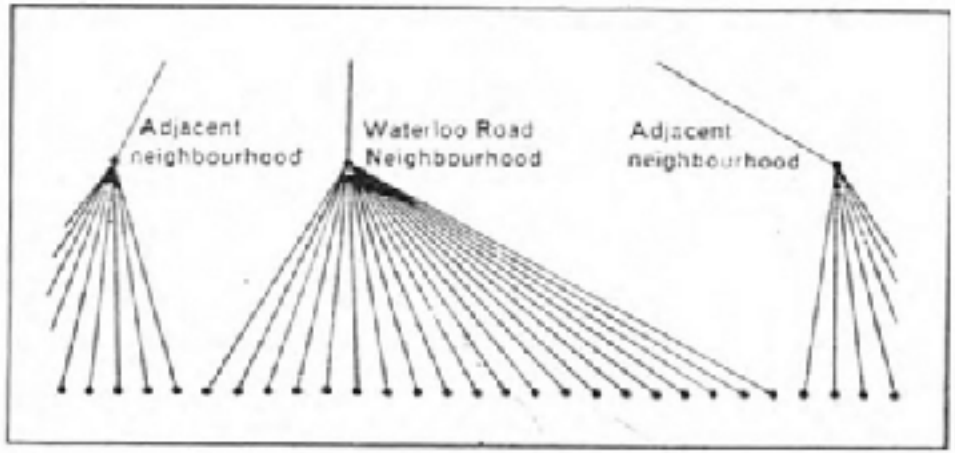

Adjacent
neighbourhood
Waterloo Road
Neighbourhood
Adjacent
neighbourhood

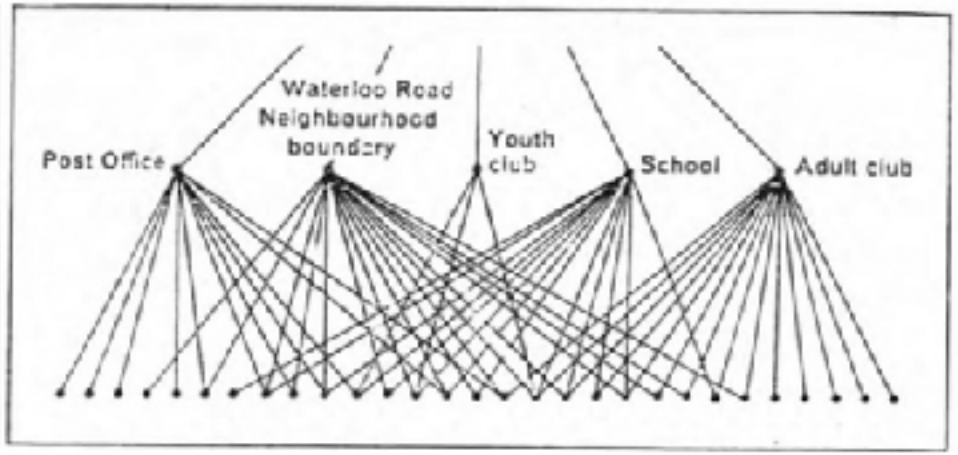
"The semilattice is the structure of a complex fabric; it is the structure of living things — of great paintings and symphonies."

Christopher Alexander, 1965









(Christopher Alexander)
"A city is not a tree"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THOUGHTS? QUESTIONS? IDEAS?