

A PATTERN LANGUAGE
TOWNS · BUILDINGS · CONSTRUCTION

A Pattern Language is the second in a series of books which describe an entirely new attitude to architecture and planning. The books are intended to provide a complete working alternative to our present ideas about architecture, building, and planning—an alternative which will, we hope, gradually replace current ideas and practices.

volume 1 THE TIMELESS WAY OF BUILDING

volume 2 A PATTERN LANGUAGE

volume 3 THE OREGON EXPERIMENT

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A PATTERN LANGUAGE

TOWNS • BUILDINGS • CONSTRUCTION

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USING THIS BOOK

A PATTERN LANGUAGE

Volume 1, *The Timeless Way of Building*, and Volume 2, *A Pattern Language*, are two halves of a single work. This book provides a language, for building and planning; the other book provides the theory and instructions for the use of the language. This book describes the detailed patterns for towns and neighborhoods, houses, gardens, and rooms. The other book explains the discipline which makes it possible to use these patterns to create a building or a town. This book is the sourcebook of the timeless way; the other is its practice and its origin.

The two books have evolved very much in parallel. They have been growing over the last eight years, as we have worked on the one hand to understand the nature of the building process, and on the other hand to construct an actual, possible pattern language. We have been forced by practical considerations, to publish these two books under separate covers; but in fact, they form an indivisible whole. It is possible to read them separately. But to gain the insight which we have tried to communicate in them, it is essential that you read them both.

The Timeless Way of Building describes the fundamental nature of the task of making towns and buildings.

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It is shown there, that towns and buildings will not be able to become alive, unless they are made by all the people in society, and unless these people share a common pattern language, within which to make these buildings, and unless this common pattern language is alive itself.

In this book, we present one possible pattern language, of the kind called for in *The Timeless Way*. This language is extremely practical. It is a language that we have distilled from our own building and planning efforts over the last eight years. You can use it to work with your neighbors, to improve your town and neighborhood. You can use it to design a house for yourself, with your family; or to work with other people to design an office or a workshop or a public building like a school. And you can use it to guide you in the actual process of construction.

The elements of this language are entities called patterns. Each pattern describes a problem which occurs over and over again in our environment, and then describes the core of the solution to that problem, in such a way that you can use this solution a million times over, without ever doing it the same way twice.

For convenience and clarity, each pattern has the same format. First, there is a picture, which shows an archetypal example of that pattern. Second, after the picture, each pattern has an introductory paragraph, which sets the context for the pattern, by explaining how it helps to complete certain larger patterns. Then there are three diamonds to mark the beginning of the problem. After the diamonds there is a headline, in bold type. This

headline gives the essence of the problem in one or two sentences. After the headline comes the body of the problem. This is the longest section. It describes the empirical background of the pattern, the evidence for its validity, the range of different ways the pattern can be manifested in a building, and so on. Then, again in bold type, like the headline, is the solution—the heart of the pattern—which describes the field of physical and social relationships which are required to solve the stated problem, in the stated context. This solution is always stated in the form of an instruction—so that you know exactly what you need to do, to build the pattern. Then, after the solution, there is a diagram, which shows the solution in the form of a diagram, with labels to indicate its main components.

After the diagram, another three diamonds, to show that the main body of the pattern is finished. And finally, after the diamonds there is a paragraph which ties the pattern to all those smaller patterns in the language, which are needed to complete this pattern, to embellish it, to fill it out.

There are two essential purposes behind this format. First, to present each pattern connected to other patterns, so that you grasp the collection of all 253 patterns as a whole, as a language, within which you can create an infinite variety of combinations. Second, to present the problem and solution of each pattern in such a way that you can judge it for yourself, and modify it, without losing the essence that is central to it.

Let us next understand the nature of the connection between patterns.

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The patterns are ordered, beginning with the very largest, for regions and towns, then working down through neighborhoods, clusters of buildings, buildings, rooms and alcoves, ending finally with details of construction.

This order, which is presented as a straight linear sequence, is essential to the way the language works. It is presented, and explained more fully, in the next section. What is most important about this sequence, is that it is based on the connections between the patterns. Each pattern is connected to certain "larger" patterns which come above it in the language; and to certain "smaller" patterns which come below it in the language. The pattern helps to complete those larger patterns which are "above" it, and is itself completed by those smaller patterns which are "below" it.

Thus, for example, you will find that the pattern ACCESSIBLE GREEN (60), is connected first to certain larger patterns: SUBCULTURE BOUNDARY (13), IDENTIFIABLE NEIGHBORHOOD (14), WORK COMMUNITY (41), and QUIET BACKS (59). These appear on its first page. And it is also connected to certain smaller patterns: POSITIVE OUTDOOR SPACE (107), TREE PLACES (171), and GARDEN WALL (173). These appear on its last page.

What this means, is that IDENTIFIABLE NEIGHBORHOOD, SUBCULTURE BOUNDARY, WORK COMMUNITY, and QUIET BACKS are incomplete, unless they contain an ACCESSIBLE GREEN; and that an ACCESSIBLE GREEN is itself incomplete, unless it contains POSITIVE OUTDOOR SPACE, TREE PLACES, and a GARDEN WALL.

And what it means in practical terms is that, if you

want to lay out a green according to this pattern, you must not only follow the instructions which describe the pattern itself, but must also try to embed the green within an IDENTIFIABLE NEIGHBORHOOD or in some SUB-CULTURE BOUNDARY, and in a way that helps to form QUIET BACKS; and then you must work to complete the green by building in some POSITIVE OUTDOOR SPACE, TREE PLACES, and a GARDEN WALL.

In short, no pattern is an isolated entity. Each pattern can exist in the world, only to the extent that is supported by other patterns: the larger patterns in which it is embedded, the patterns of the same size that surround it, and the smaller patterns which are embedded in it.

This is a fundamental view of the world. It says that when you build a thing you cannot merely build that thing in isolation, but must also repair the world around it, and within it, so that the larger world at that one place becomes more coherent, and more whole; and the thing which you make takes its place in the web of nature, as you make it.

Now we explain the nature of the relation between problems and solutions, within the individual patterns.

Each solution is stated in such a way that it gives the essential field of relationships needed to solve the problem, but in a very general and abstract way—so that you can solve the problem for yourself, in your own way, by adapting it to your preferences, and the local conditions at the place where you are making it.

For this reason, we have tried to write each solution in a way which imposes nothing on you. It contains only those essentials which cannot be avoided if you really

want to solve the problem. In this sense, we have tried, in each solution, to capture the invariant property common to all places which succeed in solving the problem.

But of course, we have not always succeeded. The solutions we have given to these problems vary in significance. Some are more true, more profound, more certain, than others. To show this clearly we have marked every pattern, in the text itself, with two asterisks, or one asterisk, or no asterisks.

In the patterns marked with two asterisks, we believe that we have succeeded in stating a true invariant: in short, that the solution we have stated summarizes a *property* common to *all possible ways* of solving the stated problem. In these two-asterisk cases we believe, in short, that it is not possible to solve the stated problem properly, without shaping the environment in one way or another according to the pattern that we have given—and that, in these cases, the pattern describes a deep and inescapable property of a well-formed environment.

In the patterns marked with one asterisk, we believe that we have made some progress towards identifying such an invariant: but that with careful work it will certainly be possible to improve on the solution. In these cases, we believe it would be wise for you to treat the pattern with a certain amount of disrespect—and that you seek out variants of the solution which we have given, since there are almost certainly possible ranges of solutions which are not covered by what we have written.

Finally, in the patterns without an asterisk, we are certain that we have *not* succeeded in defining a true

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invariant—that, on the contrary, there are certainly ways of solving the problem different from the one which we have given. In these cases we have still stated a solution, in order to be concrete—to provide the reader with at least one way of solving the problem—but the task of finding the true invariant, the true property which lies at the heart of all possible solutions to this problem, remains undone.

We hope, of course, that many of the people who read, and use this language, will try to improve these patterns—will put their energy to work, in this task of finding more true, more profound invariants—and we hope that gradually these more true patterns, which are slowly discovered, as time goes on, will enter a common language, which all of us can share.

You see then that the patterns are very much alive and evolving. In fact, if you like, each pattern may be looked upon as a hypothesis like one of the hypotheses of science. In this sense, each pattern represents our current best guess as to what arrangement of the physical environment will work to solve the problem presented. The empirical questions center on the problem—does it occur and is it felt in the way we have described it?—and the solution—does the arrangement we propose in fact resolve the problem? And the asterisks represent our degree of faith in these hypotheses. But of course, no matter what the asterisks say, the patterns are still hypotheses, all 253 of them—and are therefore all tentative, all free to evolve under the impact of new experience and observation.

Let us finally explain the status of this language, why

we have called it “A Pattern Language” with the emphasis on the word “A,” and how we imagine this pattern language might be related to the countless thousands of other languages we hope that people will make for themselves, in the future.

The Timeless Way of Building says that every society which is alive and whole, will have its own unique and distinct pattern language; and further, that every individual in such a society will have a unique language, shared in part, but which as a totality is unique to the mind of the person who has it. In this sense, in a healthy society there will be as many pattern languages as there are people—even though these languages are shared and similar.

The question then arises: What exactly is the status of this published language? In what frame of mind, and with what intention, are we publishing this language here? The fact that it is published as a book means that many thousands of people can use it. Is it not true that there is a danger that people might come to rely on this one printed language, instead of developing their own languages, in their own minds?

The fact is, that we have written this book as a first step in the society-wide process by which people will gradually become conscious of their own pattern languages, and work to improve them. We believe, and have explained in *The Timeless Way of Building*, that the languages which people have today are so brutal, and so fragmented, that most people no longer have any language to speak of at all—and what they do have is not based on human, or natural considerations.

We have spent years trying to formulate this language, in the hope that when a person uses it, he will be so impressed by its power, and so joyful in its use, that he will understand again, what it means to have a living language of this kind. If we only succeed in that, it is possible that each person may once again embark on the construction and development of his own language—perhaps taking the language printed in this book, as a point of departure.

And yet, we do believe, of course, that this language which is printed here is something more than a manual, or a teacher, or a version of a possible pattern language. Many of the patterns here are archetypal—so deep, so deeply rooted in the nature of things, that it seems likely that they will be a part of human nature, and human action, as much in five hundred years, as they are today. We doubt very much whether anyone could construct a valid pattern language, in his own mind, which did not include the pattern ARCADES (119) for example, or the pattern ALCOVES (179).

In this sense, we have also tried to penetrate, as deep as we are able, into the nature of things in the environment: and hope that a great part of this language, which we print here, will be a core of any sensible human pattern language, which any person constructs for himself, in his own mind. In this sense, at least a part of the language we have presented here, is the archetypal core of all possible pattern languages, which can make people feel alive and human.

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A pattern language has the structure of a network. This is explained fully in *The Timeless Way of Building*. However, when we use the network of a language, we always use it as a *sequence*, going through the patterns, moving always from the larger patterns to the smaller, always from the ones which create structures, to the ones which then embellish those structures, and then to those which embellish the embellishments. . . .

Since the language is in truth a network, there is no one sequence which perfectly captures it. But the sequence which follows, captures the broad sweep of the full network; in doing so, it follows a line, dips down, dips up again, and follows an irregular course, a little like a needle following a tapestry.

The sequence of patterns is both a summary of the language, and at the same time, an index to the patterns. If you read through the sentences which connect the groups of patterns to one another, you will get an overview of the whole language. And once you get this overview, you will then be able to find the patterns which are relevant to your own project.

And finally, as we shall explain in the next section, this sequence of patterns is also the “base map,” from

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which you can make a language for your own project, by choosing the patterns which are most useful to you, and leaving them more or less in the order that you find them printed here.

* * *

We begin with that part of the language which defines a town or community. These patterns can never be "designed" or "built" in one fell swoop—but patient piece-meal growth, designed in such a way that every individual act is always helping to create or generate these larger global patterns, will, slowly and surely, over the years, make a community that has these global patterns in it.

I. INDEPENDENT REGIONS

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

SUMMARY OF THE LANGUAGE

through city policies, encourage the piecemeal formation of those major structures which define the city;

8. MOSAIC OF SUBCULTURES

9. SCATTERED WORK

10. MAGIC OF THE CITY

11. LOCAL TRANSPORT AREAS

build up these larger city patterns from the grass roots, through action essentially controlled by two levels of self-governing communities, which exist as physically identifiable places;

12. COMMUNITY OF 7000

13. SUBCULTURE BOUNDARY

14. IDENTIFIABLE NEIGHBORHOOD

15. NEIGHBORHOOD BOUNDARY

connect communities to one another by encouraging the growth of the following networks;

16. WEB OF PUBLIC TRANSPORTATION

17. RING ROADS

18. NETWORK OF LEARNING

19. WEB OF SHOPPING

20. MINI-BUSES

establish community and neighborhood policy to control the character of the local environment according to the following fundamental principles;

21. FOUR-STORY LIMIT

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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

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between the house clusters, around the centers, and especially in the boundaries between neighborhoods, encourage the formation of work communities;

41. WORK COMMUNITY
42. INDUSTRIAL RIBBON
43. UNIVERSITY AS A MARKETPLACE
44. LOCAL TOWN HALL
45. NECKLACE OF COMMUNITY PROJECTS
46. MARKET OF MANY SHOPS
47. HEALTH CENTER
48. HOUSING IN BETWEEN

between the house clusters and work communities, allow the local road and path network to grow informally, piecemeal;

49. LOOPED LOCAL ROADS
50. T JUNCTIONS
51. GREEN STREETS
52. NETWORK OF PATHS AND CARS
53. MAIN GATEWAYS
54. ROAD CROSSING
55. RAISED WALK
56. BIKE PATHS AND RACKS
57. CHILDREN IN THE CITY

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in the communities and neighborhoods, provide public open land where people can relax, rub shoulders and renew themselves;

58. CARNIVAL
59. QUIET BACKS
60. ACCESSIBLE GREEN
61. SMALL PUBLIC SQUARES
62. HIGH PLACES
63. DANCING IN THE STREET
64. POOLS AND STREAMS
65. BIRTH PLACES
66. HOLY GROUND

in each house cluster and work community, provide the smaller bits of common land, to provide for local versions of the same needs;

67. COMMON LAND
68. CONNECTED PLAY
69. PUBLIC OUTDOOR ROOM
70. GRAVE SITES
71. STILL WATER
72. LOCAL SPORTS
73. ADVENTURE PLAYGROUND
74. ANIMALS

within the framework of the common land, the clusters, and the work communities encourage transformation of

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the smallest independent social institutions: the families, workgroups, and gathering places. The family, in all its forms;

75. THE FAMILY
76. HOUSE FOR A SMALL FAMILY
77. HOUSE FOR A COUPLE
78. HOUSE FOR ONE PERSON
79. YOUR OWN HOME

the workgroups, including all kinds of workshops and offices and even children's learning groups;

80. SELF-GOVERNING WORKSHOPS
AND OFFICES
81. SMALL SERVICES WITHOUT RED TAPE
82. OFFICE CONNECTIONS
83. MASTER AND APPRENTICES
84. TEENAGE SOCIETY
85. SHOPFRONT SCHOOLS
86. CHILDREN'S HOME

the local shops and gathering places.

87. INDIVIDUALLY OWNED SHOPS
88. STREET CAFE
89. CORNER GROCERY
90. BEER HALL
91. TRAVELER'S INN
92. BUS STOP

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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

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fix the position of individual buildings on the site, within the complex, one by one, according to the nature of the site, the trees, the sun: this is one of the most important moments in the language;

104. SITE REPAIR

105. SOUTH FACING OUTDOORS

106. POSITIVE OUTDOOR SPACE

107. WINGS OF LIGHT

108. CONNECTED BUILDINGS

109. LONG THIN HOUSE

within the buildings' wings, lay out the entrances, the gardens, courtyards, roofs, and terraces: shape both the volume of the buildings and the volume of the space between the buildings at the same time—remembering that indoor space and outdoor space, yin and yang, must always get their shape together;

110. MAIN ENTRANCE

111. HALF-HIDDEN GARDEN

112. ENTRANCE TRANSITION

113. CAR CONNECTION

114. HIERARCHY OF OPEN SPACE

115. COURTYARDS WHICH LIVE

116. CASCADE OF ROOFS

117. SHELTERING ROOF

118. ROOF GARDEN

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when the major parts of buildings and the outdoor areas have been given their rough shape, it is the right time to give more detailed attention to the paths and squares between the buildings;

I19. ARCADES

I20. PATHS AND GOALS

I21. PATH SHAPE

I22. BUILDING FRONTS

I23. PEDESTRIAN DENSITY

I24. ACTIVITY POCKETS

I25. STAIR SEATS

I26. SOMETHING ROUGHLY IN THE
MIDDLE

now, with the paths fixed, we come back to the buildings: within the various wings of any one building, work out the fundamental gradients of space, and decide how the movement will connect the spaces in the gradients;

I27. INTIMACY GRADIENT

I28. INDOOR SUNLIGHT

I29. COMMON AREAS AT THE HEART

I30. ENTRANCE ROOM

I31. THE FLOW THROUGH ROOMS

I32. SHORT PASSAGES

I33. STAIRCASE AS A STAGE

I34. ZEN VIEW

I35. TAPESTRY OF LIGHT AND DARK

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within the framework of the wings and their internal gradients of space and movement, define the most important areas and rooms. First, for a house;

- I36. COUPLE'S REALM
- I37. CHILDREN'S REALM
- I38. SLEEPING TO THE EAST
- I39. FARMHOUSE KITCHEN
- I40. PRIVATE TERRACE ON THE STREET
- I41. A ROOM OF ONE'S OWN
- I42. SEQUENCE OF SITTING SPACES
- I43. BED CLUSTER
- I44. BATHING ROOM
- I45. BULK STORAGE

then the same for offices, workshops, and public buildings;

- I46. FLEXIBLE OFFICE SPACE
- I47. COMMUNAL EATING
- I48. SMALL WORK GROUPS
- I49. RECEPTION WELCOMES YOU
- I50. A PLACE TO WAIT
- I51. SMALL MEETING ROOMS
- I52. HALF-PRIVATE OFFICE

add those small outbuildings which must be slightly independent from the main structure, and put in the access from the upper stories to the street and gardens;

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- I53. ROOMS TO RENT
- I54. TEENAGER'S COTTAGE
- I55. OLD AGE COTTAGE
- I56. SETTLED WORK
- I57. HOME WORKSHOP
- I58. OPEN STAIRS

prepare to knit the inside of the building to the outside, by treating the edge between the two as a place in its own right, and making human details there;

- I59. LIGHT ON TWO SIDES OF EVERY ROOM
- I60. BUILDING EDGE
- I61. SUNNY PLACE
- I62. NORTH FACE
- I63. OUTDOOR ROOM
- I64. STREET WINDOWS
- I65. OPENING TO THE STREET
- I66. GALLERY SURROUND
- I67. SIX-FOOT BALCONY
- I68. CONNECTION TO THE EARTH

decide on the arrangement of the gardens, and the places in the gardens;

- I69. TERRACED SLOPE
- I70. FRUIT TREES
- I71. TREE PLACES

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I72. GARDEN GROWING WILD

I73. GARDEN WALL

I74. TRELLISED WALK

I75. GREENHOUSE

I76. GARDEN SEAT

I77. VEGETABLE GARDEN

I78. COMPOST

go back to the inside of the building and attach the necessary minor rooms and alcoves to complete the main rooms;

I79. ALCOVES

I80. WINDOW PLACE

I81. THE FIRE

I82. EATING ATMOSPHERE

I83. WORKSPACE ENCLOSURE

I84. COOKING LAYOUT

I85. SITTING CIRCLE

I86. COMMUNAL SLEEPING

I87. MARRIAGE BED

I88. BED ALCOVE

I89. DRESSING ROOM

fine tune the shape and size of rooms and alcoves to make them precise and buildable;

I90. CEILING HEIGHT VARIETY

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191. THE SHAPE OF INDOOR SPACE
192. WINDOWS OVERLOOKING LIFE
193. HALF-OPEN WALL
194. INTERIOR WINDOWS
195. STAIRCASE VOLUME
196. CORNER DOORS

give all the walls some depth, wherever there are to be alcoves, windows, shelves, closets, or seats;

197. THICK WALLS
198. CLOSETS BETWEEN ROOMS
199. SUNNY COUNTER
200. OPEN SHELVES
201. WAIST-HIGH SHELF
202. BUILT-IN SEATS
203. CHILD CAVES
204. SECRET PLACE

At this stage, you have a complete design for an individual building. If you have followed the patterns given, you have a scheme of spaces, either marked on the ground, with stakes, or on a piece of paper, accurate to the nearest foot or so. You know the height of rooms, the rough size and position of windows and doors, and you know roughly how the roofs of the building, and the gardens are laid out.

The next, and last part of the language, tells how to

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make a buildable building directly from this rough scheme of spaces, and tells you how to build it, in detail.

Before you lay out structural details, establish a philosophy of structure which will let the structure grow directly from your plans and your conception of the buildings;

- 205. STRUCTURE FOLLOWS SOCIAL SPACES
- 206. EFFICIENT STRUCTURE
- 207. GOOD MATERIALS
- 208. GRADUAL STIFFENING

within this philosophy of structure, on the basis of the plans which you have made, work out the complete structural layout; this is the last thing you do on paper, before you actually start to build;

- 209. ROOF LAYOUT
- 210. FLOOR AND CEILING LAYOUT
- 211. THICKENING THE OUTER WALLS
- 212. COLUMNS AT THE CORNERS
- 213. FINAL COLUMN DISTRIBUTION

put stakes in the ground to mark the columns on the site, and start erecting the main frame of the building according to the layout of these stakes;

- 214. ROOT FOUNDATIONS
- 215. GROUND FLOOR SLAB
- 216. BOX COLUMNS

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- 217. PERIMETER BEAMS
- 218. WALL MEMBRANES
- 219. FLOOR-CEILING VAULTS
- 220. ROOF VAULTS

within the main frame of the building, fix the exact positions for openings—the doors and windows—and frame these openings;

- 221. NATURAL DOORS AND WINDOWS
- 222. LOW SILL
- 223. DEEP REVEALS
- 224. LOW DOORWAY
- 225. FRAMES AS THICKENED EDGES

as you build the main frame and its openings, put in the following subsidiary patterns where they are appropriate;

- 226. COLUMN PLACE
- 227. COLUMN CONNECTION
- 228. STAIR VAULT
- 229. DUCT SPACE
- 230. RADIANT HEAT
- 231. DORMER WINDOWS
- 232. ROOF CAPS

put in the surfaces and indoor details;

- 233. FLOOR SURFACE
- 234. LAPPED OUTSIDE WALLS

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- 235. SOFT INSIDE WALLS
- 236. WINDOWS WHICH OPEN WIDE
- 237. SOLID DOORS WITH GLASS
- 238. FILTERED LIGHT
- 239. SMALL PANES
- 240. HALF-INCH TRIM

build outdoor details to finish the outdoors as fully as the indoor spaces;

- 241. SEAT SPOTS
- 242. FRONT DOOR BENCH
- 243. SITTING WALL
- 244. CANVAS ROOFS
- 245. RAISED FLOWERS
- 246. CLIMBING PLANTS
- 247. PAVING WITH CRACKS BETWEEN
THE STONES
- 248. SOFT TILE AND BRICK

complete the building with ornament and light and color and your own things;

- 249. ORNAMENT
- 250. WARM COLORS
- 251. DIFFERENT CHAIRS
- 252. POOLS OF LIGHT
- 253. THINGS FROM YOUR LIFE

CHOOSING A LANGUAGE FOR YOUR PROJECT

All 253 patterns together form a language. They create a coherent picture of an entire region, with the power to generate such regions in a million forms, with infinite variety in all the details.

It is also true that any small sequence of patterns from this language is itself a language for a smaller part of the environment; and this small list of patterns is then capable of generating a million parks, paths, houses, workshops, or gardens.

For example, consider the following ten patterns:

PRIVATE TERRACE ON THE STREET (140)

SUNNY PLACE (161)

OUTDOOR ROOM (163)

SIX-FOOT BALCONY (167)

PATHS AND GOALS (120)

CEILING HEIGHT VARIETY (190)

COLUMNS AT THE CORNERS (212)

FRONT DOOR BENCH (242)

RAISED FLOWERS (245)

DIFFERENT CHAIRS (251)

This short list of patterns is itself a language: it is one of a thousand possible languages for a porch, at the front of a house. One of us chose this small language, to build

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a porch onto the front of his house. This is the way the language, and its patterns, helped to generate this porch.

I started with **PRIVATE TERRACE ON THE STREET** (140). That pattern calls for a terrace, slightly raised, connected to the house, and on the street side. **SUNNY PLACE** (161) suggests that a special place on the sunny side of the yard should be intensified and made into a place by the use of a patio, balcony, outdoor room, etc. I used these two patterns to locate a raised platform on the south side of the house.

To make this platform into an **OUTDOOR ROOM** (163), I put it half under the existing roof overhang, and kept a mature pyracanthus tree right smack in the middle of the platform. The overhead foliage of the tree added to the roof-like enclosure of the space. I put a wind screen of fixed glass on the west side of the platform too, to give it even more enclosure.

I used **SIX-FOOT BALCONY** (167) to determine the size of the platform. But this pattern had to be used judiciously and not blindly—the reasoning for the pattern has to do with the minimum space required for people to sit comfortably and carry on a discussion around a small side-table. Since I wanted space for at least two of these conversation areas—one under the roof for very hot or rainy days, and one out under the sky for days when you wanted to be full in the sun, the balcony had to be made 12 x 12 feet square.

Now **PATHS AND GOALS** (120): Usually, this pattern deals with large paths in a neighborhood, and comes much earlier in a language. But I used it in a special way. It says that the paths which naturally get formed by people's walking, on the land, should be preserved and intensified. Since the path to our front door cut right across the corner of the place where I had planned to put the platform, I cut the corner of the platform off.

The height of the platform above the ground was determined by **CEILING HEIGHT VARIETY** (190). By building the platform approximately one foot above the ground line, the ceiling height of the covered portion came out at between 6 and 7 feet—just right for a space as small as this. Since this height above the ground level is just about right for sitting, the pattern **FRONT DOOR BENCH** (242) was automatically satisfied.

There were three columns standing, supporting the roof over

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the old porch. They had to stay where they are, because they hold the roof up. But, following COLUMNS AT THE CORNERS (212), the platform was very carefully tailored to their positions—so that the columns help define the social spaces on either side of them.

Finally, we put a couple of flower boxes next to the “front door bench”—it’s nice to smell them when you sit there—according to RAISED FLOWERS (245). And the old chairs you can see in the porch are DIFFERENT CHAIRS (251).

You can see, from this short example, how powerful and simple a pattern language is. And you are now, perhaps ready to appreciate how careful you must be, when you construct a language for yourself and your own project.



The finished porch

The character of the porch is given by the ten patterns in this short language. In just this way, each part of the environment is given its character by the collection of patterns which we choose to build into it. The character of what you build, will be given to it by the language of patterns you use, to generate it.

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For this reason, of course, the task of choosing a language for your project is fundamental. The pattern language we have given here contains 253 patterns. You can therefore use it to generate an almost unimaginably large number of possible different smaller languages, for all the different projects you may choose to do, simply by picking patterns from it.

We shall now describe a rough procedure by which you can choose a language for your own project, first by taking patterns from this language we have printed here, and then by adding patterns of your own.

1. First of all, make a copy of the master sequence (pages xix–xxxiv) on which you can tick off the patterns which will form the language for your project. If you don't have access to a copying machine, you can tick off patterns in the list printed in the book, use paper clips to mark pages, write your own list, use paper markers—whatever you like. But just for now, to explain it clearly, we shall assume that you have a copy of the list in front of you.

2. Scan down the list, and find the pattern which best describes the overall scope of the project you have in mind. This is the starting pattern for your project. Tick it. (If there are two or three possible candidates, don't worry: just pick the one which seems best: the others will fall in place as you move forward.)

3. Turn to the starting pattern itself, in the book, and read it through. Notice that the other patterns mentioned by name at the beginning and at the end, of the pattern you are reading, are also possible candidates for your language. The ones at the beginning will tend to be “larger” than your project. Don't include them, unless

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you have the power to help create these patterns, at least in a small way, in the world around your project. The ones at the end are “smaller.” Almost all of them will be important. Tick all of them, on your list, unless you have some special reason for not wanting to include them.

4. Now your list has some more ticks on it. Turn to the next highest pattern on the list which is ticked, and open the book to that pattern. Once again, it will lead you to other patterns. Once again, tick those which are relevant—especially the ones which are “smaller” that come at the end. As a general rule, do not tick the ones which are “larger” unless you can do something about them, concretely, in your own project.

5. When in doubt about a pattern, don’t include it. Your list can easily get too long: and if it does, it will become confusing. The list will be quite long enough, even if you only include the patterns you especially like.

6. Keep going like this, until you have ticked all the patterns you want for your project.

7. Now, adjust the sequence by adding your own material. If there are things you want to include in your project, but you have not been able to find patterns which correspond to them, then write them in, at an appropriate point in the sequence, near other patterns which are of about the same size and importance. For example, there is no pattern for a sauna. If you want to include one, write it in somewhere near BATHING ROOM (144) in your sequence.

8. And of course, if you want to change any patterns, change them. There are often cases where you may have a personal version of a pattern, which is more true, or

CHOOSING A LANGUAGE FOR YOUR SUBJECT

more relevant for you. In this case, you will get the most "power" over the language, and make it your own most effectively, if you write the changes in, at the appropriate places in the book. And, it will be most concrete of all, if you change the name of the pattern too—so that it captures your own changes clearly.

* * *

Suppose now that you have a language for your project. The way to use the language depends very much on its scale. Patterns dealing with towns can only be implemented gradually, by grass roots action; patterns for a building can be built up in your mind, and marked out on the ground; patterns for construction must be built physically, on the site. For this reason we have given three separate instructions, for these three different scales. For towns, see page 3; for buildings, see page 463; for construction, see page 935.

The procedures for each of these three scales are described in much more detail with extensive examples, in the appropriate chapters of *The Timeless Way of Building*. For the town—see chapters 24 and 25; for an individual building—see chapters 20, 21, and 22; and for the process of construction which describes the way a building is actually built see chapter 23.

THE POETRY OF THE LANGUAGE

Finally, a note of caution. This language, like English, can be a medium for prose, or a medium for poetry. The difference between prose and poetry is not that different languages are used, but that the same language is used, differently. In an ordinary English sentence, each word has one meaning, and the sentence too, has one simple meaning. In a poem, the meaning is far more dense. Each word carries several meanings; and the sentence as a whole carries an enormous density of interlocking meanings, which together illuminate the whole.

The same is true for pattern languages. It is possible to make buildings by stringing together patterns, in a rather loose way. A building made like this, is an assembly of patterns. It is not dense. It is not profound. But it is also possible to put patterns together in such a way that many many patterns overlap in the same physical space: the building is very dense; it has many meanings captured in a small space; and through this density, it becomes profound.

In a poem, this kind of density, creates illumination, by making identities between words, and meanings, whose identity we have not understood before. In “O Rose thou art sick,” the rose is identified with many

THE POETRY OF THE LANGUAGE

greater, and more personal things than any rose—and the poem illuminates the person, and the rose, because of this connection. The connection not only illuminates the words, but also illuminates our actual lives.

O Rose thou art sick.
The invisible worm,
That flies in the night
In the howling storm:

Has found out thy bed
Of crimson joy:
And his dark secret love
Does thy life destroy.

WILLIAM BLAKE

The same exactly, happens in a building. Consider, for example, the two patterns BATHING ROOM (144) and STILL WATER (71). One defines a part of a house where you can bathe yourself slowly, with pleasure, perhaps in company; a place to rest your limbs, and to relax. The other is a place in a neighborhood, where this is water to gaze into, perhaps to swim in, where children can sail boats, and splash about, which nourishes those parts of ourselves which rely on water as one of the great elements of the unconscious.

Suppose now, that we make a complex of buildings where individual bathing rooms are somehow connected to a common pond, or lake, or pool—where the bathing room merges with this common place; where there is no sharp distinction between the individual and family processes of the bathing room, and the common pleasure of the common pool. In this place, these two patterns

exist in the same space; they are identified; there is a compression of the two, which requires less space, and which is more profound than in a place where they are merely side by side. The compression illuminates each of the patterns, sheds light on its meaning; and also illuminates our lives, as we understand a little more about the connections of our inner needs.

But this kind of compression is not only poetic and profound. It is not only the stuff of poems and exotic statements, but to some degree, the stuff of every English sentence. To some degree, there is compression in every single word we utter, just because each word carries the whisper of the meanings of the words it is connected to. Even "Please pass the butter, Fred" has some compression in it, because it carries overtones that lie in the connections of these words to all the words which came before it.

Each of us, talking to our friends, or to our families, makes use of these compressions, which are drawn out from the connections between words which are given by the language. The more we can feel all the connections in the language, the more rich and subtle are the things we say at the most ordinary times.

And once again, the same is true in building. The compression of patterns into a single space, is not a poetic and exotic thing, kept for special buildings which are works of art. It is the most ordinary economy of space. It is quite possible that all the patterns for a house might, in some form be present, and overlapping, in a simple one-room cabin. The patterns do not need to be strung out, and kept separate. Every building, every room,

THE POETRY OF THE LANGUAGE

every garden is better, when all the patterns which it needs are compressed as far as it is possible for them to be. The building will be cheaper; and the meanings in it will be denser.

It is essential then, once you have learned to use the language, that you pay attention to the possibility of compressing the many patterns which you put together, in the smallest possible space. You may think of this process of compressing patterns, as a way to make the cheapest possible building which has the necessary patterns in it. It is, also, the only way of using a pattern language to make buildings which are poems.

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We begin with that part of the language which defines a town or a community. These patterns can never be "designed" or "built" in one fell swoop—but patient piecemeal growth, designed in such a way that every individual act is always helping to create or generate these larger global patterns, will, slowly and surely, over the years, make a community that has these global patterns in it.

* * *

The first 94 patterns deal with the large-scale structure of the environment: the growth of town and country, the layout of roads and paths, the relationship between work and family, the formation of suitable public institutions for a neighborhood, the kinds of public space required to support these institutions.

We believe that the patterns presented in this section can be implemented best by piecemeal processes, where each project built or each planning decision made is sanctioned by the community according as it does or does not help to form certain large-scale patterns. *We do not believe that these large patterns, which give so much structure to a town or of a neighborhood, can be created by centralized authority, or by laws, or by master plans.* We believe instead that they can emerge gradually and organically, almost of their own accord, if every act of building, large or small, takes on the responsibility for gradually shaping its small corner of the world to make these larger patterns appear there.

In the next few pages we shall describe a planning

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process which we believe is compatible with this piece-meal approach.

1. The core of the planning process we propose is this: The region is made up of a hierarchy of social and political groups, from the smallest and most local groups—families, neighborhoods, and work groups—to the largest groups—city councils, regional assemblies.

Imagine for example a metropolitan region composed very roughly of the following groups, each group a coherent political entity:

- A. The region: 8,000,000 people.
- B. The major city: 500,000 people.
- C. Communities and small towns: 5-10,000 people each.
- D. Neighborhoods: 500-1000 people each.
- E. House clusters and work communities: 30-50 people each.
- F. Families and work groups: 1-15 people each.

2. *Each group makes its own decisions about the environment it uses in common.* Ideally, each group actually owns the common land at its “level.” And higher groups do not own or control the land belonging to lower groups—they only own and control the common land that lies *between* them, and which serves the higher group. For instance, a community of 7000 might own the public land lying between its component neighborhoods, but not the neighborhoods themselves. A co-operative house cluster would own the common land between the houses, but not the houses themselves.

3. Each of these groups takes responsibility for those patterns relevant to its own internal structure.

Thus, we imagine, for example, that the various

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groups we have named might choose to adopt the following patterns:

- A. Region: INDEPENDENT REGIONS
 DISTRIBUTION OF TOWNS
 CITY COUNTRY FINGERS . . .
- B. City: MOSAIC OF SUBCULTURES
 SCATTERED WORK
 THE MAGIC OF THE CITY . . .
- C. Community: COMMUNITY OF 7000
 SUBCULTURE BOUNDARY . . .

4. Each neighborhood, community, or city is then free to find various ways of persuading its constituent groups and individuals to implement these patterns gradually.

In every case this will hinge on some kind of incentive. However, the actual incentives chosen might vary greatly, in their power, and degree of enforcement. Some patterns, like CITY COUNTRY FINGERS, might be made a matter of regional law—since nothing less can deter money-hungry developers from building everywhere. Other patterns, like MAIN GATEWAY, BIRTH PLACES, STILL WATER, might be purely voluntary. And other patterns might have various kinds of incentives, intermediate between these extremes.

For example, NETWORK OF PATHS AND CARS, ACCESSIBLE GREENS, and others might be formulated so that tax breaks will be given to those development projects which help to bring them into existence.

5. As far as possible, implementation should be loose and voluntary, based on social responsibility, and not on legislation or coercion.

Suppose, for example, that there is a citywide decision

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to increase industrial uses in certain areas. Within the process here defined, the city could not implement this policy over the heads of the neighborhoods, by zoning or the power of eminent domain or any other actions. They can suggest that it is important, and can increase the flow of money to any neighborhoods willing to help implement this larger pattern. They can implement it, in short, if they can find local neighborhoods willing to see their own future in these terms, and willing to modify their own environment to help make it happen locally. As they find such neighborhoods, then it will happen gradually, over a period of years, as the local neighborhoods respond to the incentives.

6. Once such a process is rolling, a community, having adopted the pattern **HEALTH CENTER**, for example, might invite a group of doctors to come and build such a place. The team of users, designing the clinic would work from the **HEALTH CENTER** pattern, and all the other relevant patterns that are part of the community's language. They would try to build into their project any higher patterns that the community has adopted—**NINE PER CENT PARKING, LOCAL SPORTS, NETWORK OF PATHS AND CARS, ACCESSIBLE GREEN**, etc.

7. It is of course possible for individual acts of building to begin working their way toward these larger communal patterns, even before the neighborhood, community, and regional groups are formed.

Thus, for example, a group of people seeking to get rid of noisy and dangerous traffic in front of their houses might decide to tear up the asphalt, and build a **GREEN STREET** there instead. They would present their case to

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the traffic department based on the arguments presented in the pattern, and on an analysis of the existing street pattern.

Another group wanting to build a small communal workshop, in a neighborhood currently zoned for residential use only, can argue their case based on SCATTERED WORK, SETTLED WORK, etc., and possibly get the city or zoning department to change the zoning regulation on this matter, and thereby slowly work toward introducing patterns, one at a time within the current framework of codes and zoning.

We have worked out a partial version of this process at the Eugene campus of the University of Oregon. That work is described in Volume 3, *The Oregon Experiment*. But a university is quite different from a town, because it has a single centralized owner, and a single source of funds. It is inevitable, therefore, that the process by which individual acts can work together to form larger wholes without restrictive planning from above, can only partly be put into practice there.

The theory which explains how large patterns can be built piecemeal from smaller ones, is given in Chapters 24 and 25 of *The Timeless Way of Building*.

At some time in the future, we hope to write another volume, which explains the political and economic processes needed to implement this process fully, in a town.

*Do what you can to establish a world government,
with a thousand independent regions, instead of
countries;*

I. INDEPENDENT REGIONS

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. 962-67).

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.

TOWNS

They cannot claim to have struck the balance between the needs of towns and communities, and the needs of the world community as a whole. Indeed, their tendency has been to override local needs and repress local culture, and at the same time aggrandize themselves to the point where they are out of reach, their power barely conceivable to the average citizen.

2. Unless a region has at least several million people in it, it will not be large enough to have a seat in a world government, and will therefore not be able to supplant the power and authority of present nation-states.

We found this point expressed by Lord Weymouth of Warminster, England, in a letter to the *New York Times*, March 15, 1973:

WORLD FEDERATION: A THOUSAND STATES

. . . the essential foundation stone for world federation on a democratic basis consists of regionalization within centralized government. . . . This argument rests on the idea that world government is lacking in moral authority unless each delegate represents an approximately equal portion of the world's population. Working backward from an estimate of the global population in the year 2000, which is anticipated to rise to the 10,000 million mark, I suggest that we should be thinking in terms of an ideal regional state at something around ten million, or between five and fifteen million, to give greater flexibility. This would furnish the U.N. with an assembly of equals of 1000 regional representatives: a body that would be justified in claiming to be truly representative of the world's population.

Weymouth believes that Western Europe could take some of the initiative for triggering this conception of world government. He looks for the movement for regional autonomy to take hold in the European Parliament at Strasbourg; and hopes that power can gradually be transferred from Westminister, Paris, Bonn, etc., to regional councils, federated in Strasbourg.

I am suggesting that in the Europe of the future we shall see England split down into Kent, Wessex, Mercia, Anglia and Northumbria, with an independent Scotland, Wales and Ireland, of course. Other European examples will include Brittany, Bavaria and Calabria. The national identities of our contemporary Europe will have lost their political significance.

3. Unless the regions have the power to be self-governing, they

I INDEPENDENT REGIONS

will not be able to solve their own environmental problems. The arbitrary lines of states and countries, which often cut across natural regional boundaries, make it all but impossible for people to solve regional problems in a direct and humanly efficient way.

An extensive and detailed analysis of this idea has been given by the French economist Gravier, who has proposed, in a series of books and papers, the concept of a Europe of the Regions, a Europe decentralized and reorganized around regions which cross present national and subnational boundaries. (For example, the Basel-Strasbourg Region includes parts of France, Germany, and Switzerland; the Liverpool Region includes parts of England and parts of Wales). See Jean-François Gravier, "L'Europe des regions," in 1965 Internationale Regio Planertagung, Schriften der Regio 3, Regio, Basel, 1965, pp. 211-22; and in the same volume see also Emrys Jones, "The Conflict of City Regions and Administrative Units in Britain," pp. 223-35.

4. Finally, unless the present-day great nations have their power greatly decentralized, the beautiful and differentiated languages, cultures, customs, and ways of life of the earth's people, vital to the health of the planet, will vanish. In short, we believe that independent regions are the natural receptacles for language, culture, customs, economy, and laws and that each region should be separate and independent enough to maintain the strength and vigor of its culture.

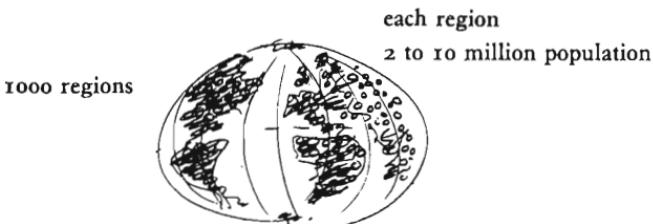
The fact that human cultures within a city can only flourish when they are at least partly separated from neighboring cultures is discussed in great detail in *MOSAIC OF SUBCULTURES* (8). We are suggesting here that the same argument also applies to regions—that the regions of the earth must also keep their distance and their dignity in order to survive as cultures.

In the best of medieval times, the cities performed this function. They provided permanent and intense spheres of cultural influence, variety, and economic exchange; they were great communes, whose citizens were co-members, each with some say in the city's destiny. We believe that the independent region can become the modern polis—the new commune—that human entity which provides the sphere of culture, language, laws, services, economic exchange, variety, which the old walled city or the polis provided for its members.

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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.



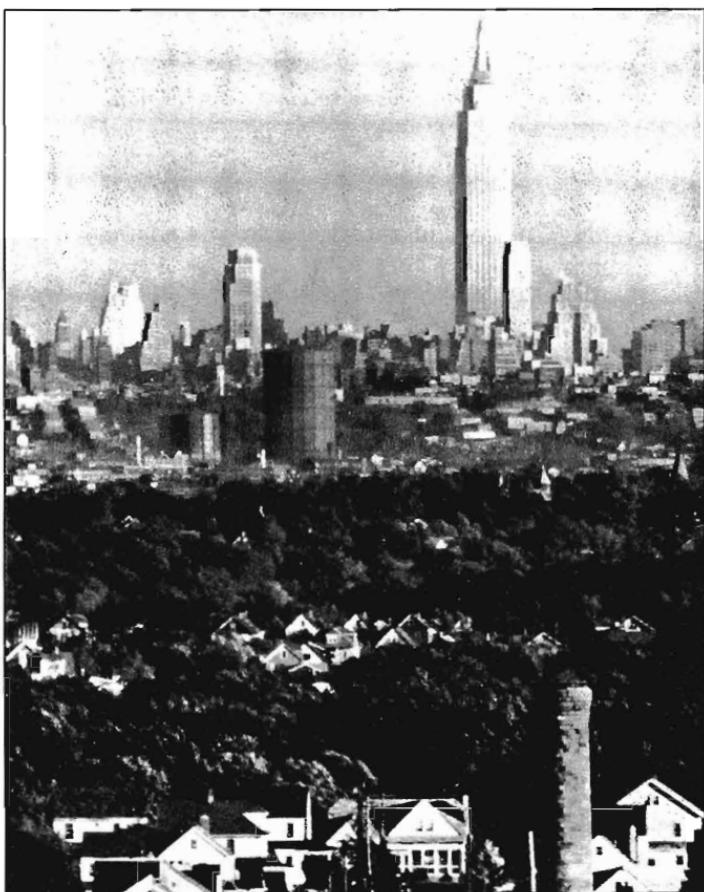
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Within each region encourage the population to distribute itself as widely as possible across the region—THE DISTRIBUTION OF TOWNS (2). . . .

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

2 THE DISTRIBUTION OF TOWNS



. . . consider now the character of settlements within the region: what balance of villages, towns, and cities is in keeping with the independence of the region—INDEPENDENT REGIONS (1)?

* * *

If the population of a region is weighted too far toward small villages, modern civilization can never emerge; but if the population is weighted too far toward big cities, the earth will go to ruin because the population isn't where it needs to be, to take care of it.

Two different necessities govern the distribution of population in a region. On the one hand, people are drawn to cities: they are drawn by the growth of civilization, jobs, education, economic growth, information. On the other hand, the region as a social and ecological whole will not be properly maintained unless the people of the region are fairly well spread out across it, living in many different kinds of settlements—farms, villages, towns, and cities—with each settlement taking care of the land around it. Industrial society has so far been following only the first of these necessities. People leave the farms and towns and villages and pack into the cities, leaving vast parts of the region depopulated and undermaintained.

In order to establish a reasonable distribution of population within a region, we must fix two separate features of the distribution: its statistical character and its spatial character. First, we must be sure that the statistical distribution of towns, by size, is appropriate: we must be sure that there are many small towns and few large ones. Second, we must then be sure that the spatial distribution of towns within the region is appropriate: we must be sure that the towns in any given size category are evenly spread out across the region, not highly concentrated.

In practice, the statistical distribution will take care of itself. A large number of studies has shown that the natural demographic and political and economic processes at work in city growth and population movement will create a distribution of

TOWNS

towns with many small towns and few large ones; and indeed, the nature of this distribution does correspond, roughly, to the logarithmic distribution that we propose in this pattern. Various explanations have been given by Christaller, Zipf, Herbert Simon, and others; they are summarized in Brian Berry and William Garrison, "Alternate Explanations of Urban Rank-Size Relationships," *Annals of the Association of American Geographers*, Vol. 48, March 1958, No. 1, pp. 83-91.

Let us assume, then, that towns will have the right distribution of sizes. But are they adjacent to one another, or are they spread out? If all the towns in a region, large, medium, and small, were crammed together in one continuous urban area, the fact that some are large and some are small, though interesting politically, would have no ecological meaning whatsoever. As far as the ecology of the region is concerned, it is the *spatial* distribution of the towns which matters, not the statistics of political boundaries within the urban sprawl.

Two arguments have led us to propose that the towns in any one size category should be uniformly distributed across the region: an economic argument and an ecological argument.

Economic. All over the world, underdeveloped areas are facing economic ruin because the jobs, and then the people, move toward the largest cities, under the influence of their economic gravity. Sweden, Scotland, Israel, and Mexico are all examples. The population moves toward Stockholm, Glasgow, Tel Aviv, Mexico City—as it does so, new jobs get created in the city, and then even more people have to come to the city in search of jobs. Gradually the imbalance between city and country becomes severe. The city becomes richer, the outlying areas continuously poorer. In the end the region may have the highest standard of living in the world at its center, yet only a few miles away, at its periphery, people may be starving.

This can only be halted by policies which guarantee an equal sharing of resources, and economic development, across the entire region. In Israel, for example, there has been some attempt to pour the limited resources with which the government can subsidize economic growth into those areas which are most backward economically. (See "Urban Growth Policies in Six

2 THE DISTRIBUTION OF TOWNS

European Countries," Urban Growth Policy Study Group, Office of International Affairs, HUD, Washington, D.C., 1972.)

Ecological. An overconcentrated population, in space, puts a huge burden on the region's overall ecosystem. As the big cities grow, the population movement overburdens these areas with air pollution, strangled transportation, water shortages, housing shortages, and living densities which go beyond the realm of human reasonableness. In some metropolitan centers, the ecology is perilously close to cracking. By contrast, a population that is spread more evenly over its region minimizes its impact on the ecology of the environment, and finds that it can take care of itself and the land more prudently, with less waste and more humanity:

This is because the actual urban superstructure required per inhabitant goes up radically as the size of the town increases beyond a certain point. For example, the *per capita* cost of high rise flats is much greater than that of ordinary houses; and the cost of roads and other transportation routes increases with the number of commuters carried. Similarly, the *per capita* expenditure on other facilities such as those for distributing food and removing wastes is much higher in cities than in small towns and villages. Thus, if everybody lived in villages the need for sewage treatment plants would be somewhat reduced, while in an entirely urban society they are essential, and the cost of treatment is high. Broadly speaking, it is only by decentralization that we can increase self-sufficiency—and self-sufficiency is vital if we are to minimize the burden of social systems on the ecosystems that support them. The Ecologist, *Blueprint for Survival*, England: Penguin, 1972, pp. 52–53.)

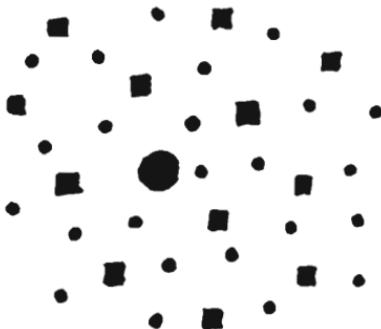
Therefore:

Encourage a birth and death process for towns within the region, which gradually has these effects:

1. The population is evenly distributed in terms of different sizes—for example, one town with 1,000,000 people, 10 towns with 100,000 people each, 100 towns with 10,000 people each, and 1000 towns with 100 people each.
2. These towns are distributed in space in such a way that within each size category the towns are homogeneously distributed all across the region.

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This process can be implemented by regional zoning policies, land grants, and incentives which encourage industries to locate according to the dictates of the distribution.



towns of 1,000,000 - 250 miles apart

towns of 100,000 - 80 miles apart

towns of 10,000 - 25 miles apart

towns of 1,000 - 8 miles apart

* * *

As the distribution evolves, protect the prime agricultural land for farming—AGRICULTURAL VALLEYS (4); protect the smaller outlying towns, by establishing belts of countryside around them and by decentralizing industry, so that the towns are economically stable—COUNTRY TOWNS (6). In the larger more central urban areas work toward land policies which maintain open belts of countryside between the belts of city—CITY COUNTRY FINGERS (3). . .

3 CITY COUNTRY FINGERS**



. . . the distribution of towns required to make a balanced region—**DISTRIBUTION OF TOWNS (2)**—can be further helped by controlling the balance of urban land and open countryside within the towns and cities themselves.

* * *

Continuous sprawling urbanization destroys life, and makes cities unbearable. But the sheer size of cities is also valuable and potent.

People feel comfortable when they have access to the countryside, experience of open fields, and agriculture; access to wild plants and birds and animals. For this access, cities must have boundaries with the countryside near every point. At the same time, a city becomes good for life only when it contains a great density of interactions among people and work, and different ways of life. For the sake of this interaction, the city must be continuous—not broken up. In this pattern we shall try to bring these two facts to balance.

Let us begin with the fact that people living in cities need contact with true rural land to maintain their roots with the land that supports them. A 1972 Gallup poll gives very strong evidence for this fact. The poll asked the question: "If you could live anywhere, would you prefer a city, suburban area, small town, or farm?" and received the following answers from 1465 Americans:

City	13%
Suburb	13
Small town	32
Farm	23

And this dissatisfaction with cities is getting worse. In 1966, 22 percent said they preferred the city—in 1972, only six years later, this figure dropped to 13 percent. ("Most don't want to live in a city," George Gallup, *San Francisco Chronicle*, Monday, December 18, 1972, p. 12.)

It is easy to understand why city people long for contact with

3 CITY COUNTRY FINGERS

the countryside. Only 100 years ago 85 percent of the Americans lived on rural land; today 70 percent live in cities. Apparently we cannot live entirely within cities—at least the kinds of cities we have built so far—our need for contact with the countryside runs too deep, it is a biological necessity:

Unique as we may think we are, we are nevertheless as likely to be genetically programmed to a natural habitat of clean air and a varied green landscape as any other mammal. To be relaxed and feel healthy usually means simply allowing our bodies to react in the way for which one hundred millions of years of evolution has equipped us. Physically and genetically, we appear best adapted to a tropical savanna, but as a cultural animal we utilize learned adaptations to cities and towns. For thousands of years we have tried in our houses to imitate not only the climate, but the setting of our evolutionary past: warm, humid air, green plants, and even animal companions. Today, if we can afford it, we may even build a greenhouse or swimming pool next to our living room, buy a place in the country, or at least take our children vacationing on the seashore. The specific physiological reactions to natural beauty and diversity, to the shapes and colors of nature (especially to green), to the motions and sounds of other animals, such as birds, we as yet do not comprehend. But it is evident that nature in our daily life should be thought of as a part of the biological need. It cannot be neglected in the discussions of resource policy for man. (H. H. Iltis, P. Andres, and O. L. Loucks, in *Population Resources Environment: Issues in Human Ecology*, P. R. Ehrlich and A. H. Ehrlich, San Francisco: Freeman and Co., 1970, p. 204.)

But it is becoming increasingly difficult for city dwellers to come into contact with rural life. In the San Francisco Bay Region 21 square miles of open space is lost each year (Gerald D. Adams, "The Open Space Explosion," *Cry California*, Fall 1970, pp. 27-32.) As cities get bigger the rural land is farther and farther away.

With the breakdown of contact between city dwellers and the countryside, the cities become prisons. Farm vacations, a year on the farm for city children, and retirement to the country for old people are replaced by expensive resorts, summer camps, and retirement villages. And for most, the only contact remaining is the weekend exodus from the city, choking the highways and the few organized recreation centers. Many weekenders return to the city on Sunday night with their nerves more shattered than when they left.



*When the countryside is far away
the city becomes a prison.*

If we wish to re-establish and maintain the proper connection between city and country, and yet maintain the density of urban interactions, it will be necessary to stretch out the urbanized area into long sinuous fingers which extend into the farmland, shown in the diagram below. Not only will the city be in the form of narrow fingers, but so will the farmlands adjacent to it.

The maximum width of the city fingers is determined by the maximum acceptable distance from the heart of the city to the countryside. We reckon that everyone should be within 10 minutes' walk of the countryside. This would set a maximum width of 1 mile for the city fingers.

The minimum for any farmland finger is determined by the minimum acceptable dimensions for typical working farms. Since 90 percent of all farms are still 500 acres or less and there is no respectable evidence that the giant farm is more efficient (Leon H. Keyserling, *Agriculture and the Public Interest*, Conference on Economic Progress, Washington, D. C., February 1965), these fingers of farmland need be no more than 1 mile wide.

The implementation of this pattern requires new policies of three different kinds. With respect to the farmland, there must be policies encouraging the reconstruction of small farms, farms that fit the one-mile bands of country land. Second, there must be policies which contain the cities' tendency to scatter in every direction. And third, the countryside must be truly public, so that people can establish contact with even those parts of the land that are under private cultivation.

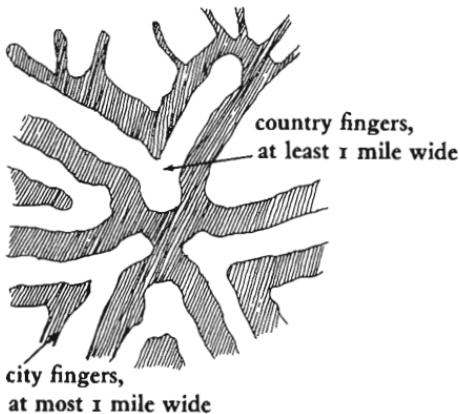
Imagine how this one pattern would transform life in cities.

3 CITY COUNTRY FINGERS

Every city dweller would have access to the countryside; the open country would be a half-hour bicycle ride from downtown.

Therefore:

Keep interlocking fingers of farmland and urban land, even at the center of the metropolis. The urban fingers should never be more than 1 mile wide, while the farmland fingers should never be less than 1 mile wide.



* * *

Whenever land is hilly, keep the country fingers in the valleys and the city fingers on the upper slopes of hillsides—AGRICULTURAL VALLEYS (4). Break the city fingers into hundreds of distinct self-governing subcultures—MOSAIC OF SUBCULTURES (8), and run the major roads and railways down the middle of these city fingers—WEB OF PUBLIC TRANSPORTATION (16), RING ROADS (17). . . .

4 AGRICULTURAL VALLEYS*



. . . this pattern helps maintain the INDEPENDENT REGIONS (1) by making regions more self-sufficient agriculturally; and it will create CITY COUNTRY FINGERS (3) 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 CITY COUNTRY FINGERS (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 town development can be diverted 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. 79-93).

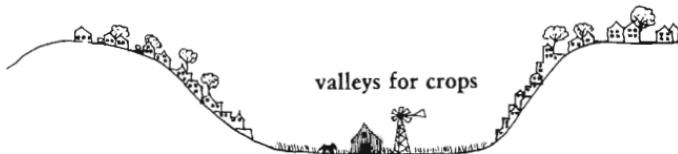
Therefore:

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

TOWNS

are not cultivated now, protect them: keep them for farms and parks and wilds.

hills for building



* * *

Keep town and city development along the hilltops and hill-sides—**CITY COUNTRY FINGERS** (3). And in the valleys, treat the ownership of the land as a form of stewardship, embracing basic ecological responsibilities—**THE COUNTRYSIDE** (7). . . .

5 LACE OF COUNTRY STREETS



. . . according to the pattern CITY COUNTRY FINGERS (3), there is a rather sharp division between city land and rural land. But at the ends of city fingers, where the country fingers open out, there is a need for an additional kind of structure. This structure has traditionally been the suburbs. But. . .



The suburb is an obsolete and contradictory form of human settlement.

Many people want to live in the country; and they also want to be close to a large city. But it is geometrically impossible to have thousands of small farms, within a few minutes of a major city center.

To live well in the country, you must have a reasonable piece of land of your own—large enough for horses, cows, chickens, an orchard—and you must have immediate access to continuous open countryside, as far as the eye can see. To have quick access to the city, you must live on a road, within a few minutes' drive from city centers, and with a bus line outside your door.

It is possible to have both, by arranging country roads around large open squares of countryside or farmland, with houses closely packed along the road, but only one house deep. Lionel March lends support to this pattern in his paper, "Homes beyond the Fringe" (Land Use and Built Form Studies, Cambridge, England, 1968). March shows that such a pattern, fully developed, could work for millions of people even in a country as small and densely populated as England.

A "lace of country streets" contains square miles of open countryside, fast roads from the city at the edge of these square miles, houses clustered along the roads, and footpaths stretching out from the city, crisscrossing the countryside.

1. Square miles of open countryside. We believe that one square mile is the smallest piece of open land which still maintains the integrity of the countryside. This figure is derived from the requirements of small farms, presented in the argument for CITY COUNTRY FINGERS (3).

5 LACE OF COUNTRY STREETS

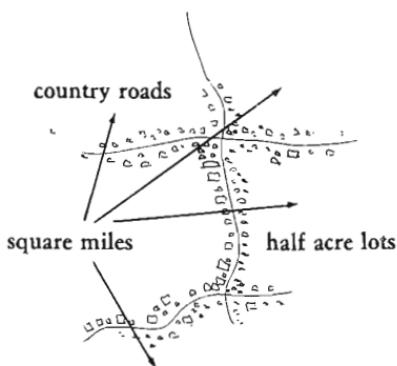
2. Roads. To protect the countryside from suburban encroachment, the roads running out into the countryside must be vastly reduced in number. A loose network of interconnected roads, at one-mile intervals with little encouragement for through-traffic to pass through them, is quite enough.

3. Lots. Situate homesteads, houses, and cottages along these country roads one or two lots deep, always setting them off the road with the open land behind them. The *minimum* land for a homestead must be approximately one-half acre to allow for basic farming. However, some of the housing could be in rows or clusters, with people working the land behind collectively. Assuming one-half acre lots around a one mile square of open land, we can have 400 households to the square mile. With four people per household, that is 1600 people per square mile; not very different from an ordinary low density suburb.

4. Footpaths. The countryside can be made accessible to city people by means of footpaths and trails running from the edge of the city and from the country roads into the countryside, across the squares of open land.

Therefore:

In the zone where city and country meet, place country roads at least a mile apart, so that they enclose squares of countryside and farmland at least one square mile in area. Build homesteads along these roads, one lot deep, on lots of at least half an acre, with the square mile of open countryside or farmland behind the houses.

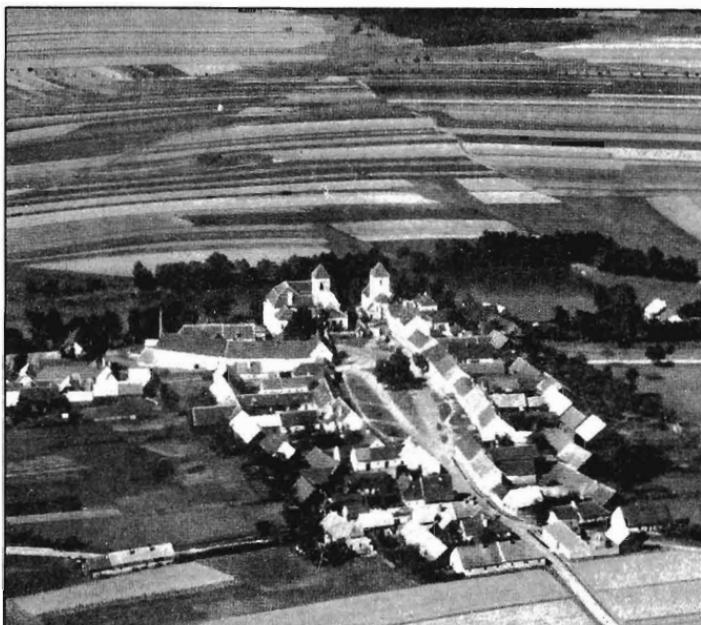


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❖ ❖ ❖

Make each square mile of countryside, both farm and park, open to the public—THE COUNTRYSIDE (7); arrange the half acre lots to form clusters of houses and neighborhoods, even when they are rather spread out—IDENTIFIABLE NEIGHBORHOOD (14), HOUSE CLUSTER (37). . . .

6 COUNTRY TOWNS*



. . . this pattern forms the backbone of the DISTRIBUTION OF TOWNS (2), which requires that scores of smaller country towns support the larger towns and cities of the region.

* * *

The big city is a magnet. It is terribly hard for small towns to stay alive and healthy in the face of central urban growth.

During the last 30 years, 30 million rural Americans have been forced to leave their farms and small towns and migrate to crowded cities. This forced migration continues at the rate of 800,000 people a year. The families that are left behind are not able to count on a future living in the country: about half of them live on less than \$3000 a year.

And it is not purely the search for jobs that has led people away from small towns to the cities. It is also a search for information, for connection to the popular culture. In Ireland and India, for example, lively people leave the villages where there is some work, and some little food, and they go to the city, looking for action, for better work, for a better life.

Unless steps are taken to recharge the life of country towns, the cities will swamp those towns which lie the nearest to them; and will rob those which lie furthest out of their most vigorous inhabitants. What are the possibilities?

1. Economic reconstruction. Incentives to business and industry to decentralize and locate in small towns. Incentives to the inhabitants of small towns to begin grassroots business and production ventures. (See, for example, the bill introduced by Joe Evins in the House of Representatives, *Congressional Record* —House, October 3, 1967, 27687.)

2. Zoning. Zoning policy to protect small towns and the countryside around them. Greenbelt zoning was defined by Ebenezer Howard at the turn of the century and has yet to be taken seriously by American governments.

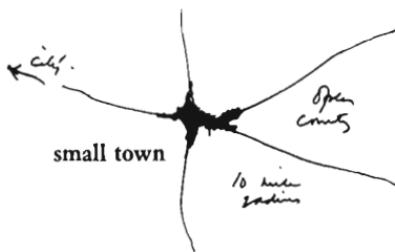
3. Social services. There are connections between small towns

6 COUNTRY TOWNS

and cities that take the form of social services, that are irreplaceable: small town visits, farm weekends and vacations for city dwellers, schools and camps in the countryside for city children, small town retirement for old people who do not like the pace of city life. Let the city invite small towns to provide these services, as grassroots ventures, and the city, or private groups, will pay for the cost of the service.

Therefore:

Preserve country towns where they exist; and encourage the growth of new self-contained towns, with populations between 500 and 10,000, entirely surrounded by open countryside and at least 10 miles from neighboring towns. Make it the region's collective concern to give each town the wherewithal it needs to build a base of local industry, so that these towns are not dormitories for people who work in other places, but real towns—able to sustain the whole of life.



Treat each of these small towns as a political community, with full provision for all the stages of human life—COMMUNITY OF 7000 (12), LIFE CYCLE (26). Treat the belt of open country which surrounds the town as farm land which belongs to the people and can be freely used by them—THE COUNTRYSIDE (7). . . .

7 THE COUNTRYSIDE*



. . . within each region, in between the towns, there are vast areas of countryside—farmland, parkland, forests, deserts, grazing meadows, lakes, and rivers. The legal and ecological character of this countryside is crucial to the balance of the region. When properly done, this pattern will help to complete THE DISTRIBUTION OF TOWNS (2), CITY COUNTRY FINGERS (3), AGRICULTURAL VALLEYS (4), LACE OF COUNTRY STREETS (5) and COUNTRY TOWNS (6).

* * *

I conceive that land belongs for use to a vast family of which many are dead, few are living, and countless members are still unborn.

—a Nigerian tribesman

Parks are dead and artificial. Farms, when treated as private property, rob the people of their natural biological heritage—the countryside from which they came.



Property is theft

In Norway, England, Austria, it is commonly understood that people have a right to picnic in farmland, and walk and play—provided they respect the animals and crops. And the reverse is also true—there is no wilderness which is abandoned to its own processes—even the mountainsides are terraced, mown, and grazed and cared for.

We may summarize these ideas by saying that there is only one kind of nonurban land—the *countryside*. There are no parks;

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no farms; no uncharted wilderness. Every piece of countryside has keepers who have the right to farm it, if it is arable; or the obligation to look after it, if it is wild; and every piece of land is open to the people at large, provided they respect the organic processes which are going on there.

The central conception behind this view of the land is given by Aldo Leopold in his essay, "The Land Ethic" (*A Sand County Almanac*, New York: Oxford University Press, 1949); Leopold believes that our relationship to the land will provide the framework for the next great ethical transformation in the human community:

This extension of ethics, so far studied only by philosophers, is actually a process in ecological evolution. Its sequences may be described in ecological as well as in philosophical terms. An ethic, ecologically, is a limitation on freedom of action in the struggle for existence. An ethic, philosophically, is a differentiation of social from anti-social conduct. These are two definitions of one thing. The thing has its origin in the tendency of interdependent individuals or groups to evolve modes of co-operation. The ecologist calls these symbioses. Politics and economics are advanced symbioses in which the original free-for-all competition has been replaced, in part, by co-operative mechanisms with an ethical content. . . .

All ethics so far evolved rest upon a single premise: that the individual is a member of a community of interdependent parts. His instincts prompt him to compete for his place in that community, but his ethics prompt him also to co-operate. . . .

The land ethic simply enlarges the boundaries of the community to include soils, waters, plants, and animals, or collectively: the land. . . .

Within the framework of this ethic, parks and campgrounds conceived as "pieces of nature" for people's recreation, without regard for the intrinsic value of the land itself, are dead things and immoral. So also are farms conceived as areas "owned" by the farmers for their own exclusive profit. If we continue to treat the land as an instrument for our enjoyment, and as a source of economic profit, our parks and camps will become more artificial, more plastic, more like Disneyland. And our farms will become more and more like factories. The land ethic replaces the idea of public parks and public campgrounds with the concept of a single countryside.

7 THE COUNTRYSIDE

One example of support for this idea lies in the *Blueprint for Survival*, and the proposal there to give traditional communities stewardship over certain estuaries and marshes. These wetlands are the spawning grounds for the fish and shellfish which form the base of the food chain for 60 per cent of the entire ocean harvest, and they can only be properly managed by a group who respects them as a cooperating part in the chain of life. (The Ecologist, England, 1972, p. 41.)

The residential forests of Japan provide another example. A village grows up along the edge of a forest; the villagers tend the forest. Thinning it properly is one of their responsibilities. The forest is available to anyone who wants to come there and partake in the process:

The farmhouses of Kurume-machi stand in a row along the main road for about a mile. Each house is surrounded by a belt of trees of similar species, giving the aspect of a single large forest. The main trees are located so as to produce a shelter-belt. In addition, these small forests are homes for birds, a device for conserving water, a source of firewood and timber, which is selectively cut, and a means of climate control, since the temperature inside the residential forest is cooler in summer and warmer in winter.

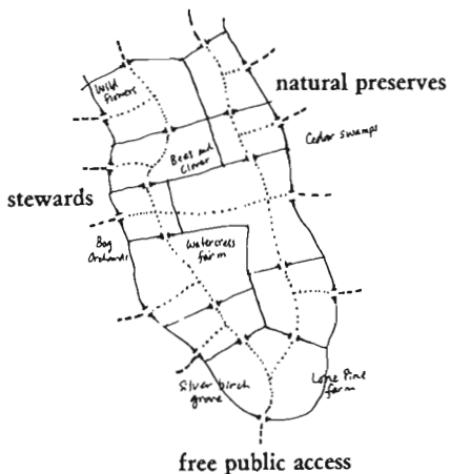
It should be noted that these residential forests, established more than 300 years ago, are still intact as a result of the careful selective cutting and replacement program followed by the residents. (John L. Creech, "Japan—Like a National Park," *Yearbook of Agriculture* 1963, U. S. Department of Agriculture, pp. 525-28.)

Therefore:

Define all farms as parks, where the public has a right to be; and make all regional parks into working farms.

Create stewardships among groups of people, families and cooperatives, with each stewardship responsible for one part of the countryside. The stewards are given a lease for the land, and they are free to tend the land and set ground rules for its use—as a small farm, a forest, marshland, desert, and so forth. The public is free to visit the land, hike there, picnic, explore, boat, so long as they conform to the ground rules. With such a setup, a farm near a city might have picnickers in its fields every day during the summer.

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* * *

Within each natural preserve, we imagine a limited number of houses—**HOUSE CLUSTER (37)**—with access on unpaved country lanes—**GREEN STREETS (51)**. . . .

through city policies, encourage the piecemeal formation of those major structures which define the city:

8. MOSAIC OF SUBCULTURES

9. SCATTERED WORK

10. MAGIC OF THE CITY

11. LOCAL TRANSPORT AREAS

8 MOSAIC OF SUBCULTURES**



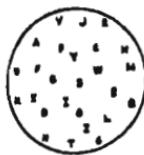
. . . the most basic structure of a city is given by the relation of urban land to open country—CITY COUNTRY FINGERS (3). Within the swaths of urban land the most important structure must come from the great variety of human groups and subcultures which can co-exist there.



The homogeneous and undifferentiated character of modern cities kills all variety of life styles and arrests the growth of individual character.

Compare three possible alternative ways in which people may be distributed throughout the city:

1. In the heterogeneous city, people are mixed together, irrespective of their life style or culture. This seems rich. Actually it dampens all significant variety, arrests most of the possibilities for differentiation, and encourages conformity. It tends to reduce all life styles to a common denominator. What appears heterogeneous turns out to be homogeneous and dull.



The heterogeneous city.

2. In a city made up of ghettos, people have the support of the most basic and banal forms of differentiation—race or economic status. The ghettos are still homogeneous internally, and



City of ghettos.

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do not allow a significant variety of life styles to emerge. People in the ghetto are usually forced to live there, isolated from the rest of society, unable to evolve their way of life, and often intolerant of ways of life different from their own.

3. In a city made of a large number of subcultures relatively small in size, each occupying an identifiable place and separated from other subcultures by a boundary of nonresidential land, new ways of life can develop. People can choose the kind of subculture they wish to live in, and can still experience many ways of life different from their own. Since each environment fosters mutual support and a strong sense of shared values, individuals can grow.



Mosaic of subcultures.

This pattern for a mosaic of subcultures was originally proposed by Frank Hendricks. His latest paper dealing with it is "Concepts of environmental quality standards based on life styles," with Malcolm MacNair (Pittsburg, Pennsylvania: University of Pittsburgh, February 1969). The psychological needs which underlie this pattern and which make it necessary for subcultures to be spatially separated in order to thrive have been described by Christopher Alexander, "Mosaic of Subcultures," Center for Environmental Structure, Berkeley, 1968. The following statement is an excerpt from that paper.

I.

We are the hollow men,
We are the stuffed men.
Leaning together
Headpiece filled with straw. Alas.

.....
Shape without form, shade without color,
Paralyzed force, gesture without motion;

....

—T. S. Eliot

Many of the people who live in metropolitan areas have a weak character. In fact, metropolitan areas seem almost marked by the fact that the people in them have markedly weak character, compared with the character which develops in simpler and more rugged situations. This weakness of character is the counterpart of another, far more visible feature of metropolitan areas: the homogeneity and lack of variety among the people who live there. Of course, weakness of character and lack of variety, are simply two sides of the same coin: a condition in which people have relatively undifferentiated selves. Character can only occur in a self which is strongly differentiated and whole: by definition, a society where people are relatively homogeneous, is one where individual selves are not strongly differentiated.

Let us begin with the problem of variety. The idea of men as millions of faceless nameless cogs pervades 20th century literature. The nature of modern housing reflects this image and sustains it. The vast majority of housing built today has the touch of mass-production. Adjacent apartments are identical. Adjacent houses are identical. The most devastating image of all was a photograph published in *Life* magazine several years ago as an advertisement for a timber company: The photograph showed a huge roomful of people; all of them had exactly the same face. The caption underneath explained: In honor of the chairman's birthday, the shareholders of the corporation are wearing masks made from his face.

These are no more than images and indications. . . . But where do all the frightening images of sameness, human digits, and human cogs, come from? Why have Kafka and Camus and Sartre spoken to our hearts?

Many writers have answered this question in detail—[David Riesman in *The Lonely Crowd*; Kurt Goldstein in *The Organism*; Max Wertheimer in *The Story of Three Days*; Abraham Maslow in *Motivation and Personality*; Rollo May in *Man's Search for Himself*, etc.]. Their answers all converge on the following essential point: Although a person may have a different mixture of attributes from his neighbour, he is not truly different, until he has a strong center, until his uniqueness is integrated and forceful. At present, in metropolitan areas, this seems not to be the case. Different though they are in detail, people are forever leaning on one another, trying to be whatever will not displease the others, afraid of being themselves.

People do things a certain way “because that's the way to get them done” instead of “because we believe them right.” Compromise, going along with the others, the spirit of committees and all that it implies—in metropolitan areas, these characteristics have been made to appear adult, mature, well-adjusted. But euphemisms do little to disguise the fact that people who do things because that's the way to get along with others, instead of doing what they believe in, do it because it avoids coming to terms with their own self, and standing

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on it, and confronting others with it. It is easy to defend this weakness of character on the grounds of expediency. But however many excuses are made for it, in the end weakness of character destroys a person; no one weak in character can love himself. The self-hate that it creates is not a condition in which a person can become whole.

By contrast, the person who becomes whole, states his own nature, visibly, and outwardly, loud and clear, for everyone to see. He is not afraid of his own self; he stands up for what he is; he is himself, proud of himself, recognising his shortcomings, trying to change them, but still proud of himself and glad to be himself.

But it is hard to allow that you which lurks beneath the surface to come out and show itself. It is so much easier to live according to the ideas of life which have been laid down by others, to bend your true self to the wheel of custom, to hide yourself in demands which are not yours, and which do not leave you full.

It seems clear, then, that variety, character, and finding your own self, are closely interwoven. In a society where a man can find his own self, there will be ample variety of character, and character will be strong. In a society where people have trouble finding their own selves, people will seem homogeneous, there will be less variety, and character will be weak.

If it is true that character is weak in metropolitan areas today, and we want to do something about it, the first thing we must do, is to understand *how* the metropolis has this effect.

II.

How does a metropolis create conditions in which people find it hard to find themselves?

We know that the individual forms his own self out of the values, habits and beliefs, and attitudes which his society presents him with. [George Herbert Mead, *Mind, Self and Society*.] In a metropolis the individual is confronted by a vast tableau of different values, habits and beliefs and attitudes. Whereas, in a primitive society, he had merely to integrate the traditional beliefs (in a sense, there was a self already there for the asking), in modern society each person has literally to fabricate a self, for himself, out of the chaos of values which surrounds him.

If, every day you do something, you meet someone with a slightly different background, and each of these peoples' response to what you do is different even when your actions are the same, the situation becomes more and more confusing. The possibility that you can become secure and strong in yourself, certain of what you are, and certain of what you are doing, goes down radically. Faced constantly with an unpredictable changing social world, people no longer generate the strength to draw on themselves; they draw more and more on the approval of others; they look to see whether people are smiling when they say something, and if they are, they go on saying

it, and if not, they shut up. In a world like that, it is very hard for anyone to establish any sort of inner strength.

Once we accept the idea that the formation of the self is a social process, it becomes clear that the formation of a strong social self depends on the strength of the surrounding social order. When attitudes, values, beliefs and habits are highly diffuse and mixed up as they are in a metropolis, it is almost inevitable that the person who grows up in these conditions will be diffuse and mixed up too. Weak character is a direct product of the present metropolitan society.

This argument has been summarized in devastating terms by Margaret Mead [*Culture, Change and Character Structure*]. A number of writers have supported this view empirically: Hartshorne, H. and May, M. A., *Studies in the Nature of Character*, New York, Macmillan, 1929; and "A Summary of the Work of the Character Education Inquiry," *Religious Education*, 1930, Vol. 25, 607-619 and 754-762. "Contradictory demands made upon the child in the varied situations in which he is responsible to adults, not only prevent the organisation of a consistent character, but actually compel inconsistency as the price of peace and self-respect." . . .

But this is not the end of the story. So far we have seen how the diffusion of a metropolis creates weak character. But diffusion, when it becomes pronounced, creates a special kind of superficial uniformity. When many colors are mixed, in many tiny scrambled bits and pieces, the overall effect is grey. This greyness helps to create weak character in its own way.

In a society where there are many voices, and many values, people cling to those few things which they all have in common. Thus Margaret Mead (*op. cit.*): "There is a tendency to reduce all values to simple scales of dollars, school grades, or some other simple quantitative measure, whereby the extreme incommensurables of many different sets of cultural values can be easily, though superficially, reconciled." And Joseph T. Klapper [*The Effects of Mass Communication*, Free Press, 1960]:

"Mass society not only creates a confusing situation in which people find it hard to find themselves—it also . . . creates chaos, in which people are confronted by impossible variety—the variety becomes a slush, which then concentrates merely on the most obvious."

. . . It seems then, that the metropolis creates weak character in two almost opposite ways; first, because people are exposed to a chaos of values; second, because they cling to the superficial uniformity common to all these values. *A nondescript mixture of values will tend to produce nondescript people.*

III.

There are obviously many ways of solving the problem. Some of these solutions will be private. Others will involve a variety of social processes including, certainly, education, work, play, and

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family. I shall now describe one particular solution, which involves the large scale social organisation of the metropolis.

The solution is this. *The metropolis must contain a large number of different subcultures, each one strongly articulated, with its own values sharply delineated, and sharply distinguished from the others. But though these subcultures must be sharp and distinct and separate, they must not be closed; they must be readily accessible to one another, so that a person can move easily from one to another, and can settle in the one which suits him best.*

This solution is based on two assumptions:

1. A person will only be able to find his own self, and therefore to develop a strong character, if he is in a situation where he receives support for his idiosyncrasies from the people and values which surround him.
2. In order to find his own self, he also needs to live in a milieu where the possibility of many different value systems is explicitly recognized and honored. More specifically, he needs a great variety of choices, so that he is not misled about the nature of his own person, can see that there are many kinds of people, and can find those whose values and beliefs correspond most closely to his own.

. . . one mechanism which might underly people's need for an ambient culture like their own: Maslow has pointed out that the process of self actualisation can only start after other needs, like the need for food and love, and security, have already been satisfied. [*Motivation and Personality*, pp. 84-89.] Now the greater the mixture of kinds of persons in a local urban area, and the more unpredictable the strangers near your house, the more afraid and insecure you will become. In Los Angeles and New York this has reached the stage where people are constantly locking doors and windows, and where a mother does not feel safe sending her fifteen year old daughter to the corner mailbox. People are afraid when they are surrounded by the unfamiliar; the unfamiliar is dangerous. But so long as this fear is an unsolved problem, it will override the rest of their lives. Self-actualisation will only be able to happen when this fear is overcome; and that in turn, can only happen, when people are in familiar territory, among people of their own kind, whose habits and ways they know, and whom they trust.

. . . However, if we encourage the appearance of distinct subcultures, in order to satisfy the demands of the first assumption, *then we certainly do not want to encourage these subcultures to be tribal or closed.* That would fly in the face of the very quality which makes the metropolis so attractive. It must be possible, therefore, for people to move easily from one subculture to another, and for them to choose whichever one is most to their taste; and they must be able

8 MOSAIC OF SUBCULTURES

to do all of this at any moment in their lives. Indeed, if it ever becomes necessary, the law must guarantee each person freedom of access to every subculture. . . .

IV.

It seems clear, then, that the metropolis should contain a large number of mutually accessible subcultures. But why should those subcultures be separated in space. Someone with an aspatial bias could easily argue that these subcultures could, and should, coexist in the same space, since the essential links which create cultures are links between people.

I believe this view, if put forward, would be entirely wrong. I shall now present arguments to show that the articulation of subcultures is an ecological matter; that distinct subcultures will only survive, as distinct subcultures, if they are physically separated in space.

First, there is no doubt that people from different subcultures actually require different things of their environment. Hendricks has made this point clearly. People of different age groups, different interests, different emphasis on the family, different national background, need different kinds of houses, they need different sorts of outdoor environment round about their houses, and above all, they need different kinds of community services. These services can only become highly specialised, in the direction of a particular subculture, if they are sure of customers. They can only be sure of customers if customers of the same subculture live in strong concentrations. People who want to ride horses all need open riding; Germans who want to be able to buy German food may congregate together, as they do around German town, New York; old people may need parks to sit in, less traffic to contend with, nearby nursing services; bachelors may need quick snack food places; Armenians who want to go to the orthodox mass every morning will cluster around an Armenian church; street people collect around their stores and meeting places; people with many small children will be able to collect around local nurseries and open play space.

This makes it clear that different subcultures need their own activities, their own environments. But subcultures not only need to be concentrated in space to allow for the concentration of the necessary activities. They also need to be concentrated so that one subculture does not dilute the next: indeed, from this point of view they not only need to be internally concentrated—but also physically separated from one another. . . .

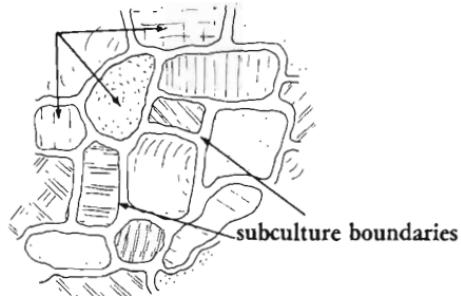
We cut the quote short here. The rest of the original paper presents empirical evidence for the need to separate subcultures spatially, and—in this book—we consider that as part of another pattern. The argument is given, with empirical details, in *SUBCULTURE BOUNDARY* (13).

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Therefore:

Do everything possible to enrich the cultures and subcultures of the city, by breaking the city, as far as possible, into a vast mosaic of small and different subcultures, each with its own spatial territory, and each with the power to create its own distinct life style. Make sure that the subcultures are small enough, so that each person has access to the full variety of life styles in the subcultures near his own.

hundreds of different subcultures



* * *

We imagine that the smallest subcultures will be no bigger than 150 feet across; the largest perhaps as much as a quarter of a mile—**COMMUNITY OF 7000** (12), **IDENTIFIABLE NEIGHBORHOOD** (14), **HOUSE CLUSTER** (37). To ensure that the life styles of each subculture can develop freely, uninhibited by those which are adjacent, it is essential to create substantial boundaries of nonresidential land between adjacent subcultures—**SUBCULTURE BOUNDARY** (13). . . .

9 SCATTERED WORK**

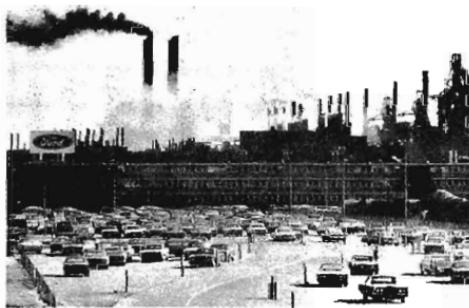


. . . this pattern helps the gradual evolution of MOSAIC OF SUB-CULTURES (8), by placing families and work together, and so intensifying the emergence of highly differentiated subcultures, each with its individual character.



The artificial separation of houses and work creates intolerable rifts in people's inner lives.

In modern times almost all cities create zones for "work" and other zones for "living" and in most cases enforce the separation by law. Two reasons are given for the separation. First, the work-



Concentration and segregation of work . . . leads to dead neighborhoods.

9 SCATTERED WORK

places need to be near each other, for commercial reasons. Second, workplaces destroy the quiet and safety of residential neighborhoods.

But this separation creates enormous rifts in people's emotional lives. Children grow up in areas where there are no men, except on weekends; women are trapped in an atmosphere where they are expected to be pretty, unintelligent housekeepers; men are forced to accept a schism in which they spend the greater part of their waking lives "at work, and away from their families" and then the other part of their lives "with their families, away from work."

Throughout, this separation reinforces the idea that work is a toil, while only family life is "living"—a schizophrenic view which creates tremendous problems for all the members of a family.

In order to overcome this schism and re-establish the connection between love and work, central to a sane society, there needs to be a redistribution of all workplaces throughout the areas where people live, in such a way that children are near both men and women during the day, women are able to see themselves both as loving mothers and wives and still capable of creative work, and men too are able to experience the hourly connection of their lives as workmen and their lives as loving husbands and fathers.

What are the requirements for a distribution of work that can overcome these problems?

1. Every home is within 20–30 minutes of many hundreds of workplaces.
2. Many workplaces are within walking distance of children and families.
3. Workers can go home casually for lunch, run errands, work half-time, and spend half the day at home.
4. Some workplaces are in homes; there are many opportunities for people to work from their homes or to take work home.
5. Neighborhoods are protected from the traffic and noise generated by "noxious" workplaces.

The only pattern of work which does justice to these requirements is a pattern of scattered work: a pattern in which work is strongly decentralized. To protect the neighborhoods from the noise and traffic that workplaces often generate, some noisy work

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places can be in the boundaries of neighborhoods, communities and subcultures—see *SUBCULTURE BOUNDARY* (13); others, not noisy or noxious, can be built right into homes and neighborhoods. In both cases, the crucial fact is this: *every home is within a few minutes of dozens of workplaces*. Then each household would have the chance to create for itself an intimate ecology of home and work: all its members have the option of arranging a workplace for themselves close to each other and their friends. People can meet for lunch, children can drop in, workers can run home. And under the prompting of such connections the workplaces themselves will inevitably become nicer places, more like homes, where life is carried on, not banished for eight hours.

This pattern is natural in traditional societies, where workplaces are relatively small and households comparatively self-sufficient. But is it compatible with the facts of high technology and the concentration of workers in factories? How strong is the need for workplaces to be near each other?

The main argument behind the centralization of plants, and their gradual increase in size, is an economic one. It has been demonstrated over and again that there are economies of scale in production, advantages which accrue from producing a huge number of goods or services in one place.

However, large centralized organizations are not intrinsic to mass production. There are many excellent examples which demonstrate the fact that where work is substantially scattered, people can still produce goods and services of enormous complexity. One of the best historical examples is the Jura Federation of watchmakers, formed in the mountain villages of Switzerland in the early 1870's. These workers produced watches in their home workshops, each preserving his independence while coordinating his efforts with other craftsmen from the surrounding villages. (For an account of this federation, see, for example, George Woodcock, *Anarchism: A History of Libertarian Ideas and Movements*, Cleveland: Meridian Books, 1962, pp. 168–69.)

In our own time, Raymond Vernon has shown that small, scattered workplaces in the New York metropolitan economy, respond much faster to changing demands and supplies, and that the degree of creativity in agglomerations of small businesses is vastly greater than that of the more cumbersome and centralized

9 SCATTERED WORK

industrial giants. (See Raymond Vernon, *Metropolis 1985*, Chapter 7: External Economics.)

To understand these facts, we must first realize that the city itself is a vast centralized workspace and that all the benefits of this centralization are potentially available to every work group that is a part of the city's vast work community. In effect, the urban region as a whole acts to produce economies of scale by bringing thousands of work groups within range of each other. If this kind of "centralization" is properly developed, it can support an endless number of combinations between small, scattered workgroups; and it can lend great flexibility to the modes of production. "Once we understand that modern industry does not necessarily bring with it financial and physical concentration, the growth of smaller centers and a more widespread distribution of genuine benefits of technology will, I think, take place" (Lewis Mumford, *Sticks and Stones*, New York, 1924, p. 216).

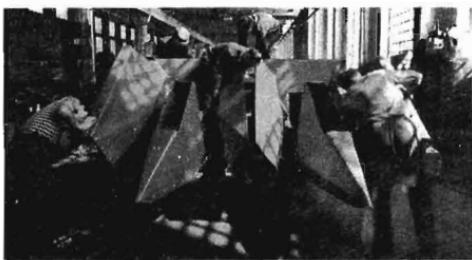
Remember that even such projects as complicated and seemingly centralized as the building of a bridge or a moon rocket, can be organized this way. Contracting and subcontracting procedures make it possible to produce complicated industrial goods and services by combining the efforts of hundreds of small firms. The Apollo project drew together more than 30,000 independent firms to produce the complicated spaceships to the moon.

Furthermore, there is evidence that the agencies which set up such multiple contracts look for small, semi-autonomous firms. They know instinctively that the smaller, more self-governing the group, the better the product and the service (*Small Sellers and Large Buyers in American Industry*, Business Research Center, College of Business Administration, Syracuse University, New York, 1961).

Let us emphasize: we are not suggesting that the decentralization of work should take precedence over a sophisticated technology. We believe that the two are compatible: it is possible to fuse the human requirements for interesting and creative work with the exquisite technology of modern times. It is possible to make television sets, xerox machines and IBM typewriters, automobiles, stereo sets and washing machines under human working conditions. We mention in particular the xerox and IBM typewriters because they have played a vital role for us, the authors of

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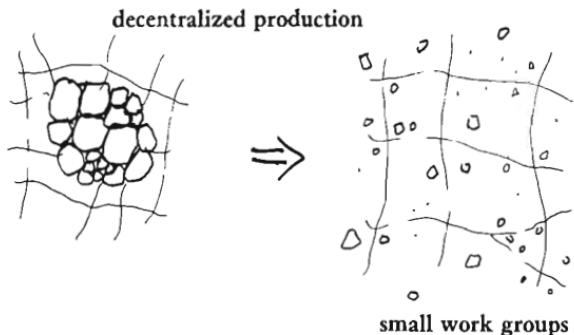
this book. We could not have made this book together, in the communal way we have done, without these machines: and we consider them a vital part of the new decentralized society we seek.



A small factory in Zemun, Yugoslavia; the work group is building a corn picking machine, an item they themselves decided to produce and sell in the marketplace.

Therefore:

Use zoning laws, neighborhood planning, tax incentives, and any other means available to scatter workplaces throughout the city. Prohibit large concentrations of work, without family life around them. Prohibit large concentrations of family life, without workplaces around them.



❖ ❖ ❖

The scattered work itself can take a great variety of forms. It can occur in belts of industry, where it is essential for an industry to occupy an acre or more between subcultures—**SUBCULTURE BOUNDARY** (13), **INDUSTRIAL RIBBON** (42); it can occur in work communities, which are scattered among the neighborhoods—**NEIGHBORHOOD BOUNDARY** (15), **WORK COMMUNITY** (41); and it can occur in individual workshops, right among the houses—**HOME WORKSHOP** (157). The size of each workplace is limited only by the nature of human groups and the process of self-governance. It is discussed in detail in **SELF-GOVERNING WORKSHOPS AND OFFICES** (80). . . .

IO MAGIC OF THE CITY



. . . next to the MOSAIC OF SUBCULTURES (8), perhaps the most important structural feature of a city is the pattern of those centers where the city life is most intense. These centers can help to form the mosaic of subcultures by their variety; and they can also help to form CITY COUNTRY FINGERS (3), if each of the centers is at a natural meeting point of several fingers. This pattern was first written by Luis Racionero, under the name "Downtowns of 300,000."



There are few people who do not enjoy the magic of a great city. But urban sprawl takes it away from everyone except the few who are lucky enough, or rich enough, to live close to the largest centers.

This is bound to happen in any urban region with a single high density core. Land near the core is expensive; few people can live near enough to it to give them genuine access to the city's life; most people live far out from the core. To all intents and purposes, they are in the suburbs and have no more than occasional access to the city's life. This problem can only be solved by decentralizing the core to form a multitude of smaller cores, each devoted to some special way of life, so that, even though decentralized, each one is still intense and still a center for the region as a whole.

The mechanism which creates a single isolated core is simple. Urban services tend to agglomerate. Restaurants, theaters, shops, carnivals, cafes, hotels, night clubs, entertainment, special services, tend to cluster. They do so because each one wants to locate in that position where the most people are. As soon as one nucleus has formed in a city, each of the interesting services—especially those which are most interesting and therefore require the largest catch basin—locate themselves in this one nucleus. The one nucleus keeps growing. The downtown becomes enormous. It becomes rich, various, fascinating. But gradually, as the metropolitan area grows, the average distance from an individual house

to this one center increases; and land values around the center rise so high that houses are driven out from there by shops and offices—until soon no one, or almost no one, is any longer genuinely in touch with the magic which is created day and night within this solitary center.

The problem is clear. On the one hand people will only expend so much effort to get goods and services and attend cultural events, even the very best ones. On the other hand, real variety and choice can only occur where there is concentrated, centralized activity; and when the concentration and centralization become too great, then people are no longer willing to take the time to go to it.

If we are to resolve the problem by decentralizing centers, we must ask what the minimum population is that can support a central business district with the magic of the city. Otis D. Duncan in "The Optimum Size of Cities" (*Cities and Society*, P. K. Hatt and A. J. Reiss, eds., New York: The Free Press, 1967, pp. 759-72), shows that cities with more than 50,000 people have a big enough market to sustain 61 different kinds of retail shops and that cities with over 100,000 people can support sophisticated jewelry, fur, and fashion stores. He shows that cities of 100,000 can support a university, a museum, a library, a zoo, a symphony orchestra, a daily newspaper, AM and FM radio, but that it takes a population of 250,000 to 500,000 to support a specialized professional school like a medical school, an opera, or all of the TV networks.

In a study of regional shopping centers in metropolitan Chicago, Brian K. Berry found that centers with 70 kinds of retail shops serve a population base of about 350,000 people (*Geography of Market Centers and Retail Distribution*, New Jersey: Prentice-Hall, 1967, p. 47). T. R. Lakshmanan and Walter G. Hansen, in "A Retail Potential Model" (*American Institute of Planners Journal*, May 1965, pp. 134-43), showed that full-scale centers with a variety of retail and professional services, as well as recreational and cultural activities, are feasible for groups of 100,000 to 200,000 population.

It seems quite possible, then, to get very complex and rich urban functions at the heart of a catch basin which serves no more than 300,000 people. Since, for the reasons given earlier, it is

10 MAGIC OF THE CITY

desirable to have as many centers as possible, we propose that the city region should have one center for each 300,000 people, with the centers spaced out widely among the population, so that every person in the region is reasonably close to at least one of these major centers.

To make this more concrete, it is interesting to get some idea of the range of distances between these centers in a typical urban region. At a density of 5000 persons per square mile (the density of the less populated parts of Los Angeles) the area occupied by 300,000 will have a diameter of about nine miles; at a higher density of 80,000 persons per square mile (the density of central Paris) the area occupied by 300,000 people has a diameter of about two miles. Other patterns in this language suggest a city much more dense than Los Angeles, yet somewhat less dense than central Paris—FOUR-STORY LIMIT (21), DENSITY RINGS (29). We therefore take these crude estimates as upper and lower bounds. If each center serves 300,000 people, they will be at least two miles apart and probably no more than nine miles apart.

One final point must be discussed. The magic of a great city comes from the enormous specialization of human effort there. Only a city such as New York can support a restaurant where you can eat chocolate-covered ants, or buy three-hundred-year-old books of poems, or find a Caribbean steel band playing with American folk singers. By comparison, a city of 300,000 with a second-rate opera, a couple of large department stores, and half a dozen good restaurants is a hick town. It would be absurd if the new downtowns, each serving 300,000 people, in an effort to capture the magic of the city, ended up as a multitude of second-class hick towns.

This problem can only be solved if each of the cores not only serves a catch basin of 300,000 people but also offers some kind of special quality which none of the other centers have, so that each core, though small, serves several million people and can therefore generate all the excitement and uniqueness which become possible in such a vast city.

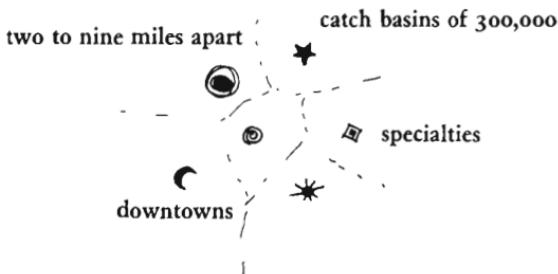
Thus, as it is in Tokyo or London, the pattern must be implemented in such a way that one core has the best hotels, another the best antique shops, another the music, still another has the fish and sailing boats. Then we can be sure that every person is

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within reach of at least one downtown and also that all the downtowns are worth reaching for and really have the magic of a great metropolis.

Therefore:

Put the magic of the city within reach of everyone in a metropolitan area. Do this by means of collective regional policies which restrict the growth of downtown areas so strongly that no one downtown can grow to serve more than 300,000 people. With this population base, the downtowns will be between two and nine miles apart.



Treat each downtown as a pedestrian and local transport area—
LOCAL TRANSPORT AREAS (11), PROMENADE (31), with good
transit connections from the outlying areas—WEB OF PUBLIC
TRANSPORTATION (16); encourage a rich concentration of night
life within each downtown—NIGHT LIFE (33), and set aside at
least some part of it for the wildest kind of street life—CARNIVAL
(58), DANCING IN THE STREET (63). . . .

II LOCAL TRANSPORT AREAS**



. . . superimposed over the MOSAIC OF SUBCULTURES (8), there is a need for a still larger cellular structure: the local transport areas. These areas, 1-2 miles across, not only help to form subcultures, by creating natural boundaries in the city, but they can also help to generate the individual city fingers in the CITY COUNTRY FINGERS (3), and they can help to circumscribe each downtown area too, as a special self-contained area of local transportation—MAGIC OF THE CITY (10).



Cars give people wonderful freedom and increase their opportunities. But they also destroy the environment, to an extent so drastic that they kill all social life.

The value and power of the car have proved so great that it seems impossible to imagine a future without some form of private, high-speed vehicle. Who will willingly give up the degree of freedom provided by cars? At the same time, it is undeniably true that cars turn towns to mincemeat. Somehow local areas must be saved from the pressure of cars or their future equivalents.

It is possible to solve the problem as soon as we make a distinction between short trips and long trips. Cars are not very good for short trips inside a town, and it is on these trips that they do their greatest damage. But they are good for fairly long trips, where they cause less damage. The problem will be solved if towns are divided up into areas about one mile across, with the idea that cars may be used for trips which leave these areas, but that other, slower forms of transportation will be used for all trips inside these areas—foot, bike, horse, taxi. All it needs, physically, is a street pattern that discourages people from using private cars for trips within these areas, and encourages the use of walking, bikes, horses, and taxis instead—but allows the use of cars for trips which leave the area.

Let us start with a list of the obvious social problems created by the car:

Air pollution

II LOCAL TRANSPORT AREAS

- Noise
- Danger
- Ill health
- Congestion
- Parking problem
- Eyesore

The first two are very serious, but are not inherent in the car; they could both be solved, for instance, by an electric car. They are, in that sense, temporary problems. Danger will be a persistent feature of the car so long as we go on using high-speed vehicles for local trips. The widespread lack of exercise and consequent ill health created by the use of motor-driven vehicles will persist unless offset by an amount of daily exercise at least equal to a 20 minute walk per day. And finally, the problems of congestion and loss of speed, difficulty and cost of parking, and eyesore are all direct results of the fact that the car is a very large vehicle which consumes a great deal of space.

The fact that cars are large is, in the end, the most serious aspect of a transportation system based on the use of cars, since it is inherent in the very nature of cars. Let us state this problem in its most pungent form. A man occupies about 5 square feet of space when he is standing still, and perhaps 10 square feet when he is walking. A car occupies about 350 square feet when it is standing still (if we include access), and at 30 miles an hour, when cars are 3 car lengths apart, it occupies about 1000 square feet. As we know, most of the time cars have a single occupant. This means that when people use cars, each person occupies almost 100 times as much space as he does when he is a pedestrian.

If each person driving occupies an area 100 times as large as he does when he is on his feet, this means that people are 10 times as far apart. *In other words, the use of cars has the overall effect of spreading people out, and keeping them apart.*

The effect of this particular feature of cars on the social fabric is clear. People are drawn away from each other; densities and corresponding frequencies of interaction decrease substantially. Contacts become fragmented and specialized, since they are localized by the nature of the interaction into well-defined indoor places—the home, the workplace, and maybe the homes of a few isolated friends.

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It is quite possible that the collective cohesion people need to form a viable society just cannot develop when the vehicles which people use force them to be 10 times farther apart, on the average, than they have to be. This states the possible social cost of cars in its strongest form. *It may be that cars cause the breakdown of society, simply because of their geometry.*

At the same time that cars cause all these difficulties, they also have certain unprecedented virtues, which have in fact led to their enormous success. These virtues are:

- Flexibility
- Privacy
- Door-to-door trips, without transfer
- Immediacy

These virtues are particularly important in a metropolitan region which is essentially two-dimensional. Public transportation can provide very fast, frequent, door-to-door service, along certain arteries. But in the widely spread out, two-dimensional character of a modern urban region, public transportation by itself cannot compete successfully with cars. Even in cities like London and Paris, with the finest urban public transportation in the world, the trains and buses have fewer riders every year because people are switching to cars. They are willing to put up with all the delays, congestion, and parking costs, because apparently the convenience and privacy of the car are more valuable.

Under *theoretical* analysis of this situation, the only kind of transportation system which meets all the needs is a system of individual vehicles, which can use certain high-speed lines for long cross-city trips and which can use their own power when they leave the public lines in local areas. The systems which come closest to this theoretical model are the various Private Rapid Transit proposals; one example is the Westinghouse Starr-car—a system in which tiny two-man vehicles drive on streets locally and onto high-speed public rails for long trips.

However, the Starrcar-type systems have a number of disadvantages. They make relatively little contribution to the problem of space. The small cars, though smaller than a conventional car, still take up vastly more space than a person. Since the private cars will not be capable of long cross-country trips, they must be

II LOCAL TRANSPORT AREAS

treated as a "second vehicle"—and are rather expensive. They make no contribution to the health problem, since people are still sitting motionless while they travel. The system is relatively antisocial, since people are still encapsulated in "bubbles" while they travel. It is highly idealistic, since it works if everyone has a Starrcar, but makes no allowance for the great variety of movement which people actually desire, i.e., bikes, horses, jalopies, old classic cars, family buses.

We propose a system which has the advantages of the Starrcar system but which is more realistic, easier to implement, and, we believe, better adapted to people's needs. The essence of the system lies in the following two propositions:

1. For local trips, people use a variety of low-speed, low-cost vehicles (bicycles, tricycles, scooters, golf carts, bicycle buggies, horses, etc.), which take up less room than cars and which all leave their passengers in closer touch with their environment and with one another.

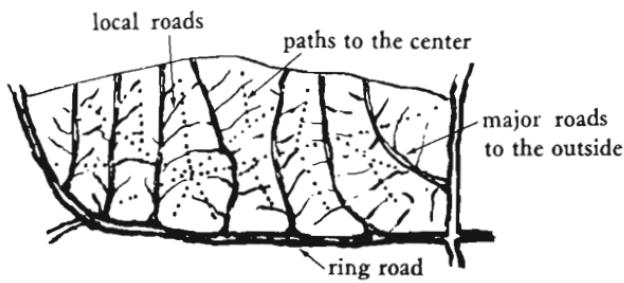


Many ways of getting around on local trips.

2. People still own, and use, cars and trucks—but mainly for long trips. We assume that these cars can be made to be quiet, nonpolluting, and simple to repair, and that people simply consider them best suited for long distance travel. It will still be possible for people to use a car or a truck for a local trip, either in a case of emergency, or for some special convenience. However, the town is constructed in such a way that it is actually expensive and inconvenient to use cars for local trips—so that people only do it when they are willing to pay for the very great social costs of doing so.

Therefore:

Break the urban area down into local transport areas, each one between 1 and 2 miles across, surrounded by a ring road. Within the local transport area, build minor local roads and paths for internal movements on foot, by bike, on horseback, and in local vehicles; build major roads which make it easy for cars and trucks to get to and from the ring roads, but place them to make internal local trips slow and inconvenient.



* * *

To keep main roads for long distance traffic, but not for internal local traffic, lay them out as parallel one way roads, and keep these parallel roads away from the center of the area, so that they are very good for getting to the ring roads, but inconvenient for short local trips—PARALLEL ROADS (23). Lay out abundant footpaths and bike paths and green streets, at right angles to the main roads, and make these paths for local traffic go directly through the center—GREEN STREETS (51), NETWORK OF PATHS AND CARS (52), BIKE PATHS AND RACKS (56); sink the ring roads around the outside of each area, or shield the noise they make some other way—RING ROADS (17); keep parking to a minimum within the area, and keep all major parking garages near the ring roads—NINE PER CENT PARKING (22), SHIELDED PARKING (97); and build a major interchange within the center of the area—INTERCHANGE (34). . . .

build up these larger city patterns from the grass roots, through action essentially controlled by two levels of self-governing communities, which exist as physically identifiable places;

12. COMMUNITY OF 7000

13. SUBCULTURE BOUNDARY

14. IDENTIFIABLE NEIGHBORHOOD

15. NEIGHBORHOOD BOUNDARY

I 2 COMMUNITY OF 7000*



. . . the MOSAIC OF SUBCULTURES (8) is made up of a great number of large and small self-governing communities and neighborhoods. Community of 7000 helps define the structure of the large communities.

* * *

Individuals have no effective voice in any community of more than 5000-10,000 persons.

People can only have a genuine effect on local government when the units of local government are autonomous, self-governing, self-budgeting communities, which are small enough to create the possibility of an immediate link between the man in the street and his local officials and elected representatives.

This is an old idea. It was the model for Athenian democracy in the third and fourth centuries B.C.; it was Jefferson's plan for American democracy; it was the tack Confucius took in his book on government, *The Great Digest*.

For these people, the practice of exercising power over local matters was itself an experience of intrinsic satisfaction. Sophocles wrote that life would be unbearable were it not for the freedom to initiate action in a small community. And it was considered that this experience was not only good in itself, but was the only way of governing that would not lead to corruption. Jefferson wanted to spread out the power not because "the people" were so bright and clever, but precisely because they were prone to error, and it was therefore dangerous to vest power in the hands of a few who would inevitably make big mistakes. "Break the country into wards" was his campaign slogan, so that the mistakes will be manageable and people will get practice and improve.

Today the distance between people and the centers of power that govern them is vast—both psychologically and geographically. Milton Kotler, a Jeffersonian, has described the experience:

The process of city administration is invisible to the citizen who sees little evidence of its human components but feels the sharp pain of taxation. With increasingly poor public service, his desires and needs are more insistently expressed. Yet his expressions of need seem

to issue into thin air, for government does not appear attentive to his demands. This disjunction between citizen and government is the major political problem of city government, because it embodies the dynamics of civil disorder. . . . (Milton Kotler, Neighborhood Foundations, Memorandum #24; "Neighborhood corporations and the reorganization of city government," unpub. ms., August 1967.)

There are two ways in which the physical environment, as it is now ordered, promotes and sustains the separation between citizens and their government. First, the size of the political community is so large that its members are separated from its leaders simply by their number. Second, government is invisible, physically located out of the realm of most citizens' daily lives. Unless these two conditions are altered, political alienation is not likely to be overcome.

1. *The size of the political community.* It is obvious that the larger the community the greater the distance between the average citizen and the heads of government. Paul Goodman has proposed a rule of thumb, based on cities like Athens in their prime, that no citizen be more than two friends away from the highest member of the local unit. Assume that everyone knows about 12 people in his local community. Using this notion and Goodman's rule we can see that an optimum size for a political community would be about 12³ or 1728 households or 5500 persons. This figure corresponds to an old Chicago school estimate of 5000. And it is the same order of magnitude as the size of ECCO, the neighborhood corporation in Columbus, Ohio, of 6000 to 7000, described by Kotler (*Committee on Government Operations*, U.S. Senate, 89th Congress, Second Session, Part 9, December 1966).

The editors of *The Ecologist* have a similar intuition about the proper size for units of local government. (See their *Blueprint for Survival*, Penguin Books, 1972, pp. 50-55.) And Terence Lee, in his study, "Urban neighborhood as a socio-spatial schema," *Ekistics* 177, August 1970, gives evidence for the importance of the spatial community. Lee gives 75 acres as a natural size for a community. At 25 persons per acre, such a community would accommodate some 2000 persons; at 60 persons per acre, some 4500.

2. *The visible location of local government.* Even when local

branches of government are decentralized in function, they are often still centralized in space, hidden in vast municipal city-county buildings out of the realm of everyday life. These places are intimidating and alienating. What is needed is for every person to feel at home in the place of his local government with his ideas and complaints. A person must feel that it is a forum, that it is his directly, that he can call and talk to the person in charge of such and such, and see him personally within a day or two.

For this purpose, local forums must be situated in highly visible and accessible places. They could, for instance, be located in the most active marketplace of each community of 5000 to 7000. We discuss this possibility more fully under LOCAL TOWN HALL (44), but we emphasize it here, since the provision of a political "heart," a political center of gravity, is an essential part of a political community.



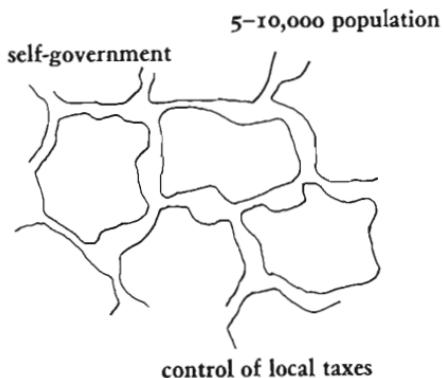
Community meeting of several thousand.

Therefore:

Decentralize city governments in a way that gives local control to communities of 5,000 to 10,000 persons. As nearly as possible, use natural geographic and historical boundaries to mark these communities. Give each community the power to initiate, decide, and execute the affairs that con-

TOWNS

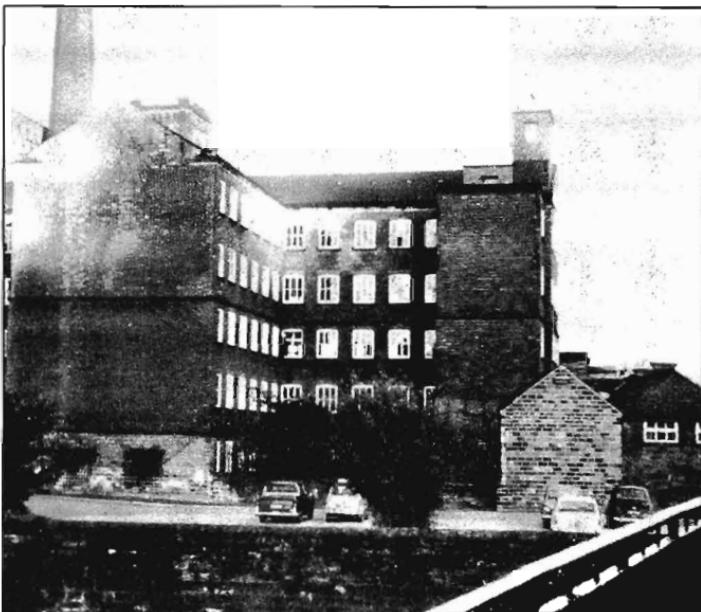
cern it closely: land use, housing, maintenance, streets, parks, police, schooling, welfare, neighborhood services.



* * *

Separate the communities from one another by means of substantial areas—SUBCULTURE BOUNDARY (13); subdivide each community into 10 or 20 independent neighborhoods, each with a representative on the community council—IDENTIFIABLE NEIGHBORHOOD (14); provide a central place where people have a chance to come together—ECCENTRIC NUCLEUS (28), PROMENADE (31); and in this central place provide a local town hall, as a focal point for the community's political activity—LOCAL TOWN HALL (44). . . .

I 3 SUBCULTURE BOUNDARY*



. . . the MOSAIC OF SUBCULTURES (8) and its individual subcultures, whether they are COMMUNITIES OF 7000 (12) or IDENTIFIABLE NEIGHBORHOODS (14), need to be completed by boundaries. In fact, the mere creation of the boundary areas, according to this pattern, will begin to give life to the subcultures between the boundaries, by giving them a chance to be themselves.

* * *

The mosaic of subcultures requires that hundreds of different cultures live, in their own way, at full intensity, next door to one another. But subcultures have their own ecology. They can only live at full intensity, unhampered by their neighbors, if they are physically separated by physical boundaries.

In MOSAIC OF SUBCULTURES (8) we have argued that a great variety of subcultures in a city is not a racist pattern which forms ghettos, but a pattern of opportunity which allows a city to contain a multitude of different ways of life with the greatest possible intensity.

But this mosaic will only come into being if the various subcultures are insulated from one another, at least enough so that no one of them can oppress, or subdue, the life style of its neighbors, nor, in return, feel oppressed or subdued. As we shall see, this requires that adjacent subcultures are separated by swaths of open land, workplaces, public buildings, water, parks, or other natural boundaries.

The argument hinges on the following fact. Wherever there is an area of homogeneous housing in a city, its inhabitants will exert strong pressure on the areas adjacent to it to make them conform to their values and style. For example, the "straight" people who lived near the "hippie" Haight Ashbury district in San Francisco in 1967 were afraid that the Haight would send their land values down, so they put pressure on City Hall to get the Haight "cleaned up"—that is, to make the Haight more like their own area. This seems to happen whenever one subculture is

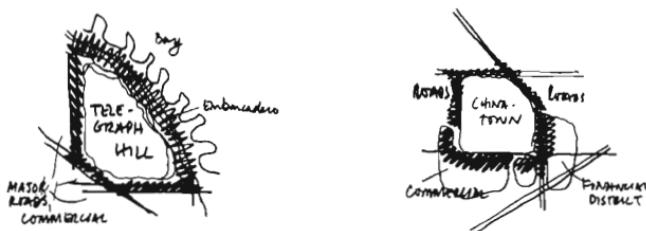
I3 SUBCULTURE BOUNDARY

very different in style from another one next to it. People will be afraid that the neighboring area is going to "encroach" on their own area, upset their land values, undermine their children, send the "nice" people away, and so forth, and they will do everything they can to make the next door area like their own.

Carl Werthman, Jerry Mandel, and Ted Dienstfrey (*Planning and the Purchase Decision: Why People Buy in Planned Communities*, University of California, Berkeley, July 1965) have noticed the same phenomenon even among very similar subcultures. In a study of people living in tract developments, they found that the tension created by adjacencies between dissimilar social groups disappeared when there was enough open land, unused land, freeway, or water between them. In short, a physical barrier between the adjacent subcultures, if big enough, took the heat off.

Obviously, a rich mix of subcultures will not be possible if each subculture is being inhibited by pressure from its neighbors. *The subcultures must therefore be separated by land, which is not residential land, and by as much of it as possible.*

There is another kind of empirical observation which supports this last statement. If we look around a metropolitan area, and pinpoint the strongly differentiated subcultures, those with character, we shall always find that they are near boundaries and hardly ever close to other communities. For example, in San Francisco the two most distinctive areas are Telegraph Hill and Chinatown. Telegraph Hill is surrounded on two sides by the docks. Chinatown is bounded on two sides by the city's banking area. The same is true in the larger Bay Area. Point Richmond and Sausalito,



Subculture boundaries.

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two of the most distinctive communities in the greater Bay Area, are both almost completely isolated. Sausalito is surrounded by hills and water; Point Richmond by water and industrial land. Communities which are cut off to some extent are free to develop their own character.

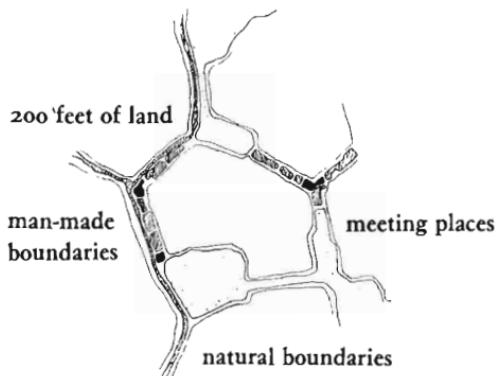
Further support for our argument comes from ecology. In nature, the differentiation of a species into subspecies is largely due to the process of geographic speciation, the genetic changes which take place during a period of spatial isolation (see, for example, Ernst Mayr, *Animal Species and Evolution*, Cambridge, 1963, Chapter 18: "The Ecology of Speciation," pp. 556-85). It has been observed in a multitude of ecological studies that members of the same species develop distinguishable traits when separated from other members of the species by physical boundaries like a mountain ridge, a valley, a river, a dry strip of land, a cliff, or a significant change in climate or vegetation. In just the same way, differentiation between subcultures in a city will be able to take place most easily when the flow of those elements which account for cultural variety—values, style, information, and so on—is at least partially restricted between neighboring subcultures.

Therefore:

Separate neighboring subcultures with a swath of land at least 200 feet wide. Let this boundary be natural—wilderness, farmland, water—or man-made—railroads, major roads, parks, schools, some housing. Along the seam be-

I3 SUBCULTURE BOUNDARY

tween two subcultures, build meeting places, shared functions, touching each community.



* * *

Natural boundaries can be things like THE COUNTRYSIDE (7), SACRED SITES (24), ACCESS TO WATER (25), QUIET BACKS (59), ACCESSIBLE GREEN (60), POOLS AND STREAMS (64), STILL WATER (71). Artificial boundaries can include RING ROADS (17), PARALLEL ROADS (23), WORK COMMUNITIES (41), INDUSTRIAL RIBBONS (42), TEENAGE SOCIETY (84), SHIELDED PARKING (97). The interior organization of the subculture boundary should follow two broad principles. It should concentrate the various land uses to form functional clusters around activity—ACTIVITY NODES (30), WORK COMMUNITY (41). And the boundary should be accessible to both the neighboring communities, so that it is a meeting ground for them—ECCENTRIC NUCLEUS (28) . . .

I 4 IDENTIFIABLE NEIGHBORHOOD**



. . . the MOSAIC OF SUBCULTURES (8) and the COMMUNITY OF 7000 (12) are made up of neighborhoods. This pattern defines the neighborhoods. It defines those small human groups which create the energy and character which can bring the larger COMMUNITY OF 7000 (12) and the MOSAIC OF SUBCULTURES (8) to life.



People need an identifiable spatial unit to belong to.

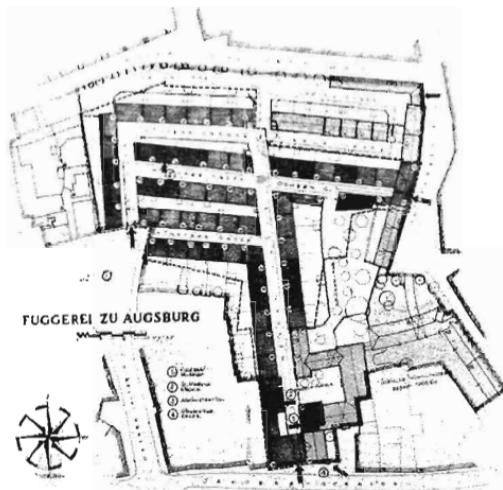


Today's pattern of development destroys neighborhoods.

They want to be able to identify the part of the city where they live as distinct from all others. Available evidence suggests, first, that the neighborhoods which people identify with have extremely small populations; second, that they are small in area; and third, that a major road through a neighborhood destroys it.

1. What is the right population for a neighborhood?

The neighborhood inhabitants should be able to look after their own interests by organizing themselves to bring pressure on city hall or local governments. This means the families in a neighborhood must be able to reach agreement on basic decisions about public services, community land, and so forth. Anthropological evidence suggests that a human group cannot coordinate itself to reach such decisions if its population is above 1500, and many people set the figure as low as 500. (See, for example, Anthony Wallace, *Housing and Social Structure*, Philadelphia Housing Au-



A famous neighborhood: the Fuggerei in Augsburg.

thority, 1952, available from University Microfilms, Inc., Ann Arbor, Michigan, pp. 21-24.) The experience of organizing community meetings at the local level suggests that 500 is the more realistic figure.

2. As far as the physical diameter is concerned, in Philadelphia, people who were asked which area they really knew usually limited themselves to a small area, seldom exceeding the two to three blocks around their own house. (Mary W. Herman, "Comparative Studies of Identification Areas in Philadelphia," City of Philadelphia Community Renewal Program, Technical Report No. 9, April 1964.) One-quarter of the inhabitants of an area in Milwaukee considered a neighborhood to be an area no larger than a block (300 feet). One-half considered it to be no more than seven blocks. (Svend Riener, "Villagers in Metropolis," *British Journal of Sociology*, 2, No. 1, March 1951, pp. 31-43.)

3. The first two features, by themselves, are not enough. A neighborhood can only have a strong identity if it is protected from heavy traffic. Donald Appleyard and Mark Linteli have found that the heavier the traffic in an area, the less people think of it as home territory. Not only do residents view the streets with heavy traffic as less personal, but they feel the same about

I4 IDENTIFIABLE NEIGHBORHOOD

the houses along the street. ("Environmental Quality of City Streets," by Donald Appleyard and Mark Lintell, Center for Planning and Development Research, University of California, Berkeley, 1971.)

neighborhood with light traffic 2000 vehicles/day
200 vehicles/peak hour 15-20 mph Two-way

Residents speaking on "neighboring and visiting"

I feel it's home. There are warm people on this street. I don't feel alone.

Everybody knows each other.

Definitely a friendly street.

Residents speaking on "home territory"

The street life doesn't intrude into the home . . . only happiness comes in from the street.

I feel my home extends to the whole block.

neighborhood with moderate traffic 6000 vehicles/day
550 vehicles/peak hour 25 mph Two-way

Residents speaking on "neighboring and visiting"

You see the neighbors but they aren't close friends.

Don't feel there is any community any more, but people say hello.

Residents speaking on "home territory"

It's a medium place—doesn't require any thought.

neighborhood with heavy traffic 16,000 vehicles/day
1900 vehicles/peak hour 35-40 mph One-way

Residents speaking on "neighboring and visiting"

It's not a friendly street—no one offers help.

People are afraid to go into the street because of the traffic.

Residents speaking on "home territory"

It is impersonal and public.

Noise from the street intrudes into my home.

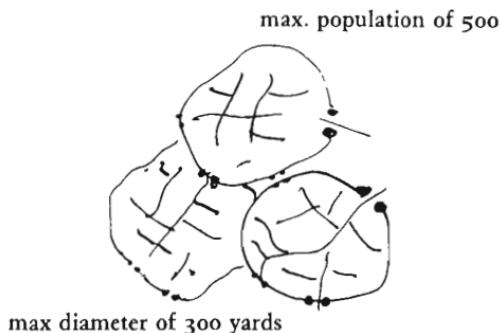
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How shall we define a major road? The Appleyard-Lintell study found that with more than 200 cars per hour, the quality of the neighborhood begins to deteriorate. On the streets with 550 cars per hour people visit their neighbors less and never gather in the street to meet and talk. Research by Colin Buchanan indicates that major roads become a barrier to free pedestrian movement when "most people (more than 50%) . . . have to adapt their movement to give way to vehicles." This is based on "an average delay to all crossing pedestrians of 2 seconds . . . as a very rough guide to the borderline between acceptable and unacceptable conditions," which happens when the traffic reaches some 150 to 250 cars per hour. (Colin D. Buchanan, *Traffic in Towns*, London: Her Majesty's Stationery Office, 1963, p. 204.) Thus any street with greater than 200 cars per hour, at any time, will probably seem "major," and start to destroy the neighborhood identity.

A final note on implementation. Several months ago the City of Berkeley began a transportation survey with the idea of deciding the location of all future major arteries within the city. Citizens were asked to make statements about areas which they wanted to protect from heavy traffic. This simple request has caused widespread grass roots political organizing to take place: at the time of this writing more than 30 small neighborhoods have identified themselves, simply in order to make sure that they succeed in keeping heavy traffic out. In short, the issue of traffic is so fundamental to the fact of neighborhoods, that neighborhoods emerge, and crystallize, as soon as people are asked to decide where they want nearby traffic to be. Perhaps this is a universal way of implementing this pattern in existing cities.

Therefore:

Help people to define the neighborhoods they live in, not more than 300 yards across, with no more than 400 or 500 inhabitants. In existing cities, encourage local groups to organize themselves to form such neighborhoods. Give the neighborhoods some degree of autonomy as far as taxes and land controls are concerned. Keep major roads outside these neighborhoods.



* * *

Mark the neighborhood, above all, by gateways wherever main paths enter it—**MAIN GATEWAYS** (53)—and by modest boundaries of non-residential land between the neighborhoods—**NEIGHBORHOOD BOUNDARY** (15). Keep major roads within these boundaries—**PARALLEL ROADS** (23); give the neighborhood a visible center, perhaps a common or a green—**ACCESSIBLE GREEN** (60)—or a **SMALL PUBLIC SQUARE** (61); and arrange houses and workshops within the neighborhood in clusters of about a dozen at a time—**HOUSE CLUSTER** (37), **WORK COMMUNITY** (41). . . .

I 5 NEIGHBORHOOD BOUNDARY*

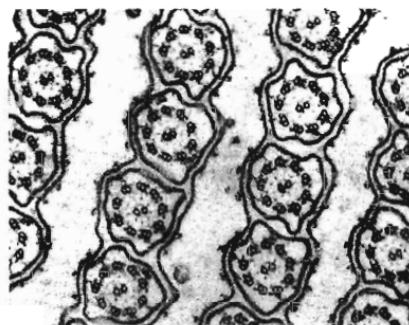


. . . the physical boundary needed to protect subcultures from one another, and to allow their ways of life to be unique and idiosyncratic, is guaranteed, for a COMMUNITY OF 7000 (12), by the pattern SUBCULTURE BOUNDARY (13). But a second, smaller kind of boundary is needed to create the smaller IDENTIFIABLE NEIGHBORHOOD (14).



The strength of the boundary is essential to a neighborhood. If the boundary is too weak the neighborhood will not be able to maintain its own identifiable character.

The cell wall of an organic cell is, in most cases, as large as, or larger, than the cell interior. It is not a surface which divides inside from outside, but a coherent entity in its own right, which preserves the functional integrity of the cell and also provides for a multitude of transactions between the cell interior and the ambient fluids.



*Cell with cell wall: The cell wall
is a place in its own right.*

We have already argued, in SUBCULTURE BOUNDARY (13), that a human group, with a specific life style, needs a boundary around it to protect its idiosyncrasies from encroachment and dilution by surrounding ways of life. This subculture boundary,

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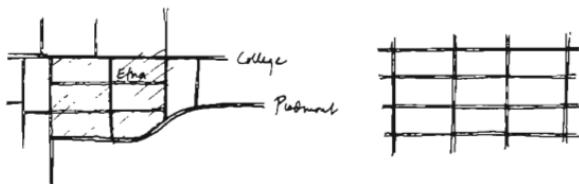
then, functions just like a cell wall—it protects the subculture and creates space for its transactions with surrounding functions.

The argument applies as strongly to an individual neighborhood, which is a subculture in microcosm.

However, where the subculture boundaries require wide swaths of land and commercial and industrial activity, the neighborhood boundaries can be much more modest. Indeed it is not possible for a neighborhood of 500 or more to bound itself with shops and streets and community facilities; there simply aren't enough to go around. Of course, the few neighborhood shops there are—the STREET CAFE (88), the CORNER GROCERY (89)—will help to form the edge of the neighborhood, but by and large the boundary of neighborhoods will have to come from a completely different morphological principle.

From observations of neighborhoods that succeed in being well-defined, both physically and in the minds of the townspeople, we have learned that the single most important feature of a neighborhood's boundary is *restricted access into the neighborhood*: neighborhoods that are successfully defined have definite and relatively few paths and roads leading into them.

For example, here is a map of the Etna Street neighborhood in Berkeley.



*Our neighborhood, compared with
a typical part of a grid system.*

There are only seven roads into this neighborhood, compared with the fourteen which there would be in a typical part of the street grid. The other roads all dead end in T junctions immediately at the edge of the neighborhood. Thus, while the Etna Street neighborhood is not literally walled off from the community, access into it is subtly restricted. The result is that people do not come into the neighborhood by car unless they have

I 5 NEIGHBORHOOD BOUNDARY

business there; and when people are in the neighborhood, they recognize that they are *in* a distinct part of town. Of course, the neighborhood was not "created" deliberately. It was an area of Berkeley which has become an identifiable neighborhood because of this accident in the street system.

An extreme example of this principle is the Fuggerei in Augsburg, illustrated in IDENTIFIABLE NEIGHBORHOOD (14). The Fuggerei is entirely bounded by the backs of buildings and walls, and the paths into it are narrow, marked by gateways.

Indeed, if access is restricted, this means, *by definition*, that those few points where access is possible, will come to have special importance. In one way or another, subtly, or more obviously, they will be gateways, which mark the passage into the neighborhood. We discuss this more fully in MAIN GATEWAYS (53). But the fact is that every successful neighborhood is identifiable because it has some kind of gateways which mark its boundaries: the boundary comes alive in peoples' minds because they recognize the gateways.

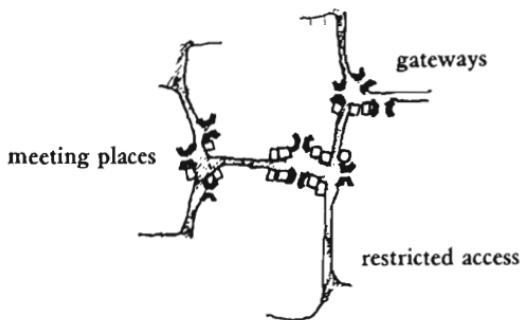
In case the idea of gateways seems too closed, we remark at once that the boundary zone—and especially those parts of it around the gateways—must also form a kind of public meeting ground, where neighborhoods come together. If each neighborhood is a self-contained entity, then the community of 7000 which the neighborhoods belong to will not control any of the land internal to the neighborhoods. But it will control *all* of the land *between* the neighborhoods—the boundary land—because this boundary land is just where functions common to all 7000 people must find space. In this sense the boundaries not only serve to protect individual neighborhoods, but simultaneously function to unite them in their larger processes.

Therefore:

Encourage the formation of a boundary around each neighborhood, to separate it from the next door neighborhoods. Form this boundary by closing down streets and limiting access to the neighborhood—cut the normal number of streets at least in half. Place gateways at those points where the restricted access paths cross the boundary; and

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make the boundary zone wide enough to contain meeting places for the common functions shared by several neighborhoods.



❖ ❖ ❖

The easiest way of all to form a boundary around a neighborhood is by turning buildings inward, and by cutting off the paths which cross the boundary, except for one or two at special points which become gateways—MAIN GATEWAYS (53); the public land of the boundary may include a park, collector roads, small parking lots, and work communities—anything which forms a natural edge—PARALLEL ROADS (23), WORK COMMUNITY (41), QUIET BACKS (59), ACCESSIBLE GREEN (60), SHIELDED PARKING (97), SMALL PARKING LOTS (103). As for the meeting places in the boundary, they can be any of those neighborhood functions which invite gathering: a park, a shared garage, an outdoor room, a shopping street, a playground—SHOPPING STREET (32), POOLS AND STREAMS (64), PUBLIC OUTDOOR ROOM (69), GRAVE SITES (70), LOCAL SPORTS (72), ADVENTURE PLAYGROUND (73). . . .

*connect communities to one another by encouraging
the growth of the following networks:*

16. WEB OF PUBLIC TRANSPORTATION
17. RING ROADS
18. NETWORK OF LEARNING
19. WEB OF SHOPPING
20. MINI-BUSES

I6 WEB OF PUBLIC TRANSPORTATION*

. . . the city, as defined by CITY COUNTRY FINGERS (3), spreads out in ribbon fashion, throughout the countryside, and is broken into LOCAL TRANSPORT AREAS (11). To connect the transport areas, and to maintain the flow of people and goods along the fingers of the cities, it is now necessary to create a web of public transportation.

* * *

The system of public transportation—the entire web of airplanes, helicopters, hovercraft, trains, boats, ferries, buses, taxis, mini-trains, carts, ski-lifts, moving sidewalks—can only work if all the parts are well connected. But they usually aren't, because the different agencies in charge of various forms of public transportation have no incentives to connect to one another.

Here, in brief, is the general public transportation problem. A city contains a great number of places, distributed rather evenly across a two-dimensional sheet. The trips people want to make are typically between two points at random in this sheet. No one linear system (like a train system), can give direct connections between the vast possible number of point pairs in the city.

It is therefore only possible for systems of public transportation to work, if there are rich connections between a great variety of *different* systems. But these connections are not workable, unless they are genuine fast, short, connections. The waiting time for a connection must be short. And the walking distance between the two connecting systems must be very short.

This much is obvious; and everyone who has thought about public transportation recognizes its importance. However, obvious though it is, it is extremely hard to implement.

16 WEB OF PUBLIC TRANSPORTATION

There are two practical difficulties, both of which stem from the fact that different kinds of public transportation are usually in the hands of different agencies who are reluctant to cooperate. They are reluctant to cooperate, partly because they are actually in competition, and partly just because cooperation makes life harder for them.

This is particularly true along commuting corridors. Trains, buses, mini-buses, rapid transit, ferries, and maybe even planes and helicopters compete for the same passenger market along these corridors. When each mode is operated by an independent agency there is no particular incentive to provide feeder services to the more inflexible modes. Many services are even reluctant to provide good feeder connections to rapid transit, trains, and ferries, because their commuter lines are their most lucrative lines. Similarly, in many cities of the developing world, mini-buses and *collectivos* provide public transportation along the main commuting corridors, pulling passengers away from buses. This leaves the mainlines served by small vehicles, while almost empty buses reach the peripheral lines, usually because the public bus company is required to serve these areas, even at a loss.

The solution to the web of public transportation, then, hinges on the possibility of solving the coordination problem of the different systems. This is the nut of the matter. We shall now propose a way of solving it. The traditional way of looking at public transportation assumes that lines are primary and that the interchanges needed to connect the lines to one another are secondary. We propose the opposite: namely, that interchanges are primary and that the transport lines are secondary elements which connect the interchanges.

Imagine the following organization: each interchange is run by the community that uses it. The community appoints an interchange chief for every interchange, and gives him a budget, and a directive on service. The interchange chief coordinates the service at his interchange; he charters service from any number of transport companies—the companies, themselves, are in free competition with one another to create service.

In this scheme, responsibility for public transportation shifts from lines to interchanges. The interchanges are responsible for connecting themselves to each other, and the community which

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uses the interchange decides what kinds of service they want to have passing through it. It is then up to the interchange chief to persuade these transport modes to pass through it.

Slowly, a service connecting interchanges will build up. One example which closely follows our model, and shows that this model is capable of producing a higher level of service than any centralized agency can produce, is the famous Swiss Railway System.

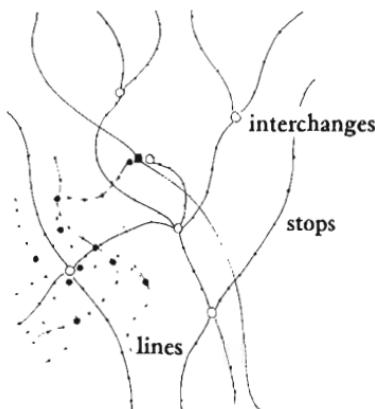
The Swiss railway system . . . is the densest network in the world. At great cost and with great trouble, it has been made to serve the needs of the smallest localities and most remote valleys, not as a paying proposition but because such was the will of the people. It is the outcome of fierce political struggles. In the 19th century, the "democratic railway movement" brought the small Swiss communities into conflict with the big towns, which had plans for centralisation. . . . And if we compare the Swiss system with the French which, with admirable geometrical regularity, is entirely centered on Paris so that the prosperities or the decline, the life or death of whole regions has depended on the quality of the link with the capital, we see the difference between a centralised state and a federal alliance. The railway map is the easiest to read at a glance, but let us now superimpose on it another showing economic activity and the movement of population. The distribution of industrial activity all over Switzerland, even in the outlying areas, accounts for the strength and stability of the social structure of the country and prevented those horrible 19th century concentrations of industry, with their slums and rootless proletariat. (Colin Ward, "The Organization of Anarchy," in *Patterns of Anarchy*, by Leonard I. Krimerman and Lewis Perry, New York, 1966.)

Therefore:

Treat interchanges as primary and transportation lines as secondary. Create incentives so that all the different modes of public transportation—airplanes, helicopters, ferries, boats, trains, rapid transit, buses, mini-buses, ski-lifts, escalators, travelators, elevators—plan their lines to connect the interchanges, with the hope that gradually many different lines, of many different types, will meet at every interchange.

Give the local communities control over their interchanges so that they can implement the pattern by giving

contracts only to those transportation companies which are willing to serve these interchanges.



Keep all the various lines that converge on a single interchange, and their parking, within 600 feet, so that people can transfer on foot—INTERCHANGE (34). It is essential that the major stations be served by a good feeder system, so people are not forced to use private cars at all—MINI-BUSES (20). . . .

I 7 RING ROADS



. . . the ring roads which this pattern specifies, help to define and generate the LOCAL TRANSPORT AREAS (11); if they are placed to make connections between INTERCHANGES (34), they also help to form the WEB OF PUBLIC TRANSPORTATION (16).



It is not possible to avoid the need for high speed roads in modern society; but it is essential to place them and build them in such a way that they do not destroy communities or countryside.

Even though the rush of freeways and superhighways built in the 1950's and 1960's is slowing down, because of widespread local protest, we cannot avoid high speed roads altogether. There is, at present, no prospect for a viable alternative which can provide for the vast volume of movement of cars and trucks and buses which a modern city lives on economically and socially.

At the same time, however, high speed roads do enormous damage when they are badly placed. They slice communities in half; they cut off waterfronts; they cut off access to the countryside; and, above all, they create enormous noise. For hundreds of yards, even a mile or two, the noise of every superhighway roars in the background.

To resolve these obvious dilemmas that come with the location and construction of high speed roads, we must find ways of building and locating these roads, so that they do not destroy communities and shatter life with their noise. We can give three requirements that, we believe, go to the heart of this policy:

1. Every community that has coherence as an area of local transportation—LOCAL TRANSPORT AREAS (11)—is never split by a high speed road, but rather has at least one high speed road adjacent to it. This allows rapid auto travel from one such community out to other communities and to the region at large.

2. It must be possible for residents of each local transport area to reach the open countryside without crossing a high speed road—see CITY COUNTRY FINGERS (3). This means, very roughly,

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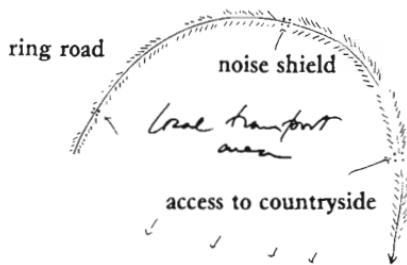
that high speed roads must always be placed in such positions that at least one side of every local transport area has direct access to open country.

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—SUBCULTURE BOUNDARY (13) and never along waterfronts—ACCESS TO WATER (25). Place industry and big parking garages next to the roads, and use them, whenever possible, as extra noise shields—INDUSTRIAL RIBBONS (42), SHIELDED PARKING (c)

I8 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 Dennison, *Lives of Children*, New York: Vintage Books, 1969, p. 3.)

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): 25-31, special supplement, July 1971.

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 used for educational purposes. The crisis of schooling, if it is to have any positive consequence, will inevitably lead to their incorporation 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 orderly successions; and that only teachers 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 break apart this pyramid. Their purpose must be to facilitate access for the learner: to allow him to look into the windows of the control room or the parliament, if he cannot get in 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 now 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 fastest 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 methods most suitable to their talents, 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 peers to discuss African history. Like the network administrator, the pedagogical counselor conceives of himself as a professional educator. Access to either 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 certification cannot continue to be counted upon as the central educational device of a modern society. Julius Nyere 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 no known system of formal education could provide equal opportunities for the citizens of Ontario. The president of Peru has accepted the recommendation of his commission on education, which proposes to abolish free 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 educators. (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 so radically decentralized 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

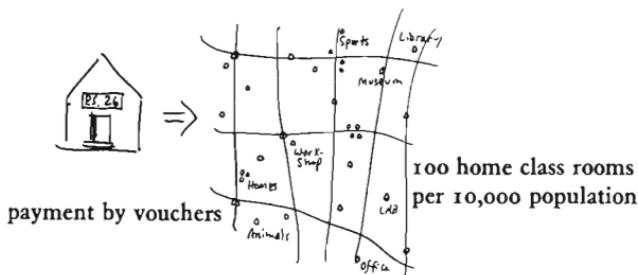
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same. It is not hard to imagine that eventually every third or fourth household will have at least one person in it who is offering a class or training of some kind.

Therefore:

Instead of the lock-step 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.

network directory



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

18 NETWORK OF LEARNING

each city has a "path" where young children can safely wander on their own—**CHILDREN IN THE CITY** (57); build extra public "homes" for children, one to every neighborhood at least—**CHILDREN'S HOME** (86); create a large number of work-oriented small schools in those parts of town dominated by work and commercial activity—**SHOPFRONT 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** (43); and use the real work of professionals and tradesmen as the basic nodes in the network—**MASTER AND APPRENTICES** (83). . . .

19 WEB OF SHOPPING*

. . . this pattern defines a piecemeal process which can help to locate shops and services where they are needed, in such a way that they will strengthen the MOSAIC OF SUBCULTURES (8), SUBCULTURE BOUNDARIES (13), and the decentralized economy needed for SCATTERED WORK (9) and LOCAL TRANSPORT AREAS (11).



Shops rarely place themselves in those positions which best serve the people's needs, and also guarantee their own stability.

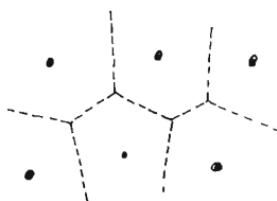
Large parts of towns have insufficient services. New shops which could provide these services often locate near the other shops and major centers, instead of locating themselves where they are needed. In an ideal town, where the shops are seen as part of the society's necessities and not merely as a way of making profit for the shopping chains, the shops would be much more widely and more homogeneously distributed than they are today.

It is also true that many small shops are unstable. Two-thirds of the small shops that people open go out of business within a year. Obviously, the community is not well served by unstable businesses, and once again, their economic instability is largely linked to mistakes of location.

To guarantee that shops are stable, as well as distributed to meet community needs, each new shop must be placed where it will fill a gap among the other shops offering a roughly similar service and also be assured that it will get the threshold of customers which it needs in order to survive. We shall now try to express this principle in precise terms.

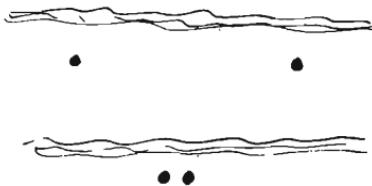
The characteristics of a stable system of shops is rather well known. It relies, essentially, on the idea that each unit of shopping has a certain catch basin—the population which it needs in order

to survive—and that units of any given type and size will therefore be stable if they are evenly distributed, each one at the center of a catch basin large enough to support it.



Catch basins.

The reason that shops and shopping centers do not always, automatically, distribute themselves according to their appropriate catch basins is easily explained by the situation known as Hotelling's problem. Imagine a beach in summer time—and, somewhere along the beach, an ice-cream seller. Suppose now, that you are also an ice-cream seller. You arrive on the beach. Where should you place yourself in relation to the first ice-cream seller? There are two possible solutions.



Two approaches to the ice-cream problem.

In the first case, you essentially decide to split the beach with the other ice-cream seller. You take half the beach, and leave him half the beach. In this case, you place yourself as far away from him as you can, in a position where half the people on the beach are nearer to you than to him.

In the second case, you place yourself right next to him. You decide, in short, to try and compete with him—and place yourself in such a way as to command the whole beach, not half of it.

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Every time a shop, or shopping center opens, it faces a similar choice. It can either locate in a new area where there are no other competing businesses, or it can place itself exactly where all the other businesses are already in the hope of attracting their customers away from them.

The trouble is, very simply, that people tend to choose the second of these two alternatives, because it seems, on the surface, to be safer. In fact, however, the first of the two choices is both better and safer. It is better for the customers, who then have stores to serve them closer to their homes and work places than they do now; and it is safer for the shopkeepers themselves since—in spite of appearances—their stores are much more likely to survive when they stand, without competition, in the middle of a catch basin which needs their services.

Let us now consider the global nature of a web which has this character. In present cities, shops of similar types tend to be clustered in shopping centers. They are forced to cluster, in part because of zoning ordinances, which forbid them to locate in so-called residential areas; and they are encouraged to cluster by their mistaken notion that competition with other shops will serve them better than roughly equal sharing of the available customers. In the "peoples" web we are proposing, shops are far more evenly spread out, with less emphasis on competition and greater emphasis on service. Of course, there will still be competition, enough to make sure that very bad shops go out of business, because each shop will be capable of drawing customers from the nearby catch basins if it offers better service—but the accent is on cooperation instead of competition.



The existing web.

The peoples' web.

19 WEB OF SHOPPING

To generate this kind of homogeneous people's web, it is only necessary that each new shop follow the following three-step procedure when it chooses a location:

1. Identify all other shops which offer the service you are interested in; locate them on the map.
2. Identify and map the location of potential consumers. Wherever possible, indicate the density or total number of potential consumers in any given area.
3. Look for the biggest gap in the existing web of shops in those areas where there are potential consumers.



The gap in services.

Two colleagues of ours have tested the efficiency and potential stability of the webs created by this procedure. ("Computer Simulation of Market Location in an Urban Area," S. Angel and F. Loetterle, CES files, June 1967.) They chose to study markets. They began with a fixed area, a known population density and purchasing power, and a random distribution of markets of different sizes. They then created new markets and killed off old markets according to the following rules. (1) Among all of the existing markets, erase any that do not capture sufficient business to support their given size; (2) among all of the possible locations for a new market, find the one which would most strongly support a new market; (3) find that size for the new market that would be most economically feasible; (4) find that market among all those now existing that is the least economically feasible, and erase it from the web; (5) repeat steps (2) through (4) until no further improvement in the web can be made.

Under the impact of these rules, the random distribution of

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markets at the beginning leads gradually to a fluctuating, pulsating distribution of markets which remains economically stable throughout its changes.

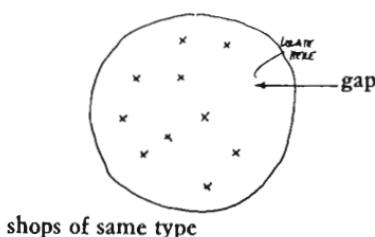
Now of course, even if shops of the *same* kind are kept apart by this procedure, shops of *different* kinds will tend to cluster. This follows, simply, from the convenience of the shopper. If we follow the rules of location given above—always locating a new shop in the biggest gap in the web of similar shops—then, within that gap there are still quite a large number of different possible places to locate: and naturally, we shall try to locate near the largest cluster of other shops within that gap, to increase the number of people coming past the shop, in short, to make it more convenient for shoppers.

The clusters which emerge have been thoroughly studied by Berry. It turns out that the *levels* of clustering are remarkably similar, even though their spacing varies greatly according to population density. (See *Geography of Market Centers and Retail Distribution*, B. Berry, Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1967, pp. 32-33.) The elements in this web of clustering correspond closely to patterns defined in this language.

Therefore:

When you locate any individual shop, follow a three-step procedure:

1. Identify all other shops which offer the service you are interested in; locate them on the map.
2. Identify and map the location of potential consumers. Wherever possible, indicate the density or total number of potential consumers in any given area.
3. Look for the biggest gap in the existing web of shops in those areas where there are potential consumers.
4. Within the gap in the web of similar shops, locate your shop next to the largest cluster of other kinds of shops.



❖ ❖ ❖

We estimate, that under the impact of this rule, a web of shopping with the following overall characteristics will emerge:

	<u>Population</u>	<u>Distance Apart (Miles)</u>
MAGIC OF THE CITY (10)	300,000	10*
PROMENADES (31)	50,000	4*
SHOPPING STREETS (32)	10,000	1.8*
MARKETS OF MANY SHOPS (46)	4,000	1.1*
CORNER GROCERIES (89)	1,000	0.5*

* These distances are calculated for an overall population density of 5000 per square mile. For a population density of D persons/square mile, divide the distances by $\sqrt{D/5000}$

20 MINI-BUSES*

. . . this pattern helps complete the LOCAL TRANSPORT AREAS (11) and the WEB OF PUBLIC TRANSPORTATION (16). The local transport areas rely heavily on foot traffic, and on bikes and carts and horses. The web of public transportation relies on trains and planes and buses. Both of these patterns need a more flexible kind of public transportation to support them.

* * *

Public transportation must be able to take people from any point to any other point within the metropolitan area.

Buses and trains, which run along lines, are too far from most origins and destinations to be useful. Taxis, which can go from point to point, are too expensive.

To solve the problem, it is necessary to have a kind of vehicle which is half way between the two—half like a bus, half like a taxi—a small bus which can pick up people at any point and take them to any other point, but which may also pick up other passengers on the way, to make the trip less costly than a taxi fare.

Recent research, and full-scale experiments, have shown that a system of mini-buses, on call by telephone, can function in this fashion, taking people from door to door in 15 minutes, for no more than 50 cents a ride (1974): and that the system is efficient enough to support itself. It works just like a taxi, except that it picks up and drops off other passengers while you are riding; it goes to the nearest corner to save time—not to your own front door; and it costs a quarter of an average taxi fare.

The system hinges, to a certain extent, on the development of sophisticated new computer programs. As calls come in, the computer examines the present movements of all the various mini-buses, each with its particular load of passengers, and decides which bus can best afford to pick up the new passenger, with the least detour. Two-way radio contact keeps the mini-buses in communication with the dispatcher at the computer switchboard. All this, and other details, are discussed fully in a review of current



Canadian mini-bus.

dial-a-bus research: *Summary Report—The Dial-a-Ride Transportation System*, M.I.T. Urban Systems Laboratory, Report # USL-TR-70-10, March 1971.

Dial systems for buses are actually coming into existence now because they are economically feasible. While conventional fixed-route public transport systems are experiencing a dangerous spiral of lower levels of service, fewer passengers, and increased public subsidies, over 30 working dial-a-bus systems are presently in successful operation throughout the world. For example, a dial-a-bus system in Regina, Saskatchewan, is the *only* part of the Regina Transit System which supports itself (*Regina Telebus Study: Operations Report, and Financial Report*, W. G. Atkinson et al., June 1972). In Batavia, New York, dial-a-bus is the sole means of public transport, serving a population of 16,000 at fares of 40 to 60 cents per ride.

We finish this pattern by reminding the reader of two vital problems of public transportation, which underline the importance of the mini-bus approach.

First, there are very large numbers of people in cities who cannot drive; we believe the mini-bus system is the only realistic way of meeting the needs of all these people.

Their numbers are much larger than one would think. They are, in effect, a silent minority comprising the uncomplaining old and physically handicapped, the young and the poor. In 1970, over 20 percent of U.S. households did not own a car. Fifty-seven and five-tenths percent of all households with incomes under \$3000 did not own a car. For households headed by persons 65 years of age or older, 44.9 percent did not own a car. Of the youths between 10 and 18 years of age, 80 percent are dependent on others, including public

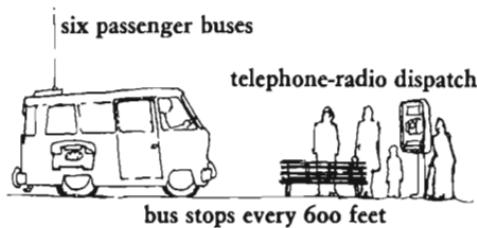
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transit, for their mobility. Among the physically disabled about 5.7 million are potential riders of public transportation if the system could take them door-to-door. (Sumner Myers, "Turning Transit Subsidies into 'Compensatory Transportation,'" *City*, Vol. 6, No. 3, Summer 1972, p. 20.)

Second, quite apart from these special needs, the fact is that a web of public transportation, with large buses, boats, and trains, will not work anyway, without a mini-bus system. The large systems need feeders: some way of getting to the stations. If people have to get in their cars to go to the train, then, once in the car, they stay in it and do not use the train at all. The mini-bus system is essential for the purpose of providing feeder service in the larger web of public transportation.

Therefore:

Establish a system of small taxi-like buses, carrying up to six people each, radio-controlled, on call by telephone, able to provide point-to-point service according to the passengers' needs, and supplemented by a computer system which guarantees minimum detours, and minimum waiting times. Make bus stops for the mini-buses every 600 feet in each direction, and equip these bus stops with a phone for dialing a bus.



* * *

Place the bus stops mainly along major roads, as far as this can be consistent with the fact that no one ever has to walk more than 600 feet to the nearest one—PARALLEL ROADS (23); put one in every INTERCHANGE (34); and make each one a place where a few minutes' wait is pleasant—BUS STOP (92). . . .

establish community and neighborhood policy to control the character of the local environment according to the following fundamental principles:

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

21 FOUR-STORY LIMIT**



. . . within an urban area, the density of building fluctuates. It will, in general, be rather higher toward the center and lower toward the edges—**CITY COUNTRY FINGERS** (3), **LACE OF COUNTRY STREETS** (5), **MAGIC OF THE CITY** (10). However, throughout the city, even at its densest points, there are strong human reasons to subject all buildings to height restrictions.



There is abundant evidence to show that high buildings make people crazy.

High buildings have no genuine advantages, except in speculative gains for banks and land owners. They are not cheaper, they do not help create open space, they destroy the townscape, they destroy social life, they promote crime, they make life difficult for children, they are expensive to maintain, they wreck the open spaces near them, and they damage light and air and view. But quite apart from all of this, which shows that they aren't very sensible, empirical evidence shows that they can actually damage people's minds and feelings.



“The Ministry of Truth—Minitrue, in Newspeak—was startlingly different from any other object in sight. It was an enormous pyramidal structure of glittering white concrete, soaring up terrace after terrace 300 metres in the air.” (George Orwell, 1984)

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There are two separate bodies of evidence for this. One shows the effect of high-rise housing on the mental and social well being of families. The other shows the effect of large buildings, and high buildings, on the human relations in offices and workplaces. We present the first of these two bodies of evidence in the text which follows. The second, concerning offices and workplaces, we have placed in **BUILDING COMPLEX** (95), since it has implications not just for the height of buildings but also for their total volume.

We wish to stress, however, that the seemingly one-sided concern with housing in the paragraphs which follow, is only apparent. The underlying phenomenon—namely, mental disorder and social alienation created by the height of buildings—occurs equally in housing and in workplaces.

The strongest evidence comes from D. M. Fanning ("Families in Flats," *British Medical Journal*, November 18, 1967, pp. 382-86). Fanning shows a direct correlation between incidence of mental disorder and the height of people's apartments. The higher people live off the ground, the more likely are they to suffer mental illness. And it is not simply a case of people prone to mental illness choosing high-rise apartments. Fanning shows that the correlation is strongest for the people who spend the most time in their apartments. Among the families he studied, the correlation was strongest for women, who spend the most time in their apartments; it was less strong for children, who spend less time in the apartments; and it was weakest for men, who spend the least amount of time in their apartments. This strongly suggests that sheer time spent in the high-rise is itself what causes the effect.

A simple mechanism may explain this: high-rise living takes people away from the ground, and away from the casual, everyday society that occurs on the sidewalks and streets and on the gardens and porches. It leaves them alone in their apartments. 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. The forced isolation then causes individual breakdowns.

Fanning's findings are reinforced by Dr. D. Cappon's clinical experiences reported in "Mental Health and the High Rise," Canadian Public Health Association, April 1971:

21 FOUR-STORY LIMIT

There is every reason to believe that high-rise apartment dwelling has adverse effects on mental and social health. And there is sufficient clinical, anecdotal and intuitive observations to back this up. Here-with, in no particular order ranking, a host of factors:

In my experience as Mental Health Director in a child guidance clinic in York Township, Toronto, for 5 years, I saw numerous children who had been kinetically deprived . . . and kinetic deprivation is the worst of the perceptual, exploratory kinds, for a young child, leaving legacies of lethargy, or restlessness, antisocial acting out or withdrawal, depersonalization or psychopathy.

Young children in a high-rise are much more socially deprived of neighborhood peers and activities than their S.F.D. (Single Family Dwelling) counterparts, hence they are poorly socialized and at too close quarters to adults, who are tense and irritable as a consequence.

Adolescents in a high-rise suffer more from the "nothing-to-do" ennui than those of a S.F.D., with enhanced social needs for "drop in centres" and a greater tendency to escapism. . . .

Mothers are more anxious about their very young ones, when they can't see them in the street below, from a convenient kitchen window.

There is higher passivity in the high-rise because of the barriers to active outlets on the ground; such barriers as elevators, corridors; and generally there is a time lapse and an effort in negotiating the vertical journey. TV watching is extended in the high-rise. This affects probably most adversely the old who need kinesia and activity, in proportion, as much as the very young do. Though immobility saves them from accidents, it also shortens their life in a high-rise. . . .

A Danish study by Jeanne Morville adds more evidence (*Borns Brug af Friarsaler, Disponering Af Friarsaler, Etageboligområder Med Saerlig Henblik Pa Borns Legsmuligheder*, S.B.I., Denmark, 1969):

Children from the high blocks start playing out of doors on their own at a later age than children from the low blocks: Only 2% of the children aged two to three years in the high point blocks play on their own out of doors, while 27% of the children in the low blocks do this.

Among the children aged five years in the high point blocks 29% do not as yet play on their own out of doors, while in the low blocks all the children aged five do so. . . . The percentage of young children playing out of doors on their own decreases with the height of their homes; 90% of all the children from the three lower floors in the high point blocks play on their own out of doors, while only 59% of the children from the three upper floors do so. . . .

Young children in the high blocks have fewer contacts with playmates than those in the low blocks: Among children aged one, two and three years, 86% from the low blocks have daily contact with playmates; this applies to only 29% from the high blocks.

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More recently, there is the evidence brought forward by Oscar Newman in *Defensible Space*. Newman compared two adjacent housing projects in New York—one high-rise, the other a collection of relatively small three-story walk-up buildings. The two projects have the same overall density, and their inhabitants have roughly the same income. *But Newman found that the crime rate in the high-rise was roughly twice that in the walk-ups.*

At what height do the effects described by Fanning, Cappon, Morville, and Newman begin to take hold? It is our experience that in both housing and office buildings, the problems begin when buildings are more than four stories high.

At three or four stories, one can still walk comfortably down to the street, and from a window you can still feel part of the street scene: you can see details in the street—the people, their faces, foliage, shops. From three stories you can yell out, and catch the attention of someone below. Above four stories these connections break down. The visual detail is lost; people speak of the scene below as if it were a game, from which they are completely detached. The connection to the ground and to the fabric of the town becomes tenuous; the building becomes a world of its own: with its own elevators and cafeterias.

We believe, therefore, that the “four-story limit” is an appropriate way to express the proper connection between building height and the health of a people. Of course, it is the spirit of the pattern which is most essential. Certainly, a building five stories high, perhaps even six, might work if it were carefully handled. But it is difficult. On the whole, we advocate a four-story limit, with only occasional departures, throughout the town.

Finally, we give the children of Glasgow the last word.

To fling a “piece,” a slice of bread and jam, from a window down to a child in the street below has been a recognised custom in Glasgow’s tenement housing. . . .

THE JEELY PIECE SONG

by Adam McNaughton

I'm a skyscraper wean, I live on the nineteenth flair,
On' I'm no' gaun oot tae play ony mair,
For since we moved tae oor new hoose I'm wastin' away,
'Cos I'm gettin' wan less meal ev'ry day,

21 FOUR-STORY LIMIT

Refrain

Oh, ye canny fling pieces oot a twenty-storey flat,
Seven hundred hungry weans will testify tae that,
If it's butter, cheese or jeely, if the breid is plain or pan,
The odds against it reachin' us is ninety-nine tae wan.

.

We've wrote away tae Oxfam tae try an' get some aid,
We've a' joined thegither an' formed a "piece" brigade,
We're gonny march tae London tae demand oor Civil Rights,
Like "Nae mair hooses ower piece flingin' heights."

Therefore:

In any urban area, no matter how dense, keep the majority of buildings four stories high or less. It is possible that certain buildings should exceed this limit, but they should never be buildings for human habitation.



Within the framework of the four-story limit the exact height of individual buildings, according to the area of floor they need, the area of the site, and the height of surrounding buildings, is given by the pattern **NUMBER OF STORIES** (96). More global variations of density are given by **DENSITY RINGS** (29). The horizontal subdivision of large buildings into smaller units, and separate smaller buildings, is given by **BUILDING COMPLEX** (95). **HOUSING HILL** (39) and **OFFICE CONNECTIONS** (82) help to shape multi-storied apartments and offices within the constraints of a four-story limit. And finally, don't take the four-story limit too literally. Occasional exceptions from the general rule are very important—**HIGH PLACES** (62). . . .

22 NINE PER CENT
PARKING**



. . . the integrity of local transport areas and the tranquility of local communities and neighborhoods depend very much on the amount of parking they provide. The more parking they provide, the less possible it will be to maintain these patterns, because the parking spaces will attract cars, which in turn violate the local transport areas and neighborhoods—**LOCAL TRANSPORT AREAS** (11), **COMMUNITY OF 7000** (12), **IDENTIFIABLE NEIGHBORHOOD** (14). This pattern proposes radical limits on the distribution of parking spaces, to protect communities.



Very simply—when the area devoted to parking is too great, it destroys the land.



In downtown Los Angeles over 60 per cent of the land is given over to the automobile.

Very rough empirical observations lead us to believe that it is not possible to make an environment fit for human use when more than 9 per cent of it is given to parking.

Our observations are very tentative. We have yet to perform systematic studies—our observations rely on our own subjective estimates of cases where “there are too many cars” and cases where “the cars are all right.” However, we have found in our preliminary observations, that different people agree to a remarkable extent about these estimates. This suggests that we are dealing with a phenomenon which, though obscure, is nonetheless substantial.

An example of an environment which has the threshold density of 9 per cent parking, is shown in our key photograph: a quadrant

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of the University of Oregon. Many people we have talked to feel intuitively that this area is beautiful now, but that if more cars were parked there it would be ruined.

What possible functional basis is there for this intuition? We conjecture as follows: people realize, subconsciously, that the physical environment is the medium for their social intercourse. It is the environment which, when it is working properly, creates the potential for all social communion, including even communion with the self.

We suspect that when the density of cars passes a certain limit, and people experience the feeling that there are too many cars, what is really happening is that subconsciously they feel that the cars are overwhelming the environment, that the environment is no longer "theirs," that they have no right to be there, that it is not a place for people, and so on. After all, the effect of the cars reaches far beyond the mere presence of the cars themselves. They create a maze of driveways, garage doors, asphalt and concrete surfaces, and building elements which people cannot use. When the density goes beyond the limit, we suspect that people feel the social potential of the environment has disappeared. Instead of inviting them out, the environment starts giving them the message that the outdoors is not meant for them, that they should stay indoors, that they should stay in their own buildings, that social communion is no longer permitted or encouraged.

We have not yet tested this suspicion. However, if it turns out to be true, it may be that this pattern, which seems to be based on such slender evidence, is in fact one of the most crucial patterns there is, and that it plays a key role in determining the difference between environments which are socially and psychologically healthy and those which are unhealthy.

We conjecture, then, that environments which are human, and not destroyed socially or ecologically by the presence of parked cars, have less than 9 per cent of the ground area devoted to parking space; and that parking lots and garages must therefore never be allowed to cover more than 9 per cent of the land.

It is essential to interpret this pattern in the strictest possible way. The pattern becomes meaningless if we allow ourselves to place the parking generated by a piece of land A, on another adjacent piece of land B, thus keeping parking on A below 9 per

cent, but raising the parking on B to more than 9 per cent. In other words, each piece of land must take care of itself; we must not allow ourselves to solve this problem on one piece of land at the expense of some other piece of land. A town or a community can only implement the pattern according to this strict interpretation by defining a grid of independent "parking zones"—each zone 1 to 10 acres in area—which cover the whole community, and then insisting that the rule be applied, independently, and strictly, inside every parking zone.

The 9 per cent rule has a clear and immediate implication for the balance between surface parking and parking in garages, at different parking densities. This follows from simple arithmetic. Suppose, for example, that an area requires 20 parking spaces per acre. Twenty parking spaces will consume about 7000 square feet, which would be 17 per cent of the land if it were all in surface parking. To keep 20 cars per acre in line with the 9 per cent rule, at least half of them will have to be parked in garages. The table below gives similar figures for different densities:

Cars per acre	Per cent on surface	Per cent in two story garages	Per cent in three story garages
12	100	—	—
17	50	50	—
23	50	—	50
30	—	—	100

What about underground parking? May we consider it as an exception to this rule? Only if it does not violate or restrict the use of the land above. If, for example, a parking garage is under a piece of land which was previously used as open space, with great trees growing on it, then the garage will almost certainly change the nature of the space above, because it will no longer be possible to grow large trees there. Such a parking garage is a violation of the land. Similarly, if the structural grid of the garage—60 foot bays—constrains the structural grid of the building above, so that this building is not free to express its needs, this is a violation too. Underground parking may be allowed only in those rare cases where it does not constrain the land above at all: under a major road, perhaps, or under a tennis court.

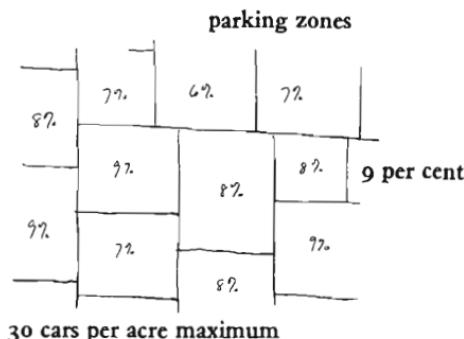
We see then, that the 9 per cent rule has colossal implications.

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Since underground parking will only rarely satisfy the conditions we have stated, the pattern really says that almost no part of the urban area may have more than 30 parking spaces per acre. *This will create large changes in the central business district.* Consider a part of a typical downtown area. There may be several hundred commuters per acre working there; and, under today's conditions, many of them park their cars in garages. But if it is true that there cannot be more than 30 parking spaces per acre, then either the work will be forced to decentralize, or the workers will have to rely on public transportation. It seems, in short, that this simple pattern, based on the social psychology of the environment, leads us to the same far reaching social conclusions as the patterns **WEB OF PUBLIC TRANSPORTATION (16)** and **SCATTERED WORK (9)**.

Therefore:

Do not allow more than 9 per cent of the land in any given area to be used for parking. In order to prevent the "bunching" of parking in huge neglected areas, it is necessary for a town or a community to subdivide its land into "parking zones" no larger than 10 acres each and to apply the same rule in each zone.



Two later patterns say that parking must take one of two forms: tiny, surface parking lots, or shielded parking structures—

22 NINE PER CENT PARKING

SHIELDED PARKING (97), SMALL PARKING LOTS (103). If you accept these patterns the 9 per cent rule will put an effective upper limit of 30 parking spaces per acre, on every part of the environment. Present-day on-street parking, with driveways, which provides spaces for about 35 cars per acre on the ground is ruled out. And those present-day high density business developments which depend on the car are also ruled out. . . .

23 PARALLEL ROADS



. . . in earlier patterns, we have proposed that cities should be subdivided into local transport areas, whose roads allow cars to move in and out from the ring roads, but strongly discourage internal movement across the area—**LOCAL TRANSPORT AREAS (11)**, **RING ROADS (17)**—and that these transport areas themselves be further subdivided into communities and neighborhoods, with the provision that all major roads are in the boundaries between communities and neighborhoods—**SUBCULTURE BOUNDARY (13)**, **NEIGHBORHOOD BOUNDARY (15)**. Now, what should the arrangement of these roads be like, to help the flow required by **LOCAL TRANSPORT AREAS (11)**, and to maintain the boundaries?

* * *

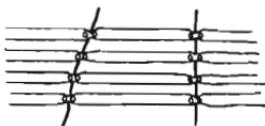
The net-like pattern of streets is obsolete. Congestion is choking cities. Cars can average 60 miles per hour on freeways, but trips across town have an average speed of only 10 to 15 miles per hour.

Certainly, in many cases, we want to get rid of cars, not help them to go faster. This is fully discussed in **LOCAL TRANSPORT AREAS (11)**. But away from the areas where children play and people walk or use their bikes, there still need to be certain streets which carry cars. The question is: How can these streets be designed to carry the cars faster and without congestion?

It turns out that the loss of speed on present city streets is caused mainly by crossing movements: left-hand turns across traffic and four-way intersections. (G. F. Newell, "The Effect of Left Turns on the Capacity of Traffic Intersection," *Quarterly of Applied Mathematics*, XVII, April 1959, pp. 67-76.)

To speed up traffic it is therefore necessary to create a network of major roads in which there are no four-way intersections, and no left-hand turns across traffic. This can easily be done if the major roads are alternating, one-way parallel roads, a few hundred feet apart, with smaller local roads opening off them, and the only connections between the parallel roads given by larger freeways crossing them at two- or three-mile intervals.

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Parallel roads.

This pattern has been discussed at considerable length in three papers ("The Pattern of Streets," C. Alexander, *AIP Journal*, September 1966; Criticisms by D. Carson and P. Roosen-Runge, and Alexander's reply, in *AIP Journal*, September 1967.) We refer the reader to these original papers for the full derivation of all the geometric details. Our present statement is a radically condensed version. Here we concentrate mainly on one puzzling question—that of detours—because this is for many people the most surprising aspect of the full analysis.

The pattern of parallel roads—since it contains no major cross streets—creates many detours not present in today's net-like pattern. At first sight it seems likely that these detours will be impossibly large. However, in the papers mentioned above it is shown in detail that they are in fact perfectly reasonable. We summarize the argument below.

It is possible to calculate the probable detour for any trip of a given length through this proposed parallel road system as a function of the distance between the cross roads. Next, the probability of any given trip length may be obtained from actual studies of metropolitan auto trips. These two types of probabilities can finally be combined to yield an overall mean trip length and overall mean detours as shown below.

Trip Length, miles	1	2	3	4	5	7	10	
Proportion of Trip Lengths %*	28	11	11	9	9	24	8	4.12 (Overall Mean Trip Length)
miles between cross roads	Mean Detour, miles							Overall Mean Detour
1	.12	.05	.04	.03	.02	.01	.01	.05
2	.45	.24	.15	.11	.09	.07	.04	.21
3	.79	.58	.36	.25	.20	.15	.11	.41

* Data for distribution of trip lengths was obtained from Edward M. Hall, "Travel Characteristics of Two San Diego Suburban Developments," *Highway Research Board Bulletin 2039*, Washington, D. C., 1958, pp. 1-19, Figure 11. These data are typical for metropolitan areas all over the Western world.

We see, therefore, that even with cross roads two miles apart, the lack of cross streets only increases trip lengths by 5 per cent. *At the same time, the average speed of trips will increase from 15 miles per hour to about 45 miles per hour, a threefold increase.* The huge savings in time and fuel costs will more than offset the slight increase in distance.

Referring back for a moment to the table of detours, it will be noticed that the highest detours occur for the shortest trips. We have argued elsewhere—*LOCAL TRANSPORT AREAS (11)*—that to preserve the quality of the city's environment it is necessary to discourage the use of the automobile for very short trips, and to encourage walking, bikes, buses, and horses instead. The pattern of parallel roads has precisely the feature which local transport areas need. It makes longer trips vastly more efficient, while discouraging the very short auto trips, and so provides the local transport area with just the internal structure which it needs to support its function.

Although this pattern seems strange at first sight, it is in fact already happening in many parts of the world and has already proved its worth. For example, Berne, Switzerland, is one of the few cities in Europe that does not suffer from acute traffic congestion. When one looks at a map of Berne, one can see that its old center is formed by five long parallel roads with almost no cross streets. We believe that it has little congestion in the old center precisely because it contains the pattern. In many large cities today, the same insight is being implemented piecemeal—in the form of more and more one-way streets: in New York the alternating one-way Avenues, in downtown San Francisco the one-way major streets.

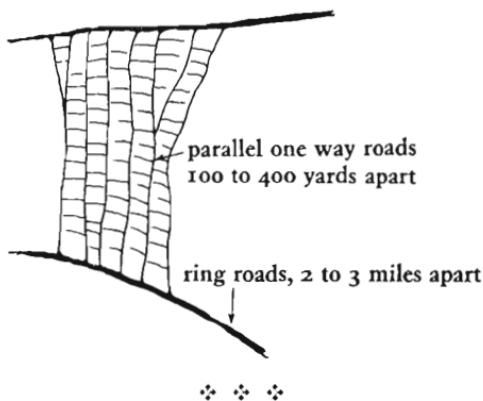


Berne's five main parallel streets.

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Therefore:

Within a local transport area build no intersecting major roads at all; instead, build a system of parallel and alternating one-way roads to carry traffic to the RING ROADS (17). In existing towns, create this structure piecemeal, by gradually making major streets one-way and closing cross streets. Keep parallel roads at least 100 yards apart (to make room for neighborhoods between them) and no more than 300 or 400 yards apart.



The parallel roads are the only *through* roads in a LOCAL TRANSPORT AREA (11). For access from the parallel roads to public buildings, house clusters, and individual houses use safe, slow, narrow roads which are not through roads—LOOPED LOCAL ROADS (49), GREEN STREETS (51)—and make their intersections with the parallel roads a “T”—T JUNCTION (50). Keep the pedestrian path system at right angles to the parallel roads, and raised above them where the two must run parallel—NETWORK OF PATHS AND CARS (52), RAISED WALK (55). Provide a ROAD CROSSING (54) where paths cross the parallel roads.

24 SACRED SITES*



. . . in every region and every town, indeed in every neighborhood, there are special places which have come to symbolize the area, and the people's roots there. These places may be natural beauties or historic landmarks left by ages past. But in some form they are essential.



People cannot maintain their spiritual roots and their connections to the past if the physical world they live in does not also sustain these roots.

Informal experiments in our communities have led us to believe that people agree, to an astonishing extent, about the sites which do embody people's relation to the land and to the past. It seems, in other words, as though "the" sacred sites for an area exist as objective communal realities.

If this is so, it is then of course essential that these specific sites be preserved and made important. Destruction of sites which have become part of the communal consciousness, in an agreed and widespread sense, must inevitably create gaping wounds in the communal body.

Traditional societies have always recognized the importance of these sites. Mountains are marked as places of special pilgrimage; rivers and bridges become holy; a building or a tree, or rock or stone, takes on the power through which people can connect themselves to their own past.

But modern society often ignores the psychological importance of these sites. They are bulldozed, developed, changed, for political and economic reasons, without regard for these simple but fundamental emotional matters; or they are simply ignored.

We suggest the following two steps.

1. In any geographic area—large or small—ask a large number of people which sites and which places make them feel the most contact with the area; which sites stand most for the important values of the past, and which ones embody their connection to the land. Then insist that these sites be actively preserved.

2. Once the sites are chosen and preserved, embellish them in

a way which intensifies their public meaning. We believe that the best way to intensify a site is through a progression of areas which people pass through as they approach the site. This is the principle of "nested precincts," discussed in detail under the pattern **HOLY GROUND** (66).

A garden which can be reached only by passing through a series of outer gardens keeps its secrecy. A temple which can be reached only by passing through a sequence of approach courts is able to be a special thing in a man's heart. The magnificence of a mountain peak is increased by the difficulty of reaching the upper valleys from which it can be seen; the beauty of a woman is intensified by the slowness of her unveiling; the great beauty of a river bank—its rushes, water rats, small fish, wild flowers—are violated by a too direct approach; even the ecology cannot stand up to the too direct approach—the thing will simply be devoured.

We must therefore build around a sacred site a series of spaces which gradually intensify and converge on the site. The site itself becomes a kind of inner sanctum, at the core. And if the site is very large—a mountain—the same approach can be taken with special places from which it can be seen—an inner sanctum, reached past many levels, which is not the mountain, but a garden, say, from which the mountain can be seen in special beauty.

Therefore:

Whether the sacred sites are large or small, whether they are at the center of the towns, in neighborhoods, or in the deepest countryside, establish ordinances which will protect them absolutely—so that our roots in the visible surroundings cannot be violated.

sacred sites





Give every sacred site a place, or a sequence of places, where people can relax, enjoy themselves, and feel the presence of the place—QUIET BACKS (59), ZEN VIEW (134), TREE PLACES (171), GARDEN SEAT (176). And above all, shield the approach to the site, so that it can only be approached on foot, and through a series of gateways and thresholds which reveal it gradually—HOLY GROUND (66). . . .

25 ACCESS TO WATER*



. . . water is always precious. Among the special natural places covered by SACRED SITES (24), we single out the ocean beaches, lakes, and river banks, because they are irreplaceable. Their maintenance and proper use require a special pattern.



People have a fundamental yearning for great bodies of water. But the very movement of the people toward the water can also destroy the water.

Either roads, freeways, and industries destroy the water's edge and make it so dirty or so treacherous that it is virtually inaccessible; or when the water's edge is preserved, it falls into private hands.



Access to water is blocked.

But the need that people have for water is vital and profound. (See, for example, C. G. Jung, *Symbols of Transformation*, where Jung takes bodies of water which appear in dreams as a consistent representation of the dreamer's unconscious.)

The problem can be solved only if it is understood that people will build places *near* the water because it is entirely natural; but that the land immediately along the water's edge must be preserved for common use. To this end the roads which can destroy the water's edge must be kept back from it and only allowed near it when they lie at right angles to it.



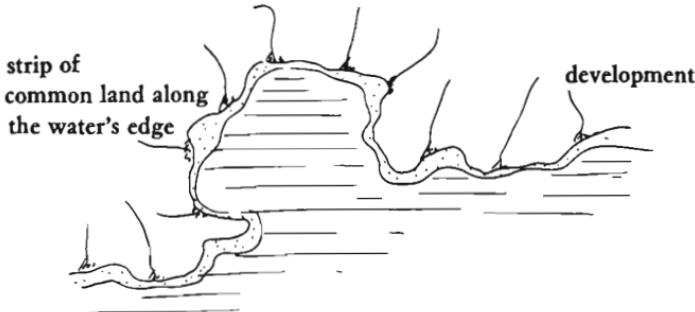
Life forms around the water's edge.

The width of the belt of land along the water may vary with the type of water, the density of development along it, and the ecological conditions. Along high density development, it may be no more than a simple stone promenade. Along low density development, it may be a common parkland extending hundreds of yards beyond a beach.

Therefore:

When natural bodies of water occur near human settlements, treat them with great respect. Always preserve a belt of common land, immediately beside the water. And allow dense settlements to come right down to the water only at infrequent intervals along the water's edge.

roads at right angles to the water





The width of the common land will vary with the type of water and the ecological conditions. In one case, it may be no more than a simple stone promenade along a river bank a few feet wide—**PROMENADE** (31). In another case, it may be a swath of dunes extending hundreds of yards beyond a beach—**THE COUNTRYSIDE** (7). In any case, do not build roads along the water within one mile of the water; instead, make all the approach roads at right angles to the edge, and very far apart—**PARALLEL ROADS** (23). If parking is provided, keep the lots small—**SMALL PARKING LOTS** (103). . . .

26 LIFE CYCLE*



. . . a real community provides, in full, for the balance of human experience and human life—COMMUNITY OF 7000 (12). To a lesser extent, a good neighborhood will do the same—IDENTIFIABLE NEIGHBORHOOD (14). To fulfill this promise, communities and neighborhoods must have the range of things which life can need, so that a person can experience the full breadth and depth of life in his community.

* * *

All the world's a stage,
And all the men and women merely players:
They have their exits and their entrances;
And one man in his time plays many parts,
His acts being seven ages.

As, first the infant,
Mewling and puking in the nurse's arms.
And then the whining schoolboy, with his satchel
And shining morning face, creeping like snail
Unwillingly to school. And then the lover,
Sighing like furnace, with a woeful ballad
Made to his mistress' eyebrow. Then the soldier,
Full of strange oaths, and bearded like the pard,
Jealous in honour, sudden and quick in quarrel,
Seeking the bubble reputation
Even in the cannon's mouth. And then the justice,
In fair round belly with good capon lined,
With eyes severe and beard of formal cut,
Full of wise saws and modern instances;
And so he plays his part. The sixth age shifts
Into the lean and slipper'd pantaloon,
With spectacles on nose and pouch on side;
His youthful hose, well saved, a world too wide
For his shrunk shank; and his big manly voice,
Turning again toward childish treble, pipes
And whistles in his sound. Last scene of all,
That ends this strange eventful history,
Is second childhoodness and mere oblivion,
Sans teeth, sans eyes, sans taste, sans every thing.
(Shakespeare, *As You Like It*, II.viii.)

To live life to the fullest, in each of the seven ages, each age must be clearly marked, by the community, as a distinct well-marked time. And the ages will only seem clearly marked if the

26 LIFE CYCLE

ceremonies which mark the passage from one age to the next are firmly marked by celebrations and distinctions.

By contrast, in a flat suburban culture the seven ages are not at all clearly marked; they are not celebrated; the passages from one age to the next have almost been forgotten. Under these conditions, people distort themselves. They can neither fulfill themselves in any one age nor pass successfully on to the next. Like the sixty-year-old woman wearing bright red lipstick on her wrinkles, they cling ferociously to what they never fully had.

This proposition hinges on two arguments.

A. The cycle of life is a definite psychological reality. It consists of discrete stages, each one fraught with its own difficulties, each one with its own special advantages.

B. Growth from one stage to another is not inevitable, and, in fact, it will not happen unless the community contains a balanced life cycle.

A. The Reality of the Life Cycle.

Everyone can recognize the fact that a person's life traverses several stages—infancy to old age. What is perhaps not so well understood is the idea that each stage is a discrete reality, with its own special compensations and difficulties; that each stage has certain characteristic experiences that go with it.

The most inspired work along these lines has come from Erik Erikson: "Identity and the Life Cycle," in *Psychological Issues*, Vol. 1, No. 1, New York: International Universities Press, 1959; and *Childhood and Society*, New York: W. W. Norton, 1950.

Erikson describes the sequence of phases a person must pass through as he matures and suggests that each phase is characterized by a specific developmental task—a successful resolution of some life conflict—and that this task must be solved by a person before he can move wholeheartedly forward to the next phase. Here is a summary of the stages in Erikson's scheme, adapted from his charts:

1. *Trust vs. mistrust*: the infant; relationship between the infant and mother; the struggle for confidence that the environment will nourish.

2. *Autonomy vs. shame and doubt*: the very young child; relationship between the child and parents; the struggle to stand on

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one's own two feet, to find autonomy in the face of experiences of shame and doubt as to one's capacity for self-control.

3. *Initiative vs. guilt*: the child; relationship to the family, the ring of friends; the search for action, and the integrity of one's acts; to make and eagerly learn, checked by the fear and guilt of one's own aggressions.

4. *Industry vs. inferiority*: the youngster; relationship to the neighborhood, the school; adaptation to the society's tools; the sense that one can make things well, alone, and with others, against the experience of failure, inadequacy.

5. *Identity vs. identity diffusion*: youth, adolescence; relationship to peers and "outgroups" and the search for models of adult life; the search for continuity in one's own character against confusion and doubt; a moratorium; a time to find and ally oneself with creeds and programs of the world.

6. *Intimacy vs. isolation*: young adults; partners in friendship, sex, work; the struggle to commit oneself concretely in relations with others; to lose and find oneself in another, against isolation and the avoidance of others.

7. *Generativity vs. stagnation*: adults; the relationship between a person and the division of labor, and the creation of a shared household; the struggle to establish and guide, to create, against the failure to do so, and the feelings of stagnation.

8. *Integrity vs. despair*: old age; the relationship between a person and his world, his kind, mankind; the achievement of wisdom; love for oneself and one's kind; to face death openly, with the forces of one's life integrated; vs. the despair that life has been useless.

B. *But growth through the life cycle is not inevitable.*

It depends on the presence of a balanced community, a community that can sustain the give and take of growth. Persons at each stage of life have something irreplaceable to give and to take from the community, and it is just these transactions which help a person to solve the problems that beset each stage. Consider the case of a young couple and their new child. The connection between them is entirely mutual. Of course, the child "depends" on the parents to give the care and love that is required to resolve the conflict of trust that goes with infancy. But simultaneously,

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the child gives the parents the experience of raising and bearing, which helps them to meet their conflict of generativity, unique to adulthood.

We distort the situation if we abstract it in such a way that we consider the parent as "having" such and such a personality when the child is born and then, remaining static, impinging upon a poor little thing. For this weak and changing little being moves the whole family along. Babies control and bring up their families as much as they are controlled by them; in fact, we may say that the family brings up a baby by being brought up by him. Whatever reaction patterns are given biologically and whatever schedule is predetermined developmentally must be considered to be a series of potentialities for changing patterns of mutual regulation. [Erikson, *ibid.* p. 69.]

Similar patterns of mutual regulation occur between the very old and the very young; between adolescents and young adults, children and infants, teenagers and younger teenagers, young men and old women, young women and old men, and so on. And these patterns must be made viable by prevailing social institutions and those parts of the environment which help to maintain them—the schools, nurseries, homes, cafes, bedrooms, sports fields, workshops, studios, gardens, graveyards. . . .

We believe, however, that the balance of settings which allow normal growth through the life cycle has been breaking down. Contact with the entire cycle of life is less and less available to each person, at each moment in time. In place of natural communities with a balanced life cycle we have retirement villages, bedrooms suburbs, teenage culture, ghettos of unemployed, college towns, mass cemeteries, industrial parks. Under such conditions, one's chances for solving the conflict that comes with each stage in the life cycle are slim indeed.

To re-create a community of balanced life cycles requires, first of all, that the idea take its place as a principal guide in the development of communities. *Each building project, whether the addition to a house, a new road, a clinic, can be viewed as either helping or hindering the right balance for local communities.* We suspect that the community repair maps, discussed in *The Oregon Experiment*, Chapter V (Volume 3 in this series), can play an especially useful role in helping to encourage the growth of a balanced life cycle.

But this pattern can be no more than an indication of work

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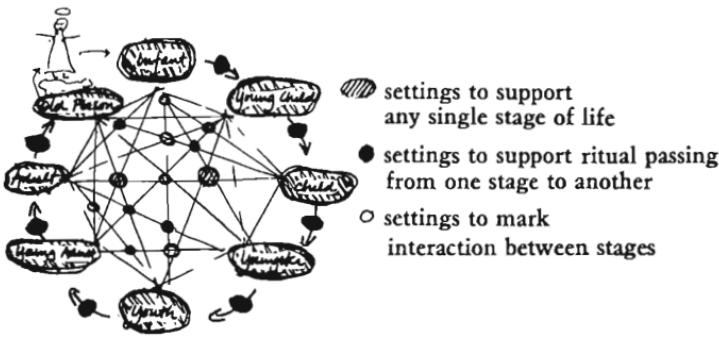
that needs to be done. Each community must find ways of taking stock of its own relative "balance" in this respect, and then define a growth process which will move it in the right direction. This is a tremendously interesting and vital problem; it needs a great deal of development, experiment, and theory. If Erikson is right, and if this kind of work does not come, it seems possible that the development of trust, autonomy, initiative, industry, identity, intimacy, generativity, integrity may disappear entirely.

STAGE	IMPORTANT SETTINGS	RITES OF PASSAGE
1. INFANT <i>Trust</i>	Home, crib, nursery, garden	Birth place, setting up the home . . . out of the crib, making a place
2. YOUNG CHILD <i>Autonomy</i>	Own place, couple's realm, children's realm, commons, connected play	Walking, making a place, special birthday
3. CHILD <i>Initiative</i>	Play space, own place, common land, neighborhood, animals	First ventures in town . . . joining
4. YOUNGSTER <i>Industry</i>	Children's home, school, own place, adventure play, club, community	Puberty rites, private entrance paying your way
5. YOUTH <i>Identity</i>	Cottage, teenage society, hostels, apprentice, town and region	Commencement, marriage, work, building
6. YOUNG ADULT <i>Intimacy</i>	Household, couple's realm, small work group, the family, network of learning	Birth of a child, creating social wealth . . . building
7. ADULT <i>Generativity</i>	Work community, the family town hall, a room of one's own	Special birthday, gathering, change in work
8. OLD PERSON <i>Integrity</i>	Settled work, cottage, the family, independent regions	Death, funeral, grave sites

Therefore:

Make certain that the full cycle of life is represented and balanced in each community. Set the ideal of a balanced life cycle as a principal guide for the evolution of communities. This means:

1. That each community include a balance of people at every stage of the life cycle, from infants to the very old; and include the full slate of settings needed for all these stages of life;
2. That the community contain the full slate of settings which best mark the ritual crossing of life from one stage to the next.



The rites of passage are provided for, most concretely, by HOLY GROUND (66). Other specific patterns which especially support the seven ages of man and the ceremonies of transition are HOUSEHOLD MIX (35), OLD PEOPLE EVERYWHERE (40), WORK COMMUNITY (41), LOCAL TOWN HALL (44), CHILDREN IN THE CITY (57), BIRTH PLACES (65), GRAVE SITES (70), THE FAMILY (75), YOUR OWN HOME (79), MASTER AND APPRENTICES (83), TEENAGE SOCIETY (84), SHOPFRONT SCHOOLS (85), CHILDREN'S HOME (86), ROOMS TO RENT (153), TEENAGER'S COTTAGE (154), OLD AGE COTTAGE (155), SETTLED WORK (156), MARRIAGE BED (187).

27 MEN AND WOMEN



. . . and just as a community or neighborhood must have a proper balance of activities for people of all the different ages—**COMMUNITY OF 7000 (12), IDENTIFIABLE NEIGHBORHOOD (14), LIFE CYCLE (26)**—so it must also adjust itself and its activities to the balance of the sexes, and provide, in equal part, the things which reflect the masculine and feminine sides of life.

* * *

The world of a town in the 1970's is split along sexual lines. Suburbs are for women, workplaces for men; kindergartens are for women, professional schools for men; supermarkets are for women, hardware stores for men.

Since no aspect of life is purely masculine or purely feminine, a world in which the separation of the sexes is extreme, distorts reality, and perpetuates and solidifies the distortions. Science is dominated by a masculine, and often mechanical mentality; foreign diplomacy is governed by war, again the product of the masculine ego. Schools for young children are swayed by the world of women, as are homes. The house has become the domain of woman to such a ridiculous extreme that home builders and developers portray an image of homes which are delicate and perfectly "nice," like powder rooms. The idea that such a home could be a place where things are made or vegetables grown, with sawdust around the front door, is almost inconceivable.

The pattern or patterns which could resolve these problems are, for the moment, unknown. We can hint at the kinds of buildings and land use and institutions which would bring the problem into balance. But the geometry cannot be understood until certain social facts are realized, and given their full power to influence the environment. *In short, until both men and women are able to mutually influence each part of a town's life, we shall not know what kinds of physical patterns will best co-exist with this social order.*

Therefore:

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Make certain that each piece of the environment—each building, open space, neighborhood, and work community—is made with a blend of both men's and women's instincts. Keep this balance of masculine and feminine in mind for every project at every scale, from the kitchen to the steel mill.



No large housing areas without workshops for men; no work communities which do not provide for women with part-time jobs and child care—SCATTERED WORK (9). Within each place which has a balance of the masculine and feminine, make sure that individual men and women also have room to flourish, in their own right, distinct and separate from their opposites—A ROOM OF ONE'S OWN (141). . . .

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

28 ECCENTRIC NUCLEUS*

. . . so far, we have established an overall height restriction on the city, with its attendant limitation on average density—FOUR-STORY LIMIT (21). If we assume, also, that the city contains major centers for every 300,000 people, spaced according to the rules in MAGIC OF THE CITY (10), it will then follow that the overall density of the city slopes off from these centers: the highest density near to them, the lowest far away. This means that any individual COMMUNITY OF 7000 (12) will have an overall density, given by its distance from the nearest downtown. The question then arises: How should density vary locally, within this community; what geometric pattern should the density have? The question is complicated greatly by the principle of SUBCULTURE BOUNDARY (13), which requires that communities are surrounded by their services, instead of having their services at their geometric centers. This pattern, and the next, defines a local distribution of density which is compatible with this context.



The random character of local densities confuses the identity of our communities, and also creates a chaos in the pattern of land use.

Let us begin by considering the typical configuration of the residential densities in a town. There is an overall slope to the densities: they are high toward the center and lower toward the outskirts. But there is no recognizable structure within this overall slope: no clearly visible repeating pattern we can see again and again within the city. Compare this with the contours of a mountain range. In a mountain range, there is a great deal of recognizable structure; we see systematic ridges and valleys, foothills, bowls, and peaks which have arisen naturally from geological processes; and all this structure is repeated again and again, from place to place, within the whole.

Of course, this is only an analogy. But it does raise the question: Is it natural, and all right, if density configurations in a town are so random; or would a town be better off if there was some more visible coherent structure, some kind of systematic variation in the pattern of the densities?

What happens when the local densities in a town vary in their present rambling, incoherent fashion? The high density areas, potentially capable of supporting intense activity cannot actually do so because they are too widely spread. And the low density areas, potentially capable of supporting silence and tranquility when they are concentrated, are also too diffusely scattered. The result: the town has neither very intense activity, nor very intense quiet. Since we have many arguments which show how vital it is for a town to give people both intense activity, and also deep and satisfying quiet—*SACRED SITES* (24), *ACTIVITY NODES* (30), *PROMENADE* (31), *QUIET BACKS* (59), *STILL WATER* (71)—it seems quite likely, then, that this randomness of density does harm to urban life.

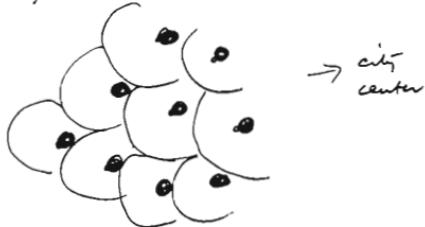
We believe, indeed, that a town would be far better off if it did contain a coherent pattern of densities. We present a systematic account of the factors which might naturally influence the pattern of density—in the hope of showing what kind of coherent pattern might be sensible and useful. The argument has five steps.

1. We may assume, reasonably, that some kind of center, formed by local services, will occur at least once in every community of 7000. This center will typically be the kind we have called a *SHOPPING STREET* (32). In *WEB OF SHOPPING* (19) we have shown that shopping streets occur about once for every 10,000 persons.

2. From the arguments presented in *SUBCULTURE BOUNDARY* (13), we know that this center of activity, since it is a service, should occur in the boundary between subcultures, should help to form the boundary between subcultures, and should therefore be located in the area of the boundary—not *inside* the community, but *between* communities.

3. We know, also, that this center must be in just that part of the boundary which is closest to the center of the larger town or city. This follows from a dramatic and little known series of results which show that catch basins of shopping centers are not

circles, as one might naively suppose, but half-circles, with the half-circle on that side of the center away from the central city, because people always go to that shopping center which lies toward the center of their city, never to the one which lies toward the city's periphery.



Brennan's catch basins.

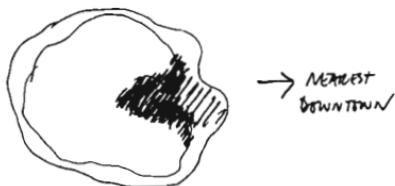
This phenomenon was originally discovered by Brennan in his post-war studies of Wolverhampton (T. Brennan, *Midland City*, London: Dobson, 1948). It has, since then, been confirmed and studied by several writers, most notably Terence Lee, "Perceived Distance as a Function of Direction in the City," *Environment and Behavior*, June 1970, 40-51. Lee has shown that the phenomenon is not only caused by the fact that people are simply more familiar with the roads and paths that lie toward the center, and use them more often, but that their very perception of distance varies with direction, and that distances along lines toward the center are seen as much shorter than distances along lines away from the center.

Since we certainly want the community to correspond with the catch basin of its "center" it is essential, then, that the center be placed off-center—in fact, at that point in the community which lies toward the center of the larger city. This is, of course, compatible with the notion discussed already, that the center should lie in the boundary of the community.



Eccentric centers.

4. Even though the center lies on one side of the community, forming a boundary of the community, we may also assume that the center does need to bulge into the community just a little. This follows from the fact that, even though services do need to be in the boundary of the community, not in its middle, still, people do have some need for the psychological center of their community to be at least somewhere toward the geometric center of gravity. If we make the boundary bulge toward the geometric center, then this axis will naturally form a center—and, further, its catch basin, according to the data given above, will correspond almost perfectly with the community.



The inward bulge.

5. Finally, although we know that the center needs to be mainly in the boundary, we do not know exactly just how large it needs to be. At the edge of the city, where the overall density is low—the center will be small. At the center of the city, where the overall density is higher, it will be larger, because the greater density of population supports more services. In both cases, it will be in the boundary. If it is too large to be contained at one point, it will naturally extend itself along the boundary, but still within the boundary, thus forming a lune, a partial horseshoe, long or short, according to its position in the greater city.



A partial horseshoe.

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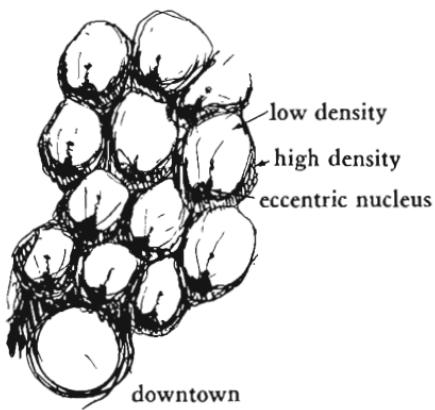
These rules are rather simple. If we follow them, we shall find a beautiful gradient of overlapping imbricated horseshoes, not unlike the scales of a fish. If the city gradually gets this highly coherent structure, then we can be sure that the articulation of dense areas, and areas of little density, will be so clear that both activity and quiet can exist, each intense, unmixed, and each available to everyone.

Therefore:

Encourage growth and the accumulation of density to form a clear configuration of peaks and valleys according to the following rules:

1. Consider the town as a collection of communities of 7000. These communities will be between $\frac{1}{4}$ mile across and 2 miles across, according to their overall density.
2. Mark that point in the boundary of each community which is closest to the nearest major urban center. This point will be the peak of the density, and the core of the "eccentric" nucleus.
3. Allow the high density to bulge in from the boundary, toward the center of gravity of the community, thus enlarging the eccentric nucleus toward the center.
4. Continue this high density to form a ridge around the boundary in horseshoe fashion—with the length of the horseshoe dependent on the overall mean gross density, at that part of the city, and the bulge of the horseshoe toward the center of the region, so that the horseshoes form a gradient, according to their position in the region. Those close to a major downtown are almost complete; those further away are only half complete; and those furthest from centers are shrunken to a point.

28 ECCENTRIC NUCLEUS



* * *

Given this overall configuration, now calculate the average densities at different distances from this ridge of high density, according to the computations given in the next pattern—**DENSITY RINGS** (29); keep major shopping streets and promenades toward the dense part of the horseshoe—**ACTIVITY NODES** (30), **PROMENADE** (31), **SHOPPING STREET** (32); and keep quiet areas toward the open part of the horseshoe—**SACRED SITES** (24), **QUIET BACKS** (59), **STILL WATER** (71). . . .

29 DENSITY RINGS*

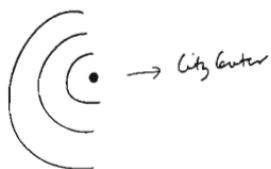
. . . in ECCENTRIC NUCLEUS (28) we have given a general form for the configuration of density "peaks" and "valleys," with respect to the MOSAIC OF SUBCULTURES (8) and SUBCULTURE BOUNDARIES (13). Suppose now that the center of commercial activity in a COMMUNITY OF 7000 (12) is placed according to the prescriptions of ECCENTRIC NUCLEUS (28), and according to the overall density within the region. We then face the problem of establishing local densities, for house clusters and work communities, at different distances around this peak. This pattern gives a rule for working out the gradient of these local densities. Most concretely, this gradient of density can be specified, by drawing rings at different distances from the main center of activity and then assigning different densities to each ring, so that the densities in the succeeding rings create the gradient of density. The gradient will vary from community to community—both according to a community's position in the region, and according to the cultural background of the people.



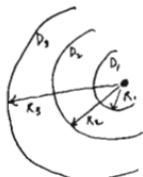
People want to be close to shops and services, for excitement and convenience. And they want to be away from services, for quiet and green. The exact balance of these two desires varies from person to person, but in the aggregate it is the balance of these two desires which determines the gradient of housing densities in a neighborhood.

In order to be precise about the gradient of housing densities, let us agree at once, to analyze the densities by means of three concentric semi-circular rings, of equal radial thickness, around the main center of activity.

[We make them semi-circles, rather than full circles, since it has been shown, empirically, that the catch basin of a given local

*Rings of equal thickness.*

center is a half-circle, on the side away from the city—see discussion in ECCENTRIC NUCLEUS (28) and the references to Brennan and Lee given in that pattern. However, even if you do not accept this finding, and wish to assume that the circles are full circles, the following analysis remains essentially unchanged.] We now define a density gradient, as a set of three densities, one for each of the three rings.

*A density gradient.*

Imagine that the three rings of some actual neighborhood have densities D_1 , D_2 , D_3 . And assume, now, that a new person moves into this neighborhood. As we have said, within the given density gradient, he will choose to live in that ring, where his liking for green and quiet just balances his liking for access to shops and public services. This means that each person is essentially faced with a choice among three alternative density-distance combinations:

- Ring 1. The density D_1 , with a distance of about R_1 to shops.
- Ring 2. The density D_2 , with a distance of about R_2 to shops.
- Ring 3. The density D_3 , with a distance of about R_3 to shops.

Now, of course, each person will make a different choice—according to his own personal preference for the balance of density and distance. Let us imagine, just for the sake of argument, that all the people in the neighborhood are asked to make this choice (forgetting, for a moment, which houses are available). Some will

choose ring 1, some ring 2, and some ring 3. Suppose that N_1 choose ring 1, N_2 choose ring 2, and N_3 choose ring 3. Since the three rings have specific, well-defined areas, the numbers of people who have chosen the three areas, can be turned into hypothetical densities. In other words, if we (in imagination) distribute the people among the three rings according to their choices, we can work out the hypothetical densities which would occur in the three rings as a result.

Now we are suddenly faced with two fascinating possibilities:

- I. These new densities are different from the actual densities.
- II. These new densities are the same as the actual densities.

Case I is much more likely to occur. But this is unstable—since people's choices will tend to change the densities. Case II, which is less likely to occur, is stable—since it means that people, choosing freely, will together re-create the very same pattern of density within which they have made these choices. This distinction is fundamental.

If we assume that a given neighborhood, with a given total area, must accommodate a certain number of people (given by the average density of people at that point in the region), then there is just *one* configuration of densities which is stable in this sense. We now describe a computational procedure which can be used to obtain this stable density configuration.

Before we explain the computational procedure, we must explain how very fundamental and important this kind of stable density configuration is.

In today's world, where density gradients are usually not stable, in our sense, most people are forced to live under conditions where the balance of quiet and activity does not correspond to their wishes or their needs, because the total number of available houses and apartments at different distances is inappropriate. What happens, then, is that the rich, who can afford to pay for what they want, are able to find houses and apartments with the balance that they want; the not so rich and poor are forced to take the leavings. All this is made legitimate by the middle-class economics of "ground rent"—the idea that land at different distances from centers of activity, commands different prices, because more or less people want to be at those distances. But actually the fact of differential ground rent is an economic

29 DENSITY RINGS

mechanism which springs up, within an unstable density configuration, to compensate for its instability.

We want to point out that in a neighborhood with a stable density configuration (stable in our sense of the word), the land would not need to cost different prices at different distances, because the total available number of houses in each ring would exactly correspond to the number of people who wanted to live at those distances. With demand equal to supply in every ring, the ground rents, or the price of land, could be the same in every ring, and everyone, rich and poor, could be certain of having the balance they require.

We now come to the problem of computing the stable densities for a given neighborhood. The stability depends on very subtle psychological forces; so far as we know these forces cannot be represented in any psychologically accurate way by mathematical equations, and it is therefore, at least for the moment, impossible to give a mathematical model for the stable density. Instead, we have chosen to use the fact that each person can make choices about his required balance of activity and quiet, and to use people's choices, within a simple game, as the source of the computation. In short, we have constructed a game, which allows one to obtain the stable density configuration within a few minutes. This game essentially simulates the behavior of the real system, and is, we believe, far more reliable than any mathematical computation.

DENSITY GRADIENTS GAME

1. First draw a map of the three concentric half rings. Make it a half-circle—if you accept the arguments of ECCENTRIC NUCLEUS (28)—otherwise a full circle. Smooth this half-circle to fit the horseshoe of the highest density—mark its center as the center of that horseshoe.

2. If the overall radius of the half-circle is R , then the mean radii of the three rings are R_1, R_2, R_3 given by:

$$\begin{aligned}R_1 &= R/6 \\R_2 &= 3R/6 \\R_3 &= 5R/6\end{aligned}$$

3. Make up a board for the game, which has the three concentric circles shown on it, with the radii marked in blocks, so people can understand them easily, i.e., 1000 feet = 3 blocks.

4. Decide on the total population of this neighborhood. This is

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the same as settling on an *overall* average net density for the area. It will have to be roughly compatible with the overall pattern of density in the region. Let us say that the total population of the community is N families.

5. Find ten people who are roughly similar to the people in the community—vis-à-vis cultural habits, background, and so on. If possible, they should be ten of the people in the actual community itself.

6. Show the players a set of photographs of areas that show typical best examples of different population densities (in families per gross acre), and leave these photographs on display throughout the game so that people can use them when they make their choices.

7. Give each player a disk, which he can place on the board in one of the three rings.

8. Now, to start the game, decide what percentage of the total population is to be in each of the three rings. It doesn't matter what percentages you choose to start with—they will soon right themselves as the game gets under way—but, for the sake of simplicity, choose multiples of 10 per cent for each ring, i.e., 10 per cent in ring 1, 30 per cent in ring 2, 60 per cent in ring 3.

9. Now translate these percentages into actual densities of families per net acre. Since you will have to do this many times during the course of the game, it is advisable to construct a table which translates percentages directly into densities. You can make up such a table by inserting the values for N and R which you have chosen for your community into the formulae below. The formulae are based on the simple arithmetic of area, and population. R is expressed in hundreds of yards—roughly in blocks. The densities are expressed in *families per gross acre*. Multiply each ring density by a number between 1 and 10, according to the per cent in that ring. Thus, if there are 30 per cent in ring 3, the density there is 3 times the entry in the formulae, or $24N/5\pi R^2$.

10%

$$\text{Ring 1 } 8N/\pi R^2$$

$$\text{Ring 2 } 8N/3\pi R^2$$

$$\text{Ring 3 } 8N/5\pi R^2$$

10. Once you have found the proper densities, from the formulae, write them on three slips of paper, and place these slips into their appropriate rings, on the game board.

11. The slips define a tentative density configuration for the community. Each ring has a certain typical distance from the center. And each ring has a density. Ask people to look carefully at the pictures which represent these densities, and then to decide which of the three rings gives them the best balance of quiet and green, as against access to shops. Ask each person to place his disk in the ring he chooses.

29 DENSITY RINGS

12. When all ten disks are on the board, this defines a new distribution of population. Probably, it is different from the one you started with. Now make up a new set of percentages, half-way between the one you originally defined, and the one which people's disks define, and, again, round off the percentages to the nearest 10 per cent. Here is an example of the way you can get new percentages.

Old percentages	People's disks		New percentages
10%	3 = 30%	→	20%
30%	4 = 40%	→	30%
60%	3 = 30%	→	50%

As you see, the new ones are not perfectly half-way between the other two—but as near as you can get, and still have multiples of ten.

13. Now go back to step 9, and go through 9, 10, 11, 12 again and again, until the percentages defined by people's disks are the same as the ones you defined for that round. If you turn these last stable percentages into densities, you have found the stable density configuration for this community. Stop, and have a drink all round.

In our experiments, we have found that this game reaches a stable state very quickly indeed. Ten people, in a few minutes, can define a stable density distribution. We have presented the results of one set of games in the table which follows below.

STABLE DENSITY DISTRIBUTIONS FOR
DIFFERENT SIZED COMMUNITIES

These figures are for semi-circular communities.

Radius in blocks	Population in families	Density in families per gross acre		
		Ring 1	Ring 2	Ring 3
2	150	15	9	5
3	150	7	5	2
3	300	21	7	5
4	300	7	3	2
4	600	29	7	4
6	600	15	4	2
6	1200	36	9	3
9	1200	18	5	1

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It is essential to recognize that the densities given in this table cannot wisely be used just as they stand. The figures will vary with the exact geometry of the neighborhood and with different cultural attitudes in different subcultures. For this reason, we consider it essential that the people of a given community, who want to apply this pattern, play the game themselves, in order to find a stable gradient of densities for their own situation. The numbers we have given above are more for the sake of illustration than anything else.

Therefore:

Once the nucleus of a community is clearly placed—define rings of decreasing local housing density around this nucleus. If you cannot avoid it, choose the densities from the foregoing table. But, much better, if you can possibly manage it, play the density rings game, to obtain these densities, from the intuitions of the very people who are going to live in the community.



Within the rings of density, encourage housing to take the form of housing clusters—self-governing cooperatives of 8 to 15 households, their physical size varying according to the density—**HOUSE CLUSTER** (37). According to the densities in the different rings, build these houses as free-standing houses—**HOUSE CLUSTER** (37), row houses (38), or higher density clusters of housing—**HOUSING HILL** (39). Keep public spaces—**PROMENADE** (31), **SMALL PUBLIC SQUARES** (61)—to those areas which have a high enough density around them to keep them alive—**PEDESTRIAN DENSITY** (123). . . .

30 ACTIVITY NODES**



. . . this pattern forms those essential nodes of life which help to generate IDENTIFIABLE NEIGHBORHOOD (14), PROMENADE (31), NETWORK OF PATHS AND CARS (52), and PEDESTRIAN STREET (100). To understand its action, imagine that a community and its boundary are growing under the influence of COMMUNITY OF 7000 (12), SUBCULTURE BOUNDARY (13), IDENTIFIABLE NEIGHBORHOOD (14), NEIGHBORHOOD BOUNDARY (15), ECCENTRIC NUCLEUS (28), and DENSITY RINGS (29). As they grow, certain "stars" begin to form, where the most important paths meet. These stars are potentially the vital spots of a community. The growth of these stars and of the paths which form them need to be guided to form genuine community crossroads.



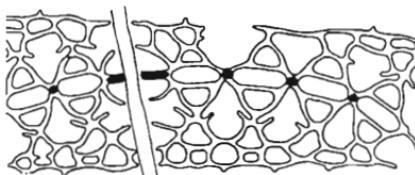
Community facilities scattered individually through the city do nothing for the life of the city.

One of the greatest problems in existing communities is the fact that the available public life in them is spread so thin that it has no impact on the community. It is not in any real sense available to the members of the community. Studies of pedestrian behavior make it clear that people seek out concentrations of other people, whenever they are available (for instance, Jan Gehl, "Mennesker til Fods (Pedestrians)," *Arkitekten*, No. 20, 1968).

To create these concentrations of people in a community, facilities must be grouped densely round very small public squares which can function as nodes—with all pedestrian movement in the community organized to pass through these nodes. Such nodes require four properties.

First, each node must draw together the main paths in the surrounding community. The major pedestrian paths should converge on the square, with minor paths funneling into the major ones, to create the basic star-shape of the pattern. This is much harder to do than one might imagine. To give an example of the difficulty which arises when we try to build this relationship into a town, we show the following plan—a scheme of

ours for housing in Peru—in which the paths are all convergent on a very small number of squares.



Public paths converge on centers of action.

This is not a very good plan—it is too stiff and formal. But it is possible to achieve the same relationship in a far more relaxed manner. In any case the relationship between paths, community facilities, and squares is vital and hard to achieve. It must be taken seriously, from the very outset, as a major feature of the city.

Second, to keep the activity concentrated, it is essential to make the squares rather small, smaller than one might imagine. A square of about 45×60 feet can keep the normal pace of public life well concentrated. This figure is discussed in detail under **SMALL PUBLIC SQUARE (61)**.

Third, the facilities grouped around any one node must be chosen for their symbiotic relationships. It is not enough merely to group communal functions in so-called community centers. For example, church, cinema, kindergarten, and police station are all community facilities, but they do not support one another mutually. Different people go to them, at different times, with different things in mind. There is no point in grouping them together. To create intensity of action, the facilities which are placed together round any one node must function in a cooperative manner, and must attract the same kinds of people, at the same times of day. For example, when evening entertainments are grouped together, the people who are having a night out can use any one of them, and the total concentration of action increases—see **NIGHT LIFE (33)**. When kindergartens and small parks and gardens are grouped together, young families with children may use either, so their total attraction is increased.

Fourth, these activity nodes should be distributed rather evenly

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across the community, so that no house or workplace is more than a few hundred yards from one. In this way a contrast of "busy and quiet" can be achieved at a small scale—and large dead areas can be avoided.

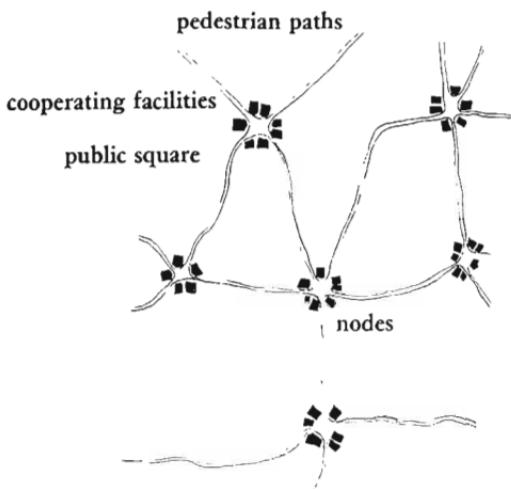


Nodes of different size.

Therefore:

Create nodes of activity throughout the community, spread about 300 yards apart. First identify those existing spots in the community where action seems to concentrate itself. Then modify the layout of the paths in the community to bring as many of them through these spots as possible. This makes each spot function as a "node" in the

path network. Then, at the center of each node, make a small public square, and surround it with a combination of community facilities and shops which are mutually supportive.



Connect those centers which are most dense, with a wider, more important path for strolling—PROMENADE (31); make special centers for night activities—NIGHT LIFE (33); whenever new paths are built, make certain that they pass through the centers, so that they intensify the life still further—PATHS AND GOALS (120); and differentiate the paths so they are wide near the centers and smaller away from them—DEGREES OF PUBLICNESS (36). At the heart of every center, build a small public square—SMALL PUBLIC SQUARES (61), and surround each square with an appropriate mix of mutually self-reinforcing facilities—WORK COMMUNITY (41), UNIVERSITY AS A MARKETPLACE (43), LOCAL TOWN HALL (44), HEALTH CENTER (47), BIRTH PLACES (65), TEENAGE SOCIETY (84), SHOPFRONT SCHOOL (85), INDIVIDUALLY OWNED SHOPS (87), STREET CAFE (88), BEER HALL (90), FOOD STANDS (93). . . .

3 I PROMENADE**



. . . assume now that there is an urban area, subdivided into subcultures and communities each with its boundaries. Each subculture in the MOSAIC OF SUBCULTURES (8), and each COMMUNITY OF 7000 (12) has a promenade as its backbone. And each promenade helps to form ACTIVITY NODES (30) along its length, by generating the flow of people which the activity nodes need in order to survive.



Each subculture needs a center for its public life: a place where you can go to see people, and to be seen.

The promenade, "paseo," "passeggiata," evening stroll, is common in the small towns of Italy, Spain, Mexico, Greece, Yugoslavia, Sicily, and South America. People go there to walk up and down, to meet their friends, to stare at strangers, and to let strangers stare at them.

Throughout history there have been places in the city where people who shared a set of values could go to get in touch with each other. These places have always been like street theaters: they invite people to watch others, to stroll and browse, and to loiter:

In Mexico, in any small town plaza every Thursday and Sunday night with the band playing and the weather mild, the boys walk this way, the girls walk that, around and around, and the mothers and fathers sit on iron-scrolled benches and watch. (Ray Bradbury, "The girls walk this way; the boys walk that way . . ." *West*, Los Angeles Times Sunday Magazine, April 5, 1970.)

In all these places the beauty of the promenade is simply this: people with a shared way of life gather together to rub shoulders and confirm their community.

Is the promenade in fact a purely Latin institution? Our experiments suggest that it is not. The fact is that the kinds of promenades where this strolling happens are not common in a city, and they are especially uncommon in a sprawling urban region. But experiments by Luis Racionero at the Department of

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Architecture at the University of California, Berkeley, have shown that wherever the possibility of this public contact *does* exist, people will seek it, as long as it is close enough. Racionero interviewed 37 people in several parts of San Francisco, living various distances from a promenade, and found that people who lived within 20 minutes used it, while people who lived more than 20 minutes away did not.

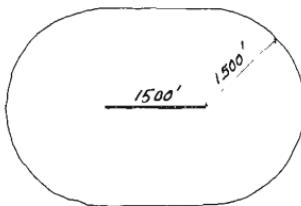
	<u>Use the promenade</u>	<u>Do not use the promenade</u>
People who live less than 20 minutes away	13	1
People who live more than 20 minutes away	5	18

It seems that people, of all cultures, may have a general need for the kind of human mixing which the promenade makes possible; but that if it is too far, the effort to get there simply outweighs the importance of the need. In short, to make sure that all the people in a city can satisfy this need, there must be promenades at frequent intervals.

Exactly how frequent should they be? Racionero establishes 20 minutes as the upper limit, but his survey does not investigate frequency of use. We know that the closer the promenade is, the more often people will use it. We guess that if the promenade is within 10 minutes or less, people will use it often—perhaps even once or twice a week.

The relation between the catch basin of the promenade, and the actual physical paved area of the promenade itself, is extremely critical. We show in PEDESTRIAN DENSITY (123), that places with less than one person for every 150 to 300 square feet of paved surface, will seem dead and uninviting. It is therefore essential to be certain that the number of people who might, typically, be out strolling on the promenade, is large enough to maintain this pedestrian density along its length. To check this relation, we calculate as follows:

A 10-minute walk amounts to roughly 1500 feet (150 feet per minute), which is probably also about the right length for the promenade itself. This means that the catch basin for a promenade has a shape roughly like this:



A promenade and its catch basin.

This area contains 320 acres. If we assume an average density of 50 people per gross acre, then there are 16,000 people in the area. If one-fifth of this population uses the promenade once a week, for an hour between 6 and 10 p.m., then at any given moment between those hours, there are some 100 people on the promenade. If it is 1500 feet long, at 300 square feet per person, it can therefore be 20 feet wide, at the most, and would be better if it were closer to 10 feet wide. It is feasible, but only just.

We see then, that a promenade 1500 feet long, with the catch basin we have defined and the population density stated, should be able to maintain a lively density of activity, provided that it is not more than about 20 feet wide. *We want to emphasize that a promenade will not work unless the pedestrian density is high enough, and that a calculation of this kind must always be made to check its feasibility.*

The preceding figures are meant to be illustrative. They establish a rough order of magnitude for promenades and their catch basin populations. But we have also seen successful promenades for populations of 2000 (a fishing village in Peru); and we have seen a promenade for 2,000,000 (Las Ramblas in Barcelona). They both work, although they are very different in character. The small one with its catch basin of 2000 works, because the cultural habit of the *paseo* is so strong there, a higher percentage of the people use it more often, and the density of people on the promenade is less than we would imagine—it is so beautiful that people enjoy it even if it is not so crowded. The large one works as a citywide event. People are willing to drive a long distance to it—they may not come as often, but when they do, it is worth the ride—it is exciting—packed—teeming with people.

We imagine the pattern of promenades in a city to be just as varied—a continuum ranging from small local promenades serv-

ing 2000 people to large intense ones serving the entire city—each different in character and density of action.

Finally, what are the characteristics of a successful promenade? Since people come to see people and to be seen, a promenade must have a high density of pedestrians using it. It must therefore be associated with places that in themselves attract people, for example, clusters of eating places and small shops.



A promenade in Paris.

Further, even though the real reasons for coming might have to do with seeing people and being seen, people find it easier to take a walk if they have a "destination." This destination may be real, like a coke shop or cafe, or it may be partly imaginary, "let's walk round the block." But the promenade must provide people with a strong goal.

It is also important that people do not have to walk too far between the most important points along the promenade. Informal observation suggests that any point which is more than 150 feet from activity becomes unsavory and unused. In short, good promenades are part of a path through the most active parts of the community; they are suitable as destinations for an evening walk; the walk is not too long, and nowhere on it desolate: no point of the stroll is more than 150 feet from a hub of activity.

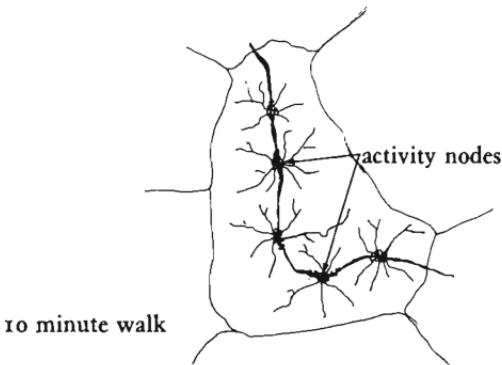
A variety of facilities will function as destinations along the promenade: ice cream parlors, coke shops, churches, public gardens, movie houses, bars, volleyball courts. Their potential will depend on the extent to which it is possible to make provisions for people to stay: widening of pedestrian paths, planting of trees, walls to lean against, stairs and benches and niches for sitting,

31 PROMENADE

opening of street fronts to provide sidewalk cafes, or displays of activities or goods where people might like to linger.

Therefore:

Encourage the gradual formation of a promenade at the heart of every community, linking the main activity nodes, and placed centrally, so that each point in the community is within 10 minutes' walk of it. Put main points of attraction at the two ends, to keep a constant movement up and down.



* * *

No matter how large the promenade is, there must be enough people coming to it to make it dense with action, and this can be precisely calculated by the formula of PEDESTRIAN DENSITY (123). The promenade is mainly marked by concentrations of activity along its length—ACTIVITY NODES (30); naturally, some of these will be open at night—NIGHT LIFE (33); and somewhere on the promenade there will be a concentration of shops—SHOPPING STREET (32). It might also be appropriate to include CARNIVAL (58) and DANCING IN THE STREET (63) in very large promenades. The detailed physical character of the promenade is given by PEDESTRIAN STREET (100) and PATH SHAPE (121). . . .

32 SHOPPING STREET*



. . . this pattern helps to complete the MAGIC OF THE CITY (10) and PROMENADE (31). And, each time a shopping street gets built, it will also help to generate the WEB OF SHOPPING (19).



Shopping centers depend on access: they need locations near major traffic arteries. However, the shoppers themselves don't benefit from traffic: they need quiet, comfort, and convenience, and access from the pedestrian paths in the surrounding area.

This simple and obvious conflict has almost never been effectively resolved. On the one hand, we have shopping strips. Here the shops are arranged along the major traffic arteries. This is convenient for cars, but it is not convenient for pedestrians. A strip does not have the characteristics which pedestrian areas need.



Shopping strip—for cars.

On the other hand, we have those "pre-automobile" shopping streets in the center of old towns. Here the pedestrians' needs are taken into account, at least partially. But, as the town spreads out and the streets become congested, they are inconvenient to reach; and again the cars dominate the narrow streets.

The modern solution is the shopping center. They are usually located along, or near to, major traffic arteries, so they



Old shopping street—inconvenient for cars and people.

are convenient for cars; and they often have pedestrian precincts in them—so that, in theory at least, they are comfortable and convenient for pedestrians. But they are usually isolated, in the middle of a vast parking lot, and thereby disconnected from the pedestrian fabric of the surrounding areas. In short, you cannot walk to them.



New shopping center—only for cars.

To be convenient for traffic, and convenient for people walking, and connected to the fabric of the surrounding town, the shops must be arranged along a street, itself pedestrian, but opening off a major traffic artery, perhaps two, with parking behind, or underneath, to keep the cars from isolating the shops from surrounding areas.

We observed this pattern growing spontaneously in certain neighborhoods of Lima, Peru: a wide road is set down for automobile traffic, and the shops begin to form themselves, in pedestrian streets that are perpendicular off-shoots off this road.

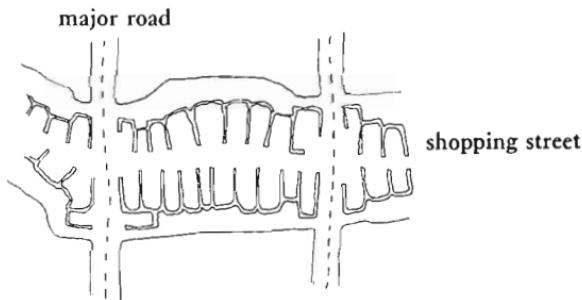


Shopping streets growing spontaneously in Lima, Peru.

This pattern is also the form of the famous Stroget in Copenhagen. The Stroget is the central shopping spine for the city; it is extremely long—almost a mile—and is entirely pedestrian, only cut periodically by roads which run at right angles to it.

Therefore:

Encourage local shopping centers to grow in the form of short pedestrian streets, at right angles to major roads and opening off these roads—with parking behind the shops, so that the cars can pull directly off the road, and yet not harm the shopping street.



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Treat the physical character of the street like any other PEDESTRIAN STREET (100) on the NETWORK OF PATHS AND CARS (52), at right angles to major PARALLEL ROADS (23); have as many shops as small as possible—INDIVIDUALLY OWNED SHOPS (87); where the shopping street crosses the road, make the crossing wide, giving priority to the pedestrians—ROAD CROSSING (54); parking can easily be provided by a single row of parking spaces in an alley lying behind the shops—all along the backs of the shops, off the alley, with the parking spaces walled, and perhaps even given canvas roofs, so that they don't destroy the area—SHIELDED PARKING (97), CANVAS ROOFS (244). Make sure that every shopping street includes a MARKET OF MANY SHOPS (46), and some HOUSING IN BETWEEN (48). . . .

33 NIGHT LIFE*



. . . every community has some kind of public night life—MAGIC OF THE CITY (10), COMMUNITY OF 7000 (12). If there is a promenade in the community, the night life is probably along the promenade, at least in part—PROMENADE (31). This pattern describes the details of the concentration of night time activities.



Most of the city's activities close down at night; those which stay open won't do much for the night life of the city unless they are together.

This pattern is drawn from the following seven points:

1. People enjoy going out at night; a night on the town is something special.
2. If evening activities such as movies, cafes, ice cream parlors, gas stations, and bars are scattered throughout the community, each one by itself cannot generate enough attraction.



One bar by itself is a lonely place at night.

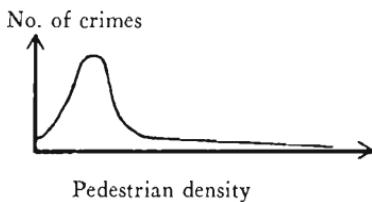
3. Many people do *not* go out at night because they feel they have no place to go. They do not feel like going out to a specific establishment, *but they do feel like going out*. An evening center, particularly when it is full of light, functions as a focus for such people.

4. Fear of the dark, especially in those places far away from one's own back yard, is a common experience, and quite simple to understand. Throughout our evolution night has been a time to stay quiet and protected, not a time to move about freely.



A cluster of night spots creates life in the street.

5. Nowadays this instinct is anchored in the fact that at night street crimes are most prevalent in places where there are too few pedestrians to provide natural surveillance, but enough pedestrians to make it worth a thief's while, in other words, dark, isolated night spots invite crime. A paper by Shlomo Angel, "The Ecology of Night Life" (Center for Environmental Structure, Berkeley, 1968), shows the highest number of street crimes occurring in those areas where night spots are scattered. Areas of very low or very high night pedestrian density are subject to much less crime.



Isolated night spots invite crime.

6. It is difficult to estimate the exact number of night spots that need to be grouped to create a sense of night life. From observation, we guess that it takes about six, minimum.

7. On the other hand, massive evening centers, combining evening services which a person could not possibly use on the same night, are alienating. For example, in New York the Lincoln Center for the Performing Arts makes a big splash at night, but it makes no sense. No one is going to the ballet and the theater and a concert during one night on the town. And centralizing these places robs the city as a whole of several centers of night life.

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All these arguments together suggest small, scattered centers of mutually enlivening night spots, the services grouped to form cheery squares, with lights and places to loiter, where people can spend several hours in an interesting way. Here are some examples of small groups of mutually sustaining night activities.

A movie theater, a restaurant and a bar, and a bookstore open till midnight; a smoke shop.

A laundromat, liquor store and cafe; and a meeting hall and beer hall.

Lodge hall, bowling alley, bar, playhouse.

A terminal, a diner, hotels, nightclubs, casinos.

Therefore:

Knit together shops, amusements, and services which are open at night, along with hotels, bars, and all-night diners to form centers of night life: well-lit, safe, and lively places that increase the intensity of pedestrian activity at night by drawing all the people who are out at night to the same few spots in the town. Encourage these evening centers to distribute themselves evenly across the town.

clustered evening establishments



Treat the physical layout of the night life area exactly like any other ACTIVITY NODE (30), except that *all* of its establishments are open at night. The evening establishments might include LOCAL TOWN HALL (44), CARNIVAL (58), DANCING IN THE STREET (63), STREET CAFE (88), BEER HALL (90), TRAVELER'S INN (91). . . .

34 INTERCHANGE



. . . this pattern defines the points which generate the WEB OF PUBLIC TRANSPORTATION (16). It also helps to complete LOCAL TRANSPORT AREAS (11) by guaranteeing the possibility of interchanges at the center of each transport area, where people can change from their bikes, or local mini-buses, to the long distance transit lines that connect different transport areas to one another.

* * *

Interchanges play a central role in public transportation. Unless the interchanges are working properly, the public transportation system will not be able to sustain itself.

Everyone needs public transportation sometimes. But it is the steady users who keep it going. If the steady users do not keep it going, then there is no system for the occasional user. To maintain a steady flow of users, interchanges must be extremely convenient and easy to use: 1. Workplaces and the housing for people who especially need public transportation must be distributed rather evenly around interchanges. 2. The interchanges must connect up with the surrounding flow of pedestrian street life. 3. It must be easy to change from one mode of travel to another.

In more detail:

1. Workers are the bread and butter of the transportation system. If the system is to be healthy, all the workplaces in town must be within walking distance of the interchanges. Furthermore, the distribution of workplaces around interchanges should be more or less even—see SCATTERED WORK (9). When they are concentrated around one or two, the rush hour flow crowds the trains, and creates inefficiencies in the system as a whole.

Furthermore, some of the area around interchanges should be given over to houses for those people who rely entirely on public transportation—especially old people. Old people depend on public transportation; they make up a large proportion of the system's regular users. To meet their needs, the area around interchanges must be zoned so that the kind of housing that suits them will develop there—OLD PEOPLE EVERYWHERE (40).

2. The interchange must be convenient for people walking from their homes and jobs, and it must be safe. People will not use an interchange if it is dingy, derelict, and deserted. This means that the interchange must be continuous with local pedestrian life. Parking lots must be kept to one side, so that people do not have to walk across them to get to the station. And there must be enough shops and kiosks in the interchange, to keep a steady flow of people moving in and out of it and through it.

3. If the system is going to be successful, there must be no more than a few minutes' walk—600 feet at the most—between points of transfer. And the distance should decrease as the trips become more local: from bus to bus, 100 feet maximum; from rapid transit to bus, 200 feet maximum; from train to rapid transit, 300 feet maximum. In rainy climates the connecting paths should be almost entirely covered—ARCADES (119). What's more, the most important transfer connections should not involve crossing streets: if necessary sink the roads or build bridges to make the transfer smooth.

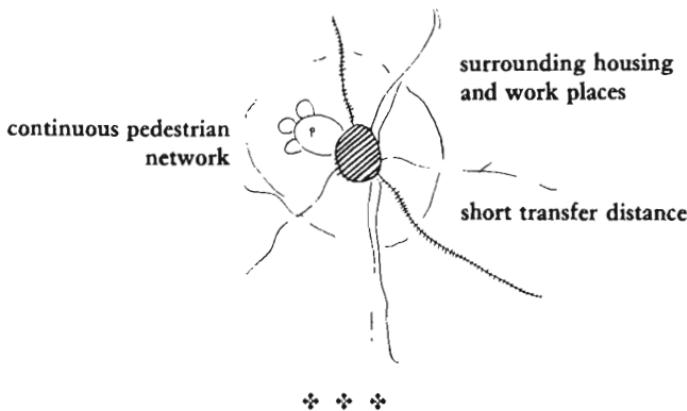
For details on the organization of interchanges, see “390 Requirements for Rapid Transit Stations,” Center for Environmental Structure, 1964, partly published in “Relational Complexes in Architecture” (Christopher Alexander, Van Maren King, Sara Ishikawa, Michael Baker, *Architectural Record*, September 1966, pp. 185–90).

Therefore:

At every interchange in the web of transportation follow these principles:

1. Surround the interchange with workplaces and housing types which specially need public transportation.
2. Keep the interior of the interchange continuous with the exterior pedestrian network, and maintain this continuity by building in small shops and kiosks and by keeping parking to one side.
3. Keep the transfer distance between different modes of transport down to 300 feet wherever possible, with an absolute maximum of 600 feet.

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Recognize that the creation of workplaces around every interchange contributes to the development of SCATTERED WORK (9). Place HOUSING HILLS (39), OLD PEOPLE EVERYWHERE (40), and WORK COMMUNITIES (41) round the interchange; treat the outside of the interchange as an ACTIVITY NODE (30) to assure its continuity with the pedestrian network; treat the transfers as ARCADES (119) where necessary to keep them under cover; give every interchange a BUS STOP (92) on the MINI-BUS (20) network. . . .

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

35 HOUSEHOLD MIX*



. . . the mix of households in an area does almost more than anything else to generate, or destroy, the character of an IDENTIFIABLE NEIGHBORHOOD (14), of a HOUSE CLUSTER (37), of a WORK COMMUNITY (41), or, most generally of all, of a LIFE CYCLE (26). The question is, what kind of mix should a well-balanced neighborhood contain?



No one stage in the life cycle is self-sufficient.

People need support and confirmation from people who have reached a different stage in the life cycle, at the same time that they also need support from people who are at the same stage as they are themselves.

However, the needs which generate separation tend to overwhelm the need for mixture. Present housing patterns tend to keep different types of households segregated from each other. There are vast areas of two-bedroom houses, other areas of studio and one-bedroom apartments, other areas of three- and four-bedroom houses. This means that we have corresponding areas of single people, couples, and small families with children, segregated by type.

The effects of household segregation are profound. In the pattern LIFE CYCLE (26), we have suggested that normal growth through the stages of life requires contact, at each stage, with people and institutions from *all* the other ages of man. Such contact is completely foiled if the housing mix in one's neighborhood is skewed toward one or two stages only. On the other hand, when the balance of life cycles is well related to the kinds of housing that are available in a neighborhood, the possibilities for contact become concrete. Each person can find in the face-to-face life of his neighborhood at least passing contact with people from every stage of life. Teenagers see young couples, old people watch the very young, people living alone draw sustenance from large families, youngsters look to the middle-aged for models, and so on: it is all a medium through which people feel their way through life.

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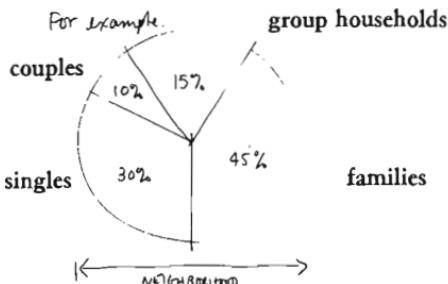
This need for a mix of housing must be offset against the need to be near people similar in age and way of life to oneself. Taking these two needs together, what is the right balance for the housing mix?

The right balance can be derived straightforwardly from the statistics of the region. First, determine the percentage of each household type for the region as a whole; second, use the same percentages to guide the gradual growth of the housing mix within the neighborhood. For example, if 40 per cent of a metropolitan region's households are families, 25 per cent are couples, 20 per cent are individuals, and 10 per cent group households, then we would expect the houses in each neighborhood to have roughly the same balance.

Let us ask, finally, how large a group should the mix be applied to? We might try to create a mix in every house (obviously absurd), or in every cluster of a dozen houses, or in every neighborhood, or merely in every town (this last has almost no significant effect). We believe that the mix will only work if it exists in a human group small enough to have some internal political and human intercourse—this could be a cluster of a dozen families, or a neighborhood of 500 people.

Therefore:

Encourage growth toward a mix of household types in every neighborhood, and every cluster, so that one-person households, couples, families with children, and group households are side by side.



35 HOUSEHOLD MIX

* * *

Make especially sure there are provisions for old people in every neighborhood—**OLD PEOPLE EVERYWHERE** (40), and that even with this mix, young children will have enough playmates—**CONNECTED PLAY** (68); and build the details of the different kinds of households, according to the appropriate more detailed patterns to reinforce the mix—**THE FAMILY** (75), **HOUSE FOR A SMALL FAMILY** (76), **HOUSE FOR A COUPLE** (77), **HOUSE FOR ONE PERSON** (78). . . .

36 DEGREES OF PUBLICNESS**



. . . within the neighborhoods—**IDENTIFIABLE NEIGHBORHOOD** (14)—there are naturally some areas where life is rather concentrated **ACTIVITY NODES** (30), others where it is slower, and others in between—**DENSITY RINGS** (29). It is essential to differentiate groups of houses and the paths which lead to them according to this gradient.



People are different, and the way they want to place their houses in a neighborhood is one of the most basic kinds of difference.

Some people want to live where the action is. Others want more isolation. This corresponds to a basic human personality dimension, which could be called the “extrovert-introvert” dimension, or the “community loving—privacy loving” dimension. Those who want the action like being near services, near shops, they like a lively atmosphere outside their houses, and they are happy to have strangers going past their houses all the time. Those who want more isolation like being away from services and shops, enjoy a very small scale in the areas outside their houses, and don’t want strangers going past their houses. (See for example, Nancy Marshall, “Orientations Toward Privacy: Environmental and Personality Components,” James Madison College, Michigan State University, East Lansing, Michigan.)

The variation of different people along the extrovert-introvert dimension is very well described by Frank Hendricks and Malcolm MacNair in “Concepts of Environmental Quality Standards Based on Life Styles,” report to the American Public Health Association, February 12, 1969, pp. 11–15. The authors identify several kinds of persons and characterize each by the relative amount of time spent in extroverted activities and in introverted activities. Francis Loetterle has shed further light on the problem in “Environment Attitudes and Social Life in Santa Clara County,” Santa Clara County Planning Department, San Jose,

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California, 1967. He asked 3300 households how far they wanted to be from various community services. The results were: 20 per cent of the households interviewed wanted to be located less than three blocks from commercial centers; 60 per cent wanted to be located between four and six blocks away; 20 per cent wanted to be located more than six blocks away (mean block size in Santa Clara County is 150 yards). The exact distances apply only to Santa Clara. But the overall result overwhelmingly supports our contention that people vary in this way and shows that they have quite different needs as far as the location and character of houses is concerned.

To make sure that the different kinds of people can find houses which satisfy their own particular desires, we suggest that each cluster of houses, and each neighborhood should have three kinds of houses, in about equal numbers: those which are nearest to the action, those which are half-way between, and those which are almost completely isolated. And, to support this pattern we need, also, three distinct kinds of paths:

1. Paths along services, wide and open for activities and crowds, paths that connect activities and encourage busy through traffic.
2. Paths remote from services, narrow and twisting, to discourage through traffic, with many at right angles and dead ends.
3. Intermediate types of paths linking the most remote and quiet paths to the most central and busy ones.

This pattern is as important in the design of a cluster of a few houses as it is in the design of a neighborhood. When we were helping a group of people to design their own cluster of houses, we first asked each person to consider his preference for location on the basis of extrovert-introvert. Three groups emerged: four "extroverts" who wished to be as near the pedestrian and community action as possible, four "introverts" who desired as much remoteness and privacy as possible, and the remaining four who wanted a bit of both. The site plan they made, using this pattern, is shown below, with the positions which the three kinds of people chose.



*In one house cluster: private homes,
public homes, and in-between.*

Therefore:

Make a clear distinction between three kinds of homes—those on quiet backwaters, those on busy streets, and those that are more or less in between. Make sure that those on quiet backwaters are on twisting paths, and that these houses are themselves physically secluded; make sure that the more public houses are on busy streets with many people passing by all day long and that the houses themselves are relatively exposed to the passers-by. The in-between houses may then be located on the paths half-way between the other two. Give every neighborhood about equal numbers of these three kinds of homes.

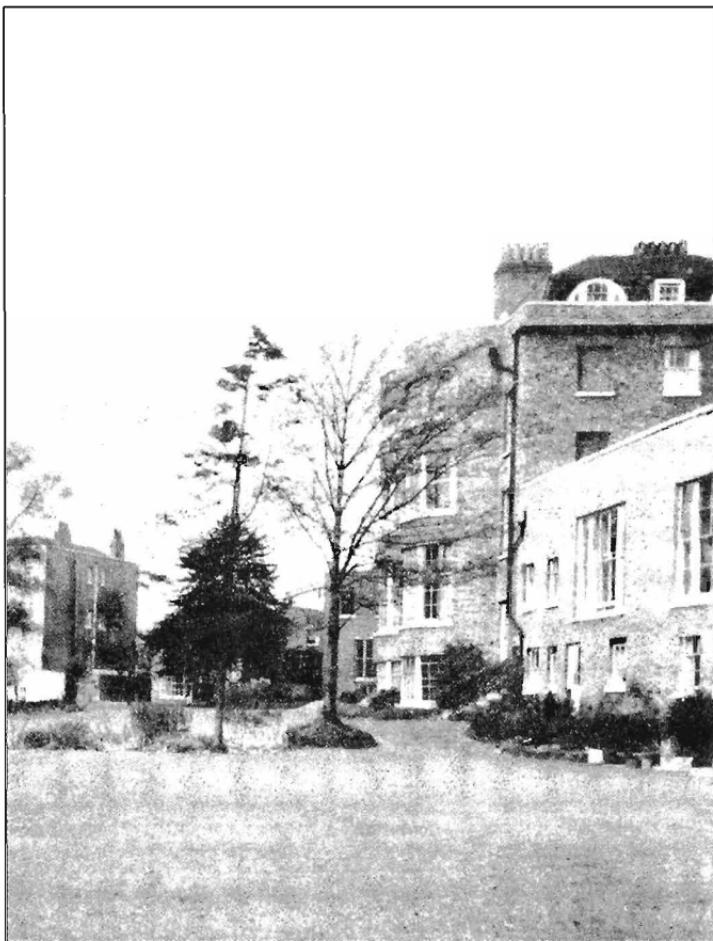


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Use this pattern to help differentiate the houses both in neighborhoods and in house clusters. Within a neighborhood, place higher density clusters along the busier streets—HOUSING HILL (39), ROW HOUSES (38), and lower density clusters along the backwaters—HOUSE CLUSTER (37), ROW HOUSES (38). The actual busy streets themselves should either be PEDESTRIAN STREETS (100) or RAISED WALKS (55) on major roads; the backwaters GREEN STREETS (51), or narrow paths with a distinct PATH SHAPE (121). Where lively streets are wanted, make sure the density of housing is high enough to generate the liveliness—PEDESTRIAN DENSITY (123). . . .

37 HOUSE CLUSTER**



. . . the fundamental unit of organization within the neighborhood—**IDENTIFIABLE NEIGHBORHOOD** (14)—is the cluster of a dozen houses. By varying the density and composition of different clusters, this pattern may also help to generate **DENSITY RINGS** (29), **HOUSEHOLD MIX** (35), and **DEGREES OF PUBLICNESS** (36).



People will not feel comfortable in their houses unless a group of houses forms a cluster, with the public land between them jointly owned by all the householders.

When houses are arranged on streets, and the streets owned by the town, there is no way in which the land immediately outside the houses can reflect the needs of families and individuals living in those houses. The land will only gradually get shaped to meet their needs if they have direct control over the land and its repair.

This pattern is based on the idea that the cluster of land and homes immediately around one's own home is of special importance. It is the source for gradual differentiation of neighborhood land use, and it is the natural focus of neighborly interaction.

Herbert Gans, in *The Levittowners* (New York: Pantheon, 1967), has collected some powerful evidence for this tendency. Gans surveyed visiting habits on a typical block tract development. Of the 149 people he surveyed, *all of them were engaged in some pattern of regular visiting with their neighbors*. The interesting finding is the morphology of this visiting pattern.

Consider the following diagram—one like it can be made for almost every house in a tract. There is a house on either side, one or two across the street, and one directly behind, across a garden fence.

Ninety-three per cent of all the neighborhood visiting engaged in by the subjects is confined to this spatial cluster.



On a typical block each home is at the center of its own cluster.

And when asked "Whom do you visit most?" 91 per cent said the people they visit most are immediately across the street or next door.

The beauty of this finding is its indication of the strength of the *spatial cluster* to draw people together into neighborly contact. *The most obvious and tribal-like cluster—the homes on either side and across the street—forms roughly a circle, and it is there that most contact occurs.* And if we add to this shape the home immediately behind, although it is separated by private gardens and a fence, we can account for nearly all the visiting that goes on in the Levittown neighborhood.

We conclude that people continue to act according to the laws of a spatial cluster, even when the block layout and the neighborhood plan do their best to destroy this unit and make it anonymous.

Gans' data underscore our intuitions: people want to be part of a neighborly spatial cluster; contact between people sharing such a cluster is a vital function. And this need stands, even when people are able to drive and see friends all over the city.

What about the size of the cluster? What is the appropriate size? In Gans' investigations each home stands at the center of a cluster of five or six other homes. But this is certainly not a natural limit for a housing cluster since the Levittown block layouts are so confining. In our experience, when the siting of the homes is attuned to the cluster pattern, the natural limit arises entirely from the balance between the informality and coherence of the group.

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The clusters seem to work best if they have between 8 and 12 houses each. With one representative from each family, this is the number of people that can sit round a common meeting table, can talk to each other directly, face to face, and can therefore make wise decisions about the land they hold in common. With 8 or 10 households, people can meet over a kitchen table, exchange news on the street and in the gardens, and generally, without much special attention, keep in touch with the whole of the group. When there are more than 10 or 12 homes forming a cluster, this balance is strained. We therefore set an upper limit of around 12 on the number of households that can be naturally drawn into a cluster. Of course, the average size for clusters might be less, perhaps around 6 or 8; and clusters of 3, 4, or 5 homes can work perfectly well.

Now, assuming that a group of neighbors, or a neighborhood association, or a planner, wants to give some expression to this pattern, what are the critical issues?

First, the geometry. In a new neighborhood, with houses built on the ground, we imagine quite dramatic clusters, with the houses built around or to the side of common land; and with a core to the cluster that gradually tapers off at the edges.



A cluster of 12 houses.

In existing neighborhoods of free-standing houses, the pattern must be brought into play gradually by relaxing zoning ordinances, and allowing people to gradually knit together clusters out of the existing grid—see COMMON LAND (67) and THE FAMILY (75). It is even possible to implement the pattern with

37 HOUSE CLUSTER

ROW HOUSES (38) and HOUSING HILLS (39). In this case the configuration of the rows, and the wings of the apartment building, form the cluster.

In all cases common land which is shared by the cluster is an essential ingredient. It acts as a focus and physically knits the group together. This common land can be as small as a path or as large as a green.

On the other hand, care must be taken not to make the clusters too tight or self-contained, so that they exclude the larger community or seem too constricting and claustrophobic. There needs to be some open endedness and overlapping among clusters.



Overlapping clusters in a Turkish village.

Along with the shape of the cluster, the way in which it is owned is critical. *If the pattern of ownership is not in accord with the physical properties of the cluster, the pattern will not take hold.* Very simply, the cluster must be owned and maintained by its constituent households. The households must be able to organize themselves as a corporation, capable of owning all the common land they share. There are many examples of tiny, user-owned housing corporations such as this. We know several places in our region where such experiments are under way, and places where they have been established for many years. And we have heard, from visitors to the Center, of similar developments in various parts of the world.

We advocate a system of ownership where the deed to one home carries with it part ownership in the cluster to which the home belongs; and ideally, this in turn carries with it part owner-

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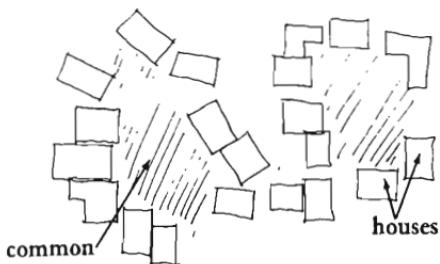
ship in the neighborhood made up of several clusters. In this way, every owner is automatically a shareholder in several levels of public land. And each level, beginning with the homes in their clusters, is a political unit with the power to control the processes of its own growth and repair.

Under such a system, the housing, whether in low or high density neighborhoods, can gradually find its way toward an abiding expression of the cluster. And the clusters themselves will come to support a quality of neighborhood life that, from our broken down neighborhoods now, we can only dimly perceive.

The unavowed secret of man is that he wants to be confirmed in his being and his existence by his fellow men and that he wishes them to make it possible for him to confirm them, and . . . not merely in the family, in the party assembly or in the public house, but also in the course of neighborly encounters, perhaps when he or the other steps out of the door of his house or to the window of his house and the greeting with which they greet each other will be accompanied by a glance of well-wishing, a glance in which curiosity, mistrust, and routine will have been overcome by a mutual sympathy: the one gives the other to understand that he affirms his presence. This is the indispensable minimum of humanity. (Martin Buber, *Gleanings*, New York: Simon and Schuster, 1969, p. 94.)

Therefore:

Arrange houses to form very rough, but identifiable clusters of 8 to 12 households around some common land and paths. Arrange the clusters so that anyone can walk through them, without feeling like a trespasser.



* * *

Use this pattern as it is for low densities, up to about 15 houses per acre; at higher densities, modify the cluster with the additional structure given by ROW HOUSES (38) or HOUSING HILL (39). Always provide common land between the houses—COMMON LAND (67) and a shared common workshop—HOME WORKSHOP (157). Arrange paths clearly—CIRCULATION REALMS (98)—and lay these paths out in such a way that they create busier paths and backwaters, even within the cluster—DEGREES OF PUBLICNESS (36); keep parking in SMALL PARKING LOTS (103), and make the houses in the cluster suit the households which will live there—THE FAMILY (75), HOUSE FOR A SMALL FAMILY (76), HOUSE FOR A COUPLE (77), HOUSE FOR ONE PERSON (78), YOUR OWN HOME (79). . . .

38 ROW HOUSES*



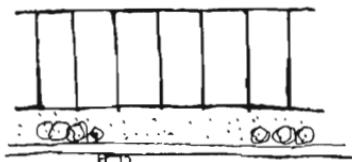
. . . in certain parts of a community, the detached homes and gardens of a **HOUSE CLUSTER** (37) will not work, because they are not dense enough to generate the denser parts of **DENSITY RINGS** (29) and **DEGREES OF PUBLICNESS** (36). To help create these larger patterns, it is necessary to build row houses instead.



At densities of 15 to 30 houses per acre, row houses are essential. But typical row houses are dark inside, and stamped from an identical mould.

Above 15 houses per acre, it is almost impossible to make houses freestanding without destroying the open space around them; the open space which is left gets reduced to nothing more than shallow rings around the houses. And apartments do not solve the problem of higher densities; they keep people off the ground and they have no private gardens.

Row houses solve these problems. But row houses, in their conventional form, have problems of their own. Conventional row houses all conform, approximately, to the following diagram. The houses have a short frontage and a long depth, and share the party wall along their long side.

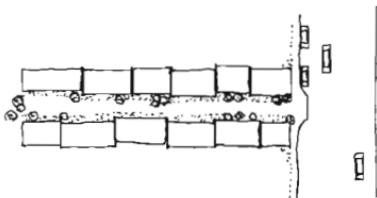


Typical row house pattern.

Because of the long party walls, many of the rooms are poorly lit. The houses lack privacy—there is nowhere in the houses or their yards that is very far from a party wall. The small yards are made even worse by the fact that they are at the short ends of the house, so that only a small part of the indoor space can be

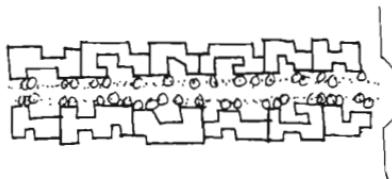
adjacent to the garden. And there is almost no scope for individual variation in the houses, with the result that terraces of row houses are often rather sterile.

These four problems of row houses can easily be solved by making the houses long and thin, along the paths, like cottages. In this case, there is plenty of room for subtle variations from house to house—each plan can be quite different; and it is easy to arrange the plan to let the light in.



Houses long and thin along the path.

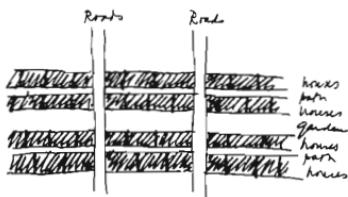
This kind of house has 30 per cent of its perimeter fixed and 70 per cent free for individual variations. A house in a conventional terrace of row houses has 70 per cent of its perimeter fixed and only 30 per cent open to individual variations. So the house can take on a variety of shapes, with a guarantee of a reasonable amount of privacy for its garden and for most of the house, an increase in the amount of light into the house, and an increase in the amount of indoor space that can be next to outdoor areas.



Crinkling and variation.

These advantages of the long thin row house are so obvious, it is natural to wonder why they aren't used more often. The reason is, of course, that roads do not permit it. So long as houses front directly onto roads, it is imperative that they have

the shortest frontage possible, so as to save the cost of roads and services—the cost of roads is a large part of any housing budget. But in the pattern we propose, we have been able to avoid this difficulty altogether, by making the houses front only onto paths—which don't cost much—and it is then these paths which connect to the roads, at right angles, in the way prescribed by NETWORK OF PATIOS AND CARS (52).



Roads away from houses.

Finally, a word on density. As we see from the sketch below, it is possible to build a two-story house of 1200 square feet on an area 30×20 , using a total area (path, house, garden) of about 1300 square feet, and it is even possible to manage with an absolute minimum of 1000 square feet.



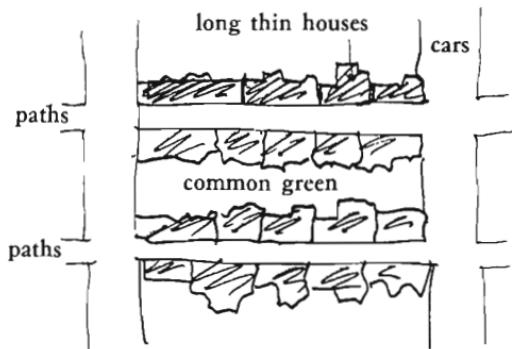
1300 square feet of land per house.

It is therefore possible to build row houses at a density of 30 per net acre. Without parking, or with less parking, this figure could conceivably be even higher.

Therefore:

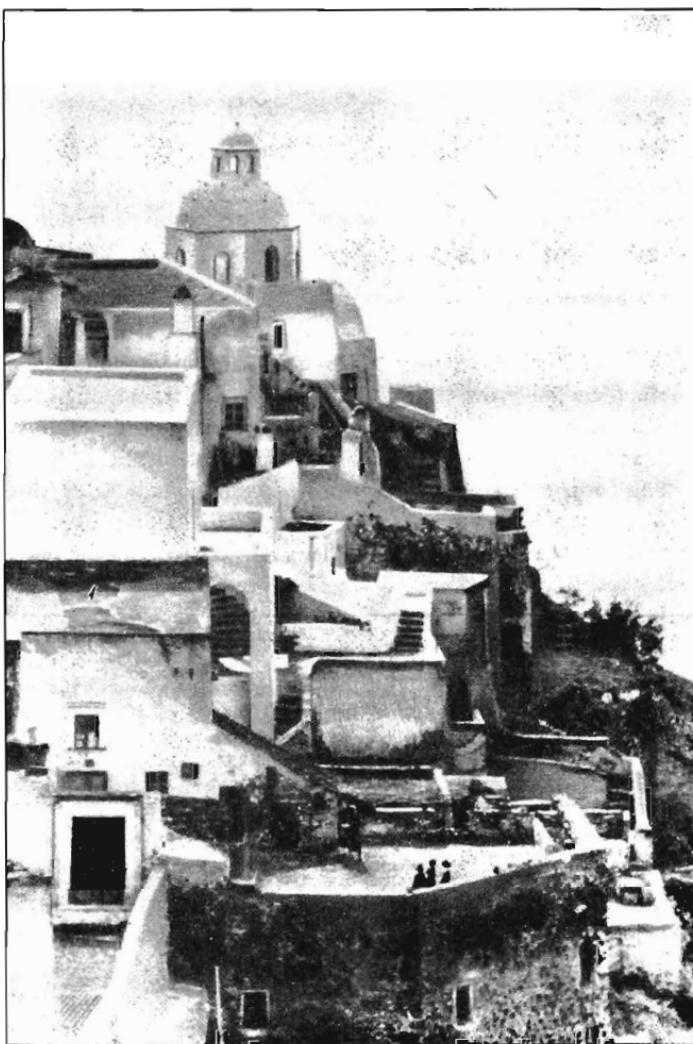
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For row houses, place houses along pedestrian paths that run at right angles to local roads and parking lots, and give each house a long frontage and a shallow depth.



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 paths, at right angles to them—**PARALLEL ROADS** (23), **NETWORK OF PATHS AND CARS** (52), with small parking lots off the roads—**SMALL PARKING LOTS** (103). 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 DENSITY RINGS (29), and wherever densities rise above 30 houses per acre or are four stories high—FOUR-STORY LIMIT (21), the house clusters become like hills.

* * *

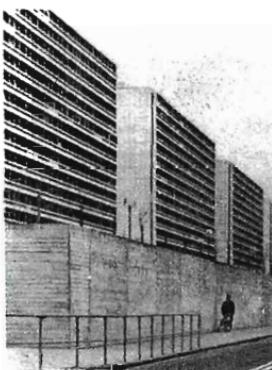
Every town has places in it which are so central and desirable that at least 30-50 households per acre will be living there. But the apartment houses which reach this density are almost all impersonal.

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 house 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 D. M. Fanning ("Families in Flats," *British Medical Journal*, November 1967, 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 impossible.

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 houses 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 conversations. This kind of contact is impossible to maintain in high-rise apartments.

2. Private gardens. In the Park Hill survey (J. F. Demors, "Park Hill Survey," *O.A.P.*, February 1966, p. 235), about one-third of the high-rise residents interviewed said they missed the chance to putter around in their garden.

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-

TOWNS

side—CITY COUNTRY FINGERS (3). In all traditional architectures, wherever building is essentially in the hands of the people, there is some expression of this need. The miniature gardens of Japan, outdoor workshops, roof gardens, courtyards, backyard rose gardens, communal cooking pits, herb gardens—there are thousands of examples. But in modern apartment structures this kind of space is simply not available.

3. Identity of each unit. During the course of a seminar held at the Center for Environmental Structure, Kenneth Radding made the following experiment. He asked people to draw their dream apartment, from the outside, and stuck the drawing on a small piece of cardboard. He then asked them to place the cardboard on a grid representing the façade of a huge apartment house, and asked them to move their "homes" around, until they liked the position they were in. Without fail, people wanted their apartments to be on the *edge* of the building, or set off from other units by blank walls. No one wanted his own apartment to be lost in a grid of apartments.

In another survey we visited a nineteen-story apartment building in San Francisco. The building contained 190 apartments each with a balcony. The management had set very rigid restrictions on the use of these balconies—no political posters, no painting, no clothes drying, no mobiles, no barbecues, no tapestries. But even when confined by such restrictions, over half of the residents were still able, in some way, to personalize their balconies with plants in pots, carpets, and furniture. In short, in the face of the most extreme regimentation people try to give their apartments a unique face.

What building form is compatible with these three basic requirements? First of all, to maintain a strong and direct connection to the ground, the building must be no higher than four stories—FOUR-STORY LIMIT (21). Also, and perhaps more important, we believe that each "house" must be within a few steps of a rather wide and gradual stair that rises directly from the ground. If the stair is open, somewhat rambling, and very gradual, it will be continuous with the street and the life of the street. Furthermore, if we take this need seriously, the stair must be connected at the ground to a piece of land, owned in common

by the residents—this land organized to form a semi-private green.

Concerning the private gardens. They need sunlight and privacy—two requirements hard to satisfy in ordinary balcony arrangements. The terraces must be south-facing, large, and intimately connected to the houses, and solid enough for earth, and bushes, and small trees. This suggests a kind of housing hill; with a gradual slope toward the south and a garage for parking below the "hill."

And for identity—the only genuine solution to the problem of identity is to let each family gradually build and rebuild its own home on a terraced superstructure. If the floors of this structure are capable of supporting a house and some earth, each unit is free to take its own character and develop its own tiny garden.

Although these requirements bring to mind a form similar to Safdie's Habitat, it is important to realize that Habitat fails to solve two of the three problem discussed here. It has private gardens; but it fails to solve the problem of connection to the ground—the units are strongly separated from the casual life of the street;—and the mass-produced dwellings are anonymous, far from unique.

The following sketch for an apartment building—originally made for the Swedish community of Märsta, near Stockholm—includes all the essential features of a housing hill.



Apartment building for Märsta, near Stockholm.

Therefore:

To build more than 30 dwellings per net acre, or to

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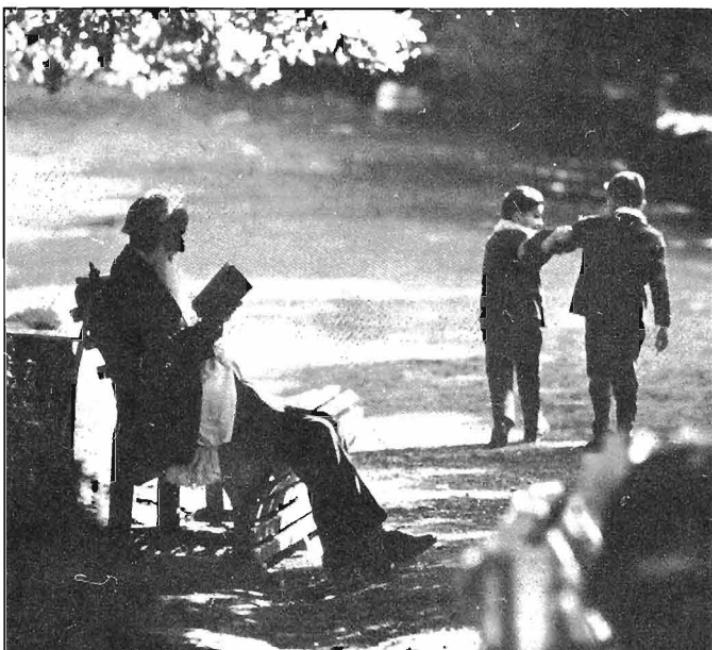
build housing three or four stories high, build a hill of houses. Build them to form stepped terraces, sloping toward the south, served by a great central open stair which also faces south and leads toward a common garden . . .



* * *

Let people lay out their own houses individually, upon the terraces, just as if they were land—**YOUR OWN HOME** (79). Since each terrace overlaps the one below it, each house has its garden on the house below—**ROOF 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** (158); 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**



. . . when neighborhoods are properly formed they give the people there a cross section of ages and stages of development—IDENTIFIABLE NEIGHBORHOOD (14), LIFE CYCLE (26), HOUSEHOLD MIX (35); however, the old people are so often forgotten and left alone in modern society, that it is necessary to formulate a special pattern which underlines their needs.



Old people need old people, but they also need the young, and young people need contact with the old.

There is a natural tendency for old people to gather together in clusters or communities. But when these elderly communities are too isolated or too large, they damage young and old alike. The young in other parts of town, have no chance of the benefit of older company, and the old people themselves are far too isolated.

Treated like outsiders, the aged have increasingly clustered together for mutual support or simply to enjoy themselves. A now familiar but still amazing phenomenon has sprung up in the past decade: dozens of good-sized new towns that exclude people under 65. Built on cheap, outlying land, such communities offer two-bedroom houses starting at \$18,000 plus a refuge from urban violence . . . and generational pressures. (*Time*, August 3, 1970.)

But the choice the old people have made by moving to these communities and the remarks above are a serious and painful reflection of a very sad state of affairs in our culture. The fact is that contemporary society shunts away old people; and the more shunted away they are, the deeper the rift between the old and young. The old people have no choice but to segregate themselves—they, like anyone else, have pride; they would rather not be with younger people who do not appreciate them, and they feign satisfaction to justify their position.

And the segregation of the old causes the same rift inside each individual life: as old people pass into old age communities their ties with their own past become unacknowledged, lost, and there-

fore broken. Their youth is no longer alive in their old age—the two become dissociated; their lives are cut in two.

In contrast to the situation today, consider how the aged were respected and needed in traditional cultures:

Some degree of prestige for the aged seems to have been practically universal in all known societies. This is so general, in fact, that it cuts across many cultural factors that have appeared to determine trends in other topics related to age. (*The Role of Aged in Primitive Society*, Leo W. Simmons, New Haven: Yale University Press, 1945, p. 69.)

More specifically:

. . . Another family relationship of great significance for the aged has been the commonly observed intimate association between the very young and the very old. Frequently they have been left together at home while the able-bodied have gone forth to earn the family living. These oldsters, in their wisdom and experience, have protected and instructed the little ones, while the children, in turn, have acted as the "eyes, ears, hands, and feet" of their feeble old friends. Care of the young has thus very generally provided the aged with a useful occupation and a vivid interest in life during the long dull days of senescence. (*Ibid.* p. 199.)

Clearly, old people cannot be integrated socially as in traditional cultures unless they are first integrated physically—unless they share the same streets, shops, services, and common land with everyone else. But, at the same time, they obviously need other old people around them; and some old people who are infirm need special services.

And of course old people vary in their need or desire to be among their own age group. The more able-bodied and independent they are, the less they need to be among other old people, and the farther they can be from special medical services. The variation in the amount of care they need ranges from complete nursing care; to semi-nursing care involving house calls once a day or twice a week; to an old person getting some help with shopping, cooking, and cleaning; to an old person being completely independent. Right now, there is no such fine differentia-

tion made in the care of old people—very often people who simply need a little help cooking and cleaning are put into rest homes which provide total nursing care, at huge expense to them, their families, and the community. It is a psychologically debilitating situation, and they turn frail and helpless because that is the way they are treated.

We therefore need a way of taking care of old people which provides for the full range of their needs:

1. It must allow them to stay in the neighborhood they know best—hence some old people in every neighborhood.
2. It must allow old people to be together, yet in groups small enough not to isolate them from the younger people in the neighborhood.
3. It must allow those old people who are independent to live independently, without losing the benefits of communalities.
4. It must allow those who need nursing care or prepared meals, to get it, without having to go to nursing homes far from the neighborhood.

All these requirements can be solved together, very simply, if every neighborhood contains a small pocket of old people, not concentrated all in one place, but fuzzy at the edges like a swarm of bees. This will both preserve the symbiosis between young and old, and give the old people the mutual support they need within the pockets. Perhaps 20 might live in a central group house, another 10 or 15 in cottages close to this house, but interlaced with other houses, and another 10 to 15 also in cottages, still further from the core, in among the neighborhood, yet always within 100 or 200 yards of the core, so they can easily walk there to play chess, have a meal, or get help from the nurse.

The number 50 comes from Mumford's argument:

The first thing to be determined is the number of aged people to be accommodated in a neighborhood unit; and the answer to this, I submit, is that the normal age distribution in the community as a whole should be maintained. This means that there should be from five to eight people over sixty-five in every hundred people; so that in a neighborhood unit of, say, six hundred people, there would be between thirty and fifty old people. (Lewis Mumford, *The Human Prospect*, New York, 1968, p. 49.)

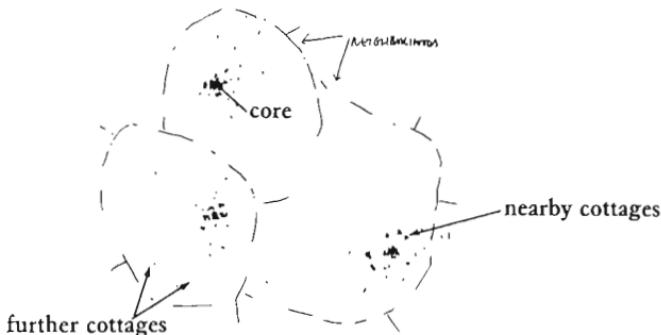
As for the character of the group house, it might vary from

case to case. In some cases it might be no more than a commune, where people cook together and have part-time help from young girls and boys, or professional nurses. However, about 5 per cent of the nation's elderly need full-time care. This means that two or three people in every 50 will need complete nursing care. Since a nurse can typically work with six to eight people, this suggests that every second or third neighborhood group house might be equipped with complete nursing care.

Therefore:

Create dwellings for some 50 old people in every neighborhood. Place these dwellings in three rings . . .

1. A central core with cooking and nursing provided.
 2. Cottages near the core.
 3. Cottages further out from the core, mixed among the other houses of the neighborhood, but never more than 200 yards from the core.
- . . . in such a way that the 50 houses together form a single coherent swarm, with its own clear center, but interlocked at its periphery with other ordinary houses of the neighborhood.



Treat the core like any group house; make all the cottages, both those close to and those further away, small—OLD AGE

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COTTAGE (155), some of them perhaps connected to the larger family houses in the neighborhood—THE FAMILY (75); provide every second or third core with proper nursing facilities; somewhere in the orbit of the old age pocket, provide the kind of work which old people can manage best—especially teaching and looking after tiny children—NETWORK OF LEARNING (18), CHILDREN'S HOME (86), SETTLED WORK (156), VEGETABLE GARDEN (177). . . .

between the house clusters, around the centers, and especially in the boundaries between neighborhoods, encourage the formation of work communities;

41. WORK COMMUNITY
42. INDUSTRIAL RIBBON
43. UNIVERSITY AS A MARKETPLACE
44. LOCAL TOWN HALL
45. NECKLACE OF COMMUNITY PROJECTS
46. MARKET OF MANY SHOPS
47. HEALTH CENTER
48. HOUSING IN BETWEEN

4 I WORK COMMUNITY**



. . . according to the pattern SCATTERED WORK (9), work is entirely decentralized and woven in and out of housing areas. The effect of SCATTERED WORK—can be increased piecemeal, by building individual work communities, one by one, in the boundaries between the neighborhoods; these work communities will then help to form the boundaries—SUBCULTURE BOUNDARY (13), NEIGHBORHOOD BOUNDARY (15)—and above all in the boundaries, they will help to form ACTIVITY NODES (30).

* * *

If you spend eight hours of your day at work, and eight hours at home, there is no reason why your workplace should be any less of a community than your home.

When someone tells you where he “lives,” he is always talking about his house or the neighborhood his house is in. It sounds harmless enough. But think what it really means. Why should the people of our culture choose to use the word “live,” which, on the face of it applies to every moment of our waking lives, and apply it only to a special portion of our lives—that part associated with our families and houses. The implication is straightforward. The people of our culture believe that they are less alive when they are working than when they are at home; and we make this distinction subtly clear, by choosing to keep the word “live” only for those places in our lives where we are not working. Anyone who uses the phrase “where do you live” in its everyday sense, accepts as his own the widespread cultural awareness of the fact that no one really “lives” at his place of work—there is no song or music there, no love, no food—that he is not alive while working, not living, only toiling away, and being dead.

As soon as we understand this situation it leads at once to outrage. Why should we accept a world in which eight hours of the day are “dead”; why shall we not create a world in which our work is as much part of life, as much alive, as anything we do at home with our family and with our friends?

This problem is discussed in other patterns—SCATTERED WORK (9), SELF-GOVERNING WORKSHOPS AND OFFICES (80). Here we

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focus on the implications which this problem has for the physical and social nature of the *area* in which a workplace sits. If a person spends eight hours a day working in a certain area, and the nature of his work, its social character, and its location, are all chosen to make sure that he is living, not merely earning money, then it is certainly essential that the area immediately around his place of work be a *community*, just like a neighborhood but oriented to the pace and rhythms of work, instead of the rhythms of the family.

For workplaces to function as communities, five relationships are critical:

1. Workplaces must not be too scattered, nor too agglomerated, but clustered in groups of about 15.

We know from SCATTERED WORK (9) that workplaces should be decentralized, but they should not be so scattered that a single workplace is isolated from others. On the other hand, they should not be so agglomerated that a single workplace is lost in a sea of others. The workplaces should therefore be grouped to form strongly identifiable communities. The communities need to be small enough so that one can know most of the people working in them, at least by sight—and big enough to support as many amenities for the workers as possible—lunch counters, local sports, shops, and so on. We guess the right size may be between 8 and 20 establishments.

2. The workplace community contains a mix of manual jobs, desk jobs, craft jobs, selling, and so forth.

Most people today work in areas which are specialized: medical buildings, car repair, advertising, warehousing, financial, etc. This kind of segregation leads to isolation from other types of work and other types of people, leading in turn to less concern, respect, and understanding of them. We believe that a world where people are socially responsible can only come about where there is a value intrinsic to every job, where there is dignity associated with all work. This can hardly come about when we are so segregated from people who do different kinds of work from us.

3. There is a common piece of land within the work community, which ties the individual workshops and offices together.

A shared street does a little to tie individual houses and places together; but a shared piece of common land does a great deal

4 I WORK COMMUNITY

more. If the workplaces are grouped around a common courtyard where people can sit, play volleyball, eat lunches, it will help the contact and community among the workers.

4. *The work community is interlaced with the larger community in which it is located.*

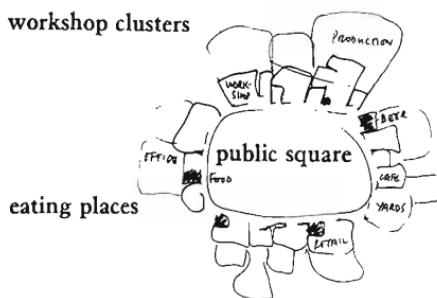
A work community, though forming a core community by itself, cannot work well in complete isolation from the surrounding community. This is already discussed to some extent in SCATTERED WORK (9) and MEN AND WOMEN (27). In addition, both work community and residential community can gain by sharing facilities and services—restaurants, cafes, libraries. Thus it makes sense for the work community to be open to the larger community with shops and cafes at the seam between them.

5. *Finally, it is necessary that the common land, or courtyards, exist at two distinct and separate levels.* On the one hand, the courtyards for common table tennis, volleyball, need half-a-dozen workgroups around them at the most—more would swamp them. On the other hand, the lunch counters and laundries and barbershops need more like 20 or 30 workgroups to survive. For this reason the work community needs two levels of clustering.

Therefore:

Build or encourage the formation of work communities—each one a collection of smaller clusters of workplaces which have their own courtyards, gathered round a larger common square or common courtyard which contains shops and lunch counters. The total work community should have no more than 10 or 20 workplaces in it.

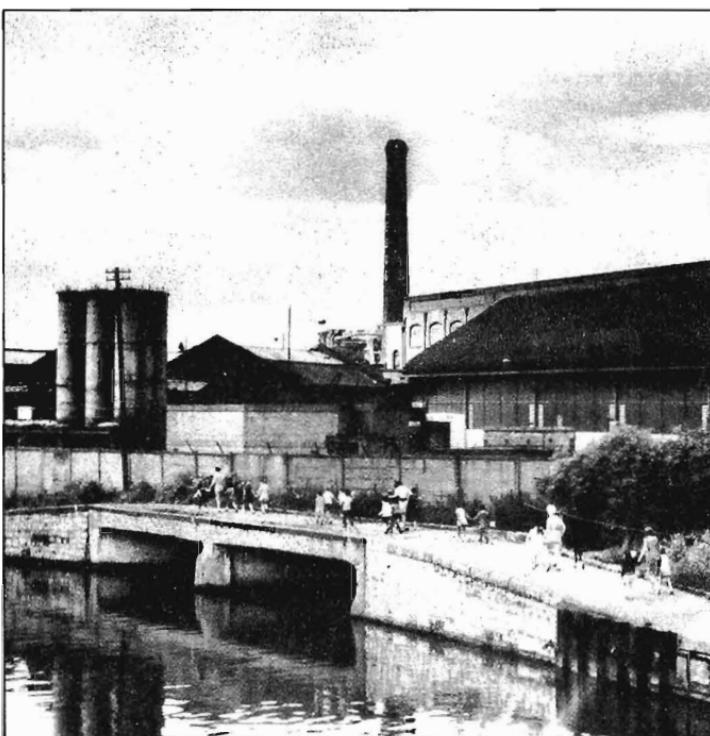
workshop clusters





Make the square at the heart of the community a public square with public paths coming through it—**SMALL PUBLIC SQUARES** (61); either in this square, or in some attached space, place opportunities for sports—**LOCAL SPORTS** (72); make sure that the entire community is always within three minutes' walk of an **ACCESSIBLE GREEN** (60); lay out the individual smaller courtyards in such a way that people naturally gather there—**COURTYARDS WHICH LIVE** (115); keep the workshops small—**SELF-GOVERNING WORKSHOPS AND OFFICES** (80); encourage communal cooking and eating over and beyond the lunch counters—**STREET CAFE** (88), **FOOD STANDS** (93), **COMMUNAL EATING** (147). . . .

42 INDUSTRIAL RIBBON*



. . . in a city where work is decentralized by SCATTERED WORK (9), the placing of industry is of particular importance since it usually needs a certain amount of concentration. Like WORK COMMUNITIES (41), the industry can easily be placed to help in the formation of the larger boundaries between subcultures—SUBCULTURE BOUNDARY (13).



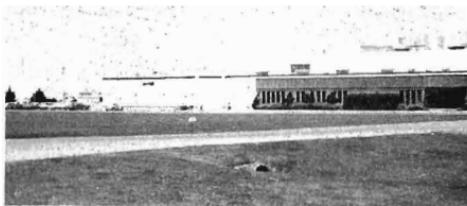
Exaggerated zoning laws separate industry from the rest of urban life completely, and contribute to the plastic unreality of sheltered residential neighborhoods.

It is true, obviously, that industry creates smoke, smells, noise, and heavy truck traffic; and it is therefore necessary to prevent the heaviest industry, especially, from interfering with the calm and safety of the places where people live.

But it is also true that in the modern city industry gets treated like a disease. The areas where it exists are assumed to be dirty and derelict. They are kept to the "other side of the tracks," swept under the rug. And people forget altogether that the things which surround them in their daily lives—bread, chemicals, cars, oil, gaskets, radios, chairs—are all made in these forbidden industrial zones. Under these conditions it is not surprising that people treat life as an unreal charade, and forget the simplest realities and facts of their existence.

Since the 1930's various efforts have been made, on behalf of the workers, to make factories green and pleasant. This social welfare approach to the nature of industries is once again unreal, in the opposite direction. A workshop, where things are being made, is not a garden or a hospital. The gardens which surround the new industrial "parks" are more for show than for the workers anyway since a few small inner courts or gardens would be far more useful to the workers themselves. And the contribution of an industrial park to the social and emotional life of the surrounding city is almost nil.

What is needed is a form of industry which is small enough so that it does not need to be so sharply segregated; genuine, so that it seems like a workshop, because it is a workshop; placed



The social welfare "green" industrial park.

in such a way that the truck traffic which it generates does not endanger nearby neighborhoods; and formed along the edge of neighborhoods so that it is not a dangerous, forgotten zone, but so that it is a real part of life, accessible to children from the surrounding houses, woven into the fabric of city life, in a way that properly reflects its huge importance in the scheme of things.

But many industries are not small. They need large areas to function properly. A survey of planned industrial districts shows that 71.2 per cent of the industries require 0 to 5.0 acres, 13.6 per cent require 5 to 10 acres, and 9.9 per cent require 10 to 25 acres. (Robert E. Boley, *Industrial Districts Restudied: An Analysis of Characteristics*, Urban Land Institute, Technical Bulletin No. 41, 1961.) These industries can only fit into a NEIGHBORHOOD BOUNDARY (15) or SUBCULTURE BOUNDARY (13) if the boundary is wide enough. Ribbons whose width varies between 200 and 500 feet, with sites varying in length between 200 and 2000 feet, will be able to provide the necessary range of one to 25-acre sites in compact blocks, and are still narrow enough to keep communities on opposite sides of the ribbon reasonably connected.

The industrial ribbons require truck access and some rail transport. Truck roads and rail spurs should always be located in the center of the ribbon, so that the edges of the ribbon remain open



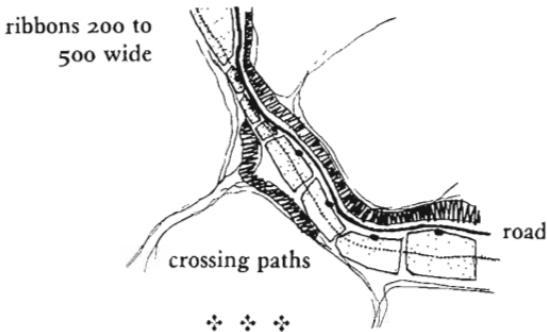
Truck traffic from an industrial area to a nearby freeway destroys a neighborhood.

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to the community. Even more important, the ribbons must be placed so that they do not generate a heavy concentration of dangerous and noisy truck traffic *through* neighborhoods. Since most truck traffic comes to and from the freeways, this means that the industrial ribbons must be placed fairly near to RING ROADS (17).

Therefore:

Place industry in ribbons, between 200 and 500 feet wide, which form the boundaries between communities. Break these ribbons into long blocks, varying in area between 1 and 25 acres; and treat the edge of every ribbon as a place where people from nearby communities can benefit from the offshoots of the industrial activity.



Place the ribbons near enough to RING ROADS (17) so that trucks can pass directly from the ribbons to the ring road, without having to pass through any other intermediate areas. Develop the internal layout of the industrial ribbon like any other work community, though slightly more spread out—WORK COMMUNITY (41). Place the important buildings of each industry, the “heart” of the plant, toward the edge of the ribbon to form usable streets and outdoor spaces—POSITIVE OUTDOOR SPACE (106), BUILDING FRONTS (122).

43 UNIVERSITY AS A MARKETPLACE



. . . the NETWORK OF LEARNING (18) has established the importance of a whole society devoted to the learning process with decentralized opportunities for learning. The network of learning can be greatly helped by building a university, which treats the learning process as a normal part of adult life, for all the people in society.



Concentrated, cloistered universities, with closed admission policies and rigid procedures which dictate who may teach a course, kill opportunities for learning.

The original universities in the middle ages were simply collections of teachers who attracted students because they had something to offer. They were marketplaces of ideas, located all over the town, where people could shop around for the kinds of ideas and learning which made sense to them. By contrast, the isolated and over-administered university of today kills the variety and intensity of the different ideas at the university and also limits the student's opportunity to shop for ideas.

To re-create this kind of academic freedom and the opportunity for exchange and growth of ideas two things are needed.

First, the social and physical environment must provide a setting which encourages rather than discourages individuality and freedom of thought. Second, the environment must provide a setting which encourages the student to see for himself which ideas make sense—a setting which gives him the maximum opportunity and exposure to a great variety of ideas, so that he can make up his mind for himself.

The image which most clearly describes this kind of setting is the image of the traditional marketplace, where hundreds of tiny stalls, each one developing some specialty and unique flavor which can attract people by its genuine quality, are so arranged that a potential buyer can circulate freely, and examine the wares before he buys.

What would it mean to fashion the university after this model?

1. *Anyone can take a course.* To begin with, in a university marketplace there are no admission procedures. Anyone, at any age, may come forward and seek to take a class. In effect, the "course catalog" of the university is published and circulated at large, in the newspapers and on radio, and posted in public places throughout the region.

2. *Anyone can give a course.* Similarly, in a university marketplace, anyone can come forward and offer a course. There is no hard and fast distinction between teachers and the rest of the citizenry. If people come forward to take the course, then it is established. There will certainly be groups of teachers banding together and offering interrelated classes; and teachers may set prerequisites and regulate enrollment however they see fit. But, like a true marketplace, the students create the demand. If over a period of time no one comes forward to take a professor's course, then he must change his offering or find another way to make a living.

Many courses, once they are organized, can meet in homes and meeting rooms all across the town. But some will need more space or special equipment, and all the classes will need access to libraries and various other communal facilities. The university marketplace, then, needs a physical structure to support its social structure.

Certainly, a marketplace could never have the form of an isolated campus. Rather it would tend to be open and public, woven through the city, perhaps with one or two streets where university facilities are concentrated.

In an early version of this pattern, written expressly for the University of Oregon in Eugene, we described in detail the physical setting which we believe complements the marketplace of ideas. We advised:

Make the university a collection of small buildings, situated along pedestrian paths, each containing one or two educational projects. Make all the horizontal circulation among these projects, in the public domain, at ground floor. This means that all projects open directly to a pedestrian path, and that the upper floors of buildings are connected directly to the ground, by stairs and entrances. Connect all the pedestrian paths, so that, like a marketplace, they form one major pedestrian system, with many entrances and openings off it. The over-

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all result of this pattern, is that the environment becomes a collection of relatively low buildings, opening off a major system of pedestrian paths, each building containing a series of entrances and staircases, at about 50 foot intervals.

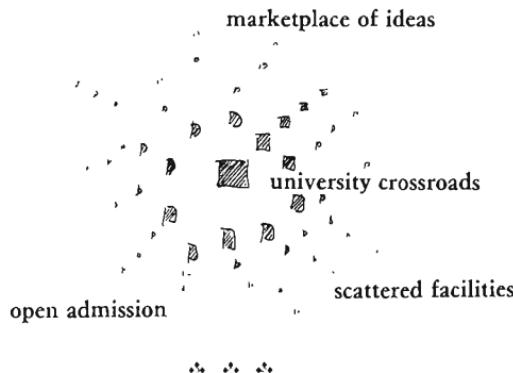
We still believe that this image of the university, as a market-place scattered through the town, is correct. Most of these details are given by other patterns, in this book: **BUILDING COMPLEX** (95), **PEDESTRIAN STREET** (100), **ARCADES** (119), and **OPEN STAIRS** (158).

Finally, how should a university marketplace be administered? We don't know. Certainly a voucher system where everyone has equal access to payment vouchers seems sensible. And some technique for balancing payment to class size is required, so teachers are not simply paid according to how many students they enroll. Furthermore, some kind of evaluation technique is needed, so that reliable information on courses and teachers filters out to the towns people.

There are several experiments going forward in higher education today which may help to solve these administrative questions. The Open University of England, the various "free" universities, such as Heliotrope in San Francisco, the 20 branches of the University Without Walls all over the United States, the university extension programs, which gear their courses entirely to working people—they are all examples of institutions experimenting with different aspects of the marketplace idea.

Therefore:

Establish the university as a marketplace of higher education. As a social conception this means that the university is open to people of all ages, on a full-time, part-time, or course by course basis. Anyone can offer a class. Anyone can take a class. Physically, the university marketplace has a central crossroads where its main buildings and offices are, and the meeting rooms and labs ripple out from this crossroads—at first concentrated in small buildings along pedestrian streets and then gradually becoming more dispersed and mixed with the town.



Give the university a PROMENADE (31) at its central crossroads; and around the crossroads cluster the buildings along streets—BUILDING COMPLEX (95), PEDESTRIAN STREET (100). Give this central area access to quiet greens—QUIET BACKS (59); and a normal distribution of housing—HOUSING IN BETWEEN (48); as for the classes, wherever possible let them follow the model of MASTER AND APPRENTICES (83). . . .

44 LOCAL TOWN HALL*



. . . according to COMMUNITY OF 7000 (12), the political and economic life of the city breaks down into small, self-governing communities. In this case, the process of local government needs a physical place of work; and the design and placing of this physical place of work can help to create and to sustain the COMMUNITY OF 7000 by acting as its physical and social focus.

* * *

Local government of communities and local control by the inhabitants, will only happen if each community has its own physical town hall which forms the nucleus of its political activity.

We have argued, in MOSAIC OF SUBCULTURES (8), COMMUNITY OF 7000 (12), and IDENTIFIABLE NEIGHBORHOOD (14), that every city needs to be made of self-governing groups, which exist at two different levels, the communities with populations of 5000 to 10,000 and the neighborhoods with populations of 200 to 1000.

These groups will only have the political force to carry out their own, locally determined plans, if they have a share of the taxes which their inhabitants generate, and if the people in the groups have a genuine, daily possibility of access to the local government which represents them. Both require that each group has its own seat of government, no matter how modest, where the people of the neighborhood feel comfortable, and where they know that they can get results.

This calls up a physical image of city government which is quite the opposite of the huge city halls that have been built in the last 75 years. A *local* town hall would contain two basic features:

1. It is community territory for the group it serves; it is made in a way which invites people in for service, spontaneously, to debate policy, and the open space around the building is shaped to sustain people gathering and lingering.

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2. It is located at the heart of the local community and is within walking distance of everyone it serves.

1. The town hall as community territory.

The weakness of community government is due in part to the kinds of policies created and maintained by the city hall bureaucracy. And we believe this situation is largely supported and bolstered by the physical nature of city hall. In other words, the physical existence of a city hall undermines local community government, even where the city hall staff is sympathetic to "neighborhood participation."

The key to the problem lies in the experience of powerlessness at the community level. When a man goes to city hall to take action on a neighborhood or community issue, he is at once on the defensive: the building and the staff of city hall serve the entire city; his problem is very small beside the problems of the city as a whole. And besides, everyone is busy-busy and unfamiliar. He is asked to fill out paper forms and make appointments, though perhaps the connection between these forms and appointments and his problem are not very clear. Soon the people in the neighborhoods feel more and more remote from city hall, from the center of decision-making and from the decisions themselves which influence their lives. Quickly the syndrome of powerlessness grows.

In an earlier publication, we presented a body of evidence to substantiate the growth of this syndrome (*A Pattern Language Which Generates Multi-Service Centers*, Center for Environmental Structure, Berkeley, 1968, pp. 80-87). There we discovered that centralized service programs reached very few of the people in their target areas; the staff of these centers quickly took on the red tape mentality, even where they were chosen specifically to support neighborhood programs; and, most damaging of all, the centers themselves were seen as alien places, and the experience of using them was, on the whole, debilitating to the people.

Like all syndromes, this one can only be broken if it is attacked on its several fronts simultaneously. This means, for example, organizing neighborhoods and communities to take control of the functions that concern them; revising city charters to grant

power to local groups; *and making places, in communities and neighborhoods, that act as home bases for the consolidation of this power—the local town halls.*

What might these local town halls be like if they are to be effective in breaking down the syndrome of powerlessness?

The evidence shows that people can and will articulate their needs if given the proper setting and means. Creating this setting goes hand in hand with community organization. If the local town hall is gradually to become a source of real neighborhood power, it must help the process of community organization. This means, essentially, that the building be built around the *process* of community organization, and that the place be clearly recognizable as *community territory*.

When we translate the idea of community organization and community territory into physical terms, they yield two components: an arena and a zone of community projects.

The community needs a public forum, equipped with sound system, benches, walls to put up notices, where people are free to gather; a place which belongs to the community where people would naturally come whenever they think something should be done about something. *We call this public forum the arena.*

And the community needs a place where people can have access to storefronts, work space, meeting rooms, office equipment. Once a group is ready to move, it takes typewriters, duplicating machines, telephones, etc., to carry through with a project and develop broad based community support—and this in turn needs cheap and readily accessible office space. We call this space the community projects zone—see NECKLACE OF COMMUNITY PROJECTS (45) for details.

2. The location of local town halls.

If these local town halls are to be successful in drawing people in, the question of their location must be taken seriously. From earlier work on the location of multi-service centers, we are convinced that town halls can die if they are badly located: *twenty times as many people drop into community centers when they are located near major intersections* as when they are buried in the middle of residential blocks.

Here, for example, is a table which shows the number of

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people who dropped in at a service center while it was located on a residential street, versus the number of people who dropped in after it was relocated on a major commercial street, close to a main pedestrian intersection.

	Number of people dropping in, per day	Number of people with appointments, per day
Before the move	1-2	15-20
Two months after the move	15-20	about 50
Six months after the move	about 40	about 50

The details of this investigation are given in *A Pattern Language Which Generates Multi-Service Centers* (pp. 70-73). The conclusion reached there, is that community centers can afford to be within a block of the major pedestrian intersections, but if they are farther away, they are virtually dead as centers of local service.

This information must be interpreted to suit the different scales of neighborhood and community. We imagine, in a neighborhood of 500, the neighborhood town hall would be quite small and informal; perhaps not even a separate building at all, but a room with an adjoining outdoor room, on an important corner of the neighborhood. In a community of 7000, something more is required: a building the size of a large house, with an outdoor area developed as a forum and meeting place, located on the community's main promenade.

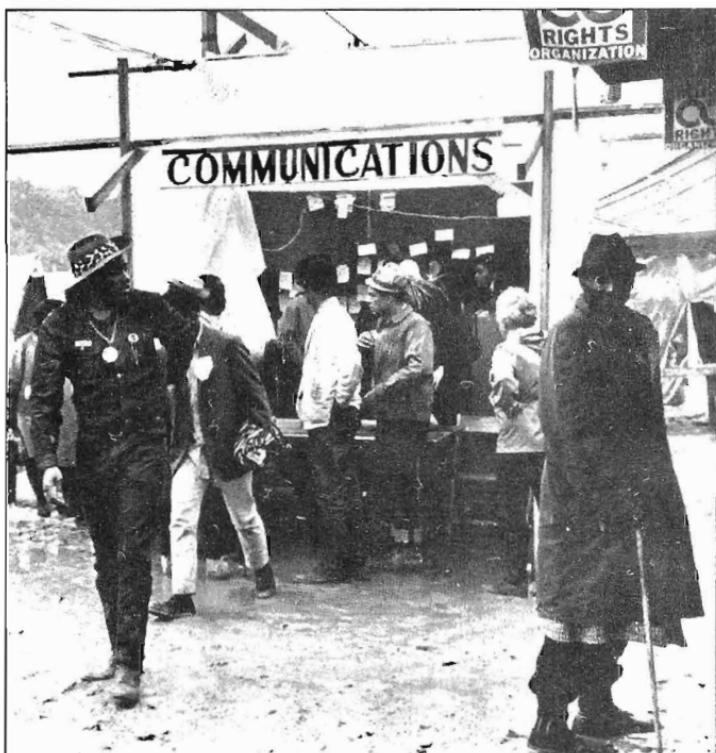
Therefore:

To make the political control of local functions real, establish a small town hall for each community of 7000, and even for each neighborhood; locate it near the busiest intersection in the community. Give the building three parts: an arena for public discussion, public services around the arena, and space to rent out to ad hoc community projects.



Arrange the arena so that it forms the heart of a community crossroads; and make it small, so that a crowd can easily gather there—ACTIVITY NODES (30), SMALL PUBLIC SQUARES (61), PEDESTRIAN DENSITY (123). Keep all the public services around this square as small as possible—SMALL SERVICES WITHOUT RED TAPE (81); and provide ample space for the community projects, in a ring around the building, so that they form the outer face of the town hall—NECKLACE OF COMMUNITY PROJECTS (45). . . .

45 NECKLACE OF COMMUNITY PROJECTS



. . . LOCAL TOWN HALL (44) calls for small centers of local government at the heart of every community. This pattern embellishes the local town hall and other public institutions like it—UNIVERSITY AS A MARKETPLACE (43) and HEALTH CENTER (47)—with a ground for community action.

* * *

The local town hall will not be an honest part of the community which lives around it, unless it is itself surrounded by all kinds of small community activities and projects, generated by the people for themselves.

A lively process of community self-government depends on an endless series of ad hoc political and service groups, functioning freely, each with a proper chance to test its ideas before the townspeople. The spatial component of this idea is crucial: this process will be stymied if people cannot get started in an office on a shoestring.

We derive the geometry of this pattern from five requirements:

1. Small, grass roots movements, unpopular at their inception, play a vital role in society. They provide a critical opposition to established ideas; their presence is a direct correlate of the right to free speech; a basic part of the self-regulation of a successful society, which will generate counter movements whenever things get off the track. Such movements need a place to manifest themselves, in a way which puts their ideas directly into the public domain. At this writing, a quick survey of the East Bay shows about 30 or 40 bootstrap groups that are suffering for lack of such a place: for example, Alcatraz Indians, Bangla Desh Relief, Solidarity Films, Tenant Action Project, November 7th Movement, Gay Legal Defense, No on M, People's Translation Service. . . .

2. But as a rule these groups are small and have very little money. To nourish this kind of activity, the community must provide minimal space to any group of this sort, rent free, with some limit on the duration of the lease. The space must be like a

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small storefront and have typewriters, duplicating machines, and telephones; and access to a meeting room.

3. To encourage the atmosphere of honest debate, these storefront spaces must be near the town hall, the main crossroads of public life. If they are scattered across the town, away from the main town hall, they cannot seriously contend with the powers that be.

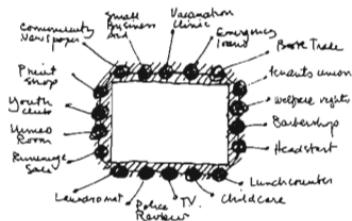
4. The space must be highly visible. It must be built in a way which lets the group get their ideas across, to people on the street. And it must be physically organized to undermine the natural tendency town governments have to wall themselves in and isolate themselves from the community once they are in power.

5. Finally, to bring these groups into natural contact with the community, the fabric of storefronts should be built to include some of the stable shops and services that the community needs—barbershop, cafe, laundromat.

These five requirements suggest a necklace of rather open storefront spaces around the local town hall. This necklace of spaces is a physical embodiment of the political process in an open society: everyone has access to equipment, space to mount a campaign, and the chance to get their ideas into the public arena.

Therefore:

Allow the growth of shop-size spaces around the local town hall, and any other appropriate community building. Front these shops on a busy path, and lease them for a minimum rent to ad hoc community groups for political work, trial services, research, and advocate groups. No ideological restrictions.





Make each shop small, compact, and easily accessible like INDIVIDUALLY OWNED SHOPS (87); build small public spaces for loitering amongst them—PUBLIC OUTDOOR ROOM (69). Use them to form the building edge—BUILDING FRONTS (122), BUILDING EDGE (160), and keep them open to the street—OPENING TO THE STREET (165). . . .

46 MARKET OF
MANY SHOPS**



. . . we have proposed that shops be widely decentralized and placed in such a way that they are most accessible to the communities which use them—WEB OF SHOPPING (19). The largest groups of shops are arranged to form pedestrian streets or SHOPPING STREETS (32) which will almost always need a market to survive. This pattern describes the form and economic character of markets.

* * *

It is natural and convenient to want a market where all the different foods and household goods you need can be bought under a single roof. But when the market has a single management, like a supermarket, the foods are bland, and there is no joy in going there.

It is true that the large supermarkets do have a great variety of foods. But this “variety” is still centrally purchased, centrally warehoused, and still has the staleness of mass merchandise. In addition, there is no human contact left, only rows of shelves and then a harried encounter with the check-out man who takes your money.

The only way to get the human contact back, and the variety of food, and all the love and care and wisdom about individual foods which shopkeepers who know what they are selling can bring to it, is to create those markets once again in which individual owners sell different goods, from tiny stalls, under a common roof.

As it stands, supermarkets are likely to get bigger and bigger, to conglomerate with other industries, and to go to all lengths to dehumanize the experience of the marketplace. Horn and Hardart, for example, have been contemplating this scheme:

. . . the customer either drives her car or walks onto a moving ramp, is conveyed decorously through the whole store, selects her groceries by viewing samples displayed in lighted wall panels (or unlocking the cases with a special key or her credit card), and chooses her meat and produce via closed circuit TV. She then drives around to a separate warehouse area to collect her order, paid for by a uni-

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versal credit card system. . . . Most of the people would be invisible. . . . (Jennifer Cross, *The Supermarket Trap*, New York: Berkeley Medallion, 1971).

Now contrast this with the following description of an old-fashioned market place in San Francisco:

If you visit the Market regularly you come to have favorite stalls, like the one with the pippin and Hauer apples from Watsonville. The farmer looks at each apple as he chooses it and places it in the bag, reminding you to keep them in a cool place so they will remain crisp and sweet. If you display interest, he tells you with pride about the orchard they come from and how they were grown and cared for, his blue eyes meeting yours. His English is spoken with a slight Italian accent so you wonder about the clear blue eyes, light brown hair and long-boned body until he tells you about the part of northern Italy where he was born.

There is a handsome black man offering small mountains of melons where the stalls end. Tell him you are not enough of an expert to choose one you would like to have perfect for the day after tomorrow, and he will not only pick one out that he assures you will be just right (as it turns out to be), but gives you a lesson in choosing your next melon, whether cranshaw, honeydew or watermelon, wherever you may happen to buy it. He cares that you will always get a good one and enjoy it. ("The Farmers Go to Market," *California Living*, San Francisco Chronicle Sunday Magazine, February 6, 1972.)

There is no doubt that this is far more human and enlivening than the supermarket conveyor belt. The critical question lies with the economics of the operation. Is there a reasonable economic basis for a marketplace of many shops? Or are markets ruled out by the efficiencies of the supermarket?

There do not seem to be any economic obstacles more serious than those which accompany the start of any business. The major problem is one of coordination—coordination of individual shops to form one coherent market and coordination of many similar shops, from several markets, to make bulk purchase arrangements.

If individual shops are well located, they can operate competitively, at profit margins of up to 5 per cent of sales ("Expenses in Retail Business," National Cash Register, Dayton, Ohio, p. 15). According to National Cash Register figures, this profit margin stays the same, regardless of size, for all convenience food stores. The small stores are often undercut by supermarkets because they are located by themselves, and therefore cannot offer shoppers

46 MARKET OF MANY SHOPS

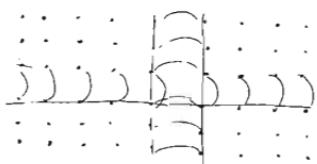
the same variety at one stop, as the supermarket. However, if many of these small shops are clustered and centrally located, and together they offer a variety comparable to the supermarket, then they can compete effectively with the chain supermarkets.

The one efficiency that chain stores do maintain is the efficiency of bulk purchase. But even this can be offset if groups of similar shops, all over the town, coordinate their needs and set up bulk purchase arrangements. For example, in the Bay Area there are a number of flower vendors running their business from small carts on the street. Although each vendor manages his own affairs independently, all the vendors go in together to buy their flowers. They gain enormously by purchasing their flowers in bulk and undersell the established florists three to one.

Of course, it is difficult for a market of many shops to get started—it is hard to find a place and hard to finance it. We propose a very rough and simple structure in the beginning, that can be filled in and improved over time. The market in the photo, in Lima, Peru, began with nothing more than free-standing columns and aisles. The shops—most of them no more than six feet by nine—were built up gradually between the columns.



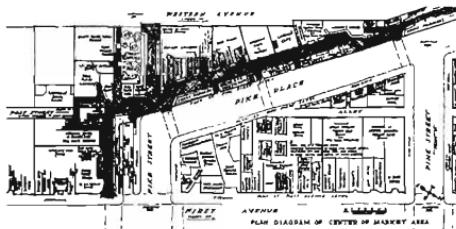
A market in Peru . . .



. . . began with nothing more than columns.

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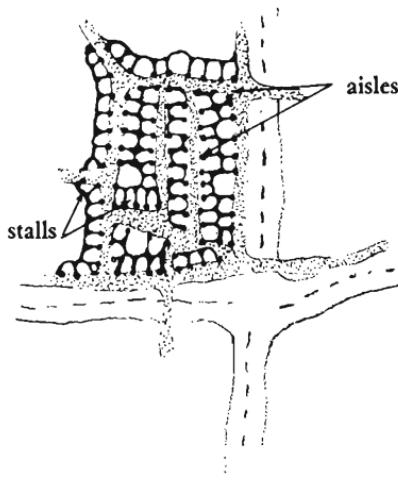
A spectacular example of a simple wood structure that has been modified and enlarged over the years is the Pike Place Market in Seattle, Washington.



The Pike Place Market—a market of many shops in Seattle.

Therefore:

Instead of modern supermarkets, establish frequent marketplaces, each one made up of many smaller shops which are autonomous and specialized (cheese, meat, grain, fruit, and so on). Build the structure of the market as a minimum, which provides no more than a roof, columns which define aisles, and basic services. Within this structure allow the different shops to create their own environment, according to their individual taste and needs.





Make the aisles wide enough for small delivery carts and for a dense throng of pedestrians—perhaps 6 to 12 feet wide—BUILDING THOROUGHFARE (101); keep the stalls extremely small so that the rent is low—perhaps no more than six feet by nine feet—shops which need more space can occupy two—INDIVIDUALLY OWNED SHOPS (87); define the stalls with columns at the corners only—COLUMNS AT THE CORNERS (212); perhaps even let the owners make roofs for themselves—CANVAS ROOFS (244); connect the aisles with the outside so that the market is a direct continuation of the pedestrian paths in the city just around it—PEDESTRIAN STREET (100). . . .

47 HEALTH CENTER*

. . . the explicit recognition of the life cycle as the basis for every individual life will do a great deal to help people's health in the community—*LIFE CYCLE* (26); this pattern describes the more specific institutions which help people to care for themselves and their health.

* * *

More than 90 per cent of the people walking about in an ordinary neighborhood are unhealthy, judged by simple biological criteria. This ill health cannot be cured by hospitals or medicine.

Hospitals put the emphasis on sickness. They are enormously expensive; they are inconvenient because they are too centralized; and they tend to create sickness, rather than cure it, because doctors get paid when people are sick.

By contrast, in traditional Chinese medicine, people pay the doctor only when they are healthy; when they are sick, he is obliged to treat them, without payment. The doctors have incentives to keep people well.

A system of health care which is actually capable of keeping people healthy, in both mind and body, must put its emphasis on health, not sickness. It must therefore be physically decentralized so that it is as close as possible to people's everyday activities. And it must be able to encourage people in daily practices that lead to health. The core of the solution, as far as we can see, must be a system of small, widely distributed, health centers, which encourage physical activities—swimming, dancing, sports, and fresh air—and provide medical treatment only as an incidental side of these activities.

There is converging evidence and speculation in the health

care literature that health centers with these characteristics, organized according to the philosophy of health maintenance, are critical. (See, for example: William H. Glazier, "The Task of Medicine," *Scientific American*, Vol. 228, No. 4, April 1973, pp. 13-17; and Milton Roemer, "Nationalized Medicine for America," *Transaction*, September 1971, p. 31.)

We know of several attempts to develop health care programs which are in line with this proposal. In most of the cases, though, the programs fall short in their hopes because, despite their good intentions, they still tend to cater to the sick, they do not work to maintain health. Take, for example, the so-called "community mental health centers" encouraged by the United States National Institute of Mental Health during the late 1960's. On paper, these centers are intended to encourage health, not cure sickness.

In practice it is a very different story. We visited one of the most advanced, in San Anselmo, California. The patients sit around all day long; their eyes are glazed; they are half-enthusiastically doing "clay therapy" or "paint therapy." One patient came up to us and said, "Doctor," his eyes shining with happiness, "this is a wonderful mental health center; it is the very best one I have ever been in." In short, the patients are kept as patients; they understand themselves to be patients; in certain cases they even revel in their role as patients. They have no useful occupation, no work, nothing useful they can show at the end of a day, nothing to be proud of. The center, for all its intentions to be human, in fact reinforces the patients' idea of their own sickness and encourages the behavior of sickness, even while it is preaching and advocating health.

The same is true for the Kaiser-Permanente program in California. The Kaiser hospitals have been hailed in a recent article as "ones which shift the emphasis away from treatment of illness and toward the maintenance of health (William H. Glazier, "The Task of Medicine"). Members of Kaiser are entitled to a multi-phasic examination yearly, intended to give every member a complete picture of the state of his health. But the conception of health which is created by this multi-phasic program is still "freedom from sickness." It is essentially negative. There is no effort made toward the positive creation and maintenance of actual, blooming, health. And besides, the Kaiser Center

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is still nothing but a giant hospital. People are treated as numbers; the center is so large and concentrated that the doctors cannot possibly see their patients as people in their natural communities. They see them as patients.

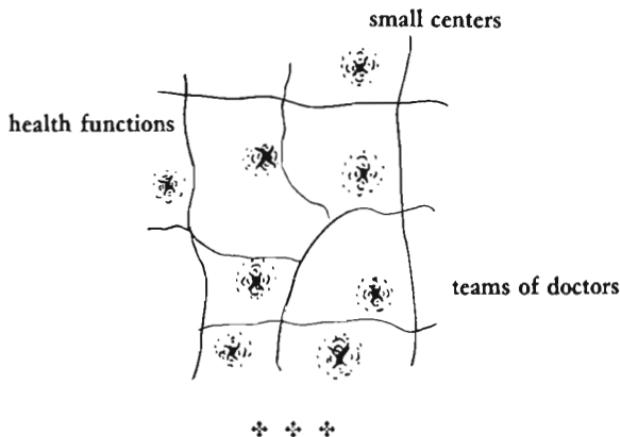
The only health center we know which actually devoted itself to health instead of sickness was the famous Peckham Health Center in England. The Peckham Center was a club, run by two doctors, focused on a swimming pool, a dance floor, and a cafe. In addition, there were doctors' offices, and it was understood that families—never individuals—would receive periodic check-ups as part of their activities around the swimming and dancing. Under these conditions, people used the center regularly, during the day and at night. The question of their health became fused with the ordinary life of the community, and this set the stage for a most extraordinary kind of health care.

For example, it seems that many of the mothers in working-class pre-war England, were ashamed of their own bodies. This shame reached such proportions that they were ashamed of suckling and holding their own babies, and in many cases they actually did not want their babies as a result. The Peckham Center was able to dismantle this syndrome entirely by its emphasis on health. The program of swimming and dancing, coupled with the family checkups, allowed women to become proud of their own bodies; they no longer felt afraid of their own newborn babies, no longer felt shame about their bodies; the babies felt wanted; and the incidence of emotional disturbance and childhood psychosis among the children in later years was drastically reduced within the Peckham population, starting exactly from the year when the health center began its operation.

This kind of profound biological connection between physical health, family life, and emotional welfare was truly the beginning of a new era in human biology. It is described, beautifully, and at length, by two doctors from Peckham Center (Innes Pearse and Lucy Crocker, *The Peckham Experiment, A Study in the Living Structure of Society*, New Haven: Yale University Press, 1946). Only when biological ideas of this depth and power are taken seriously will it be possible to have real health centers, instead of sickness centers.

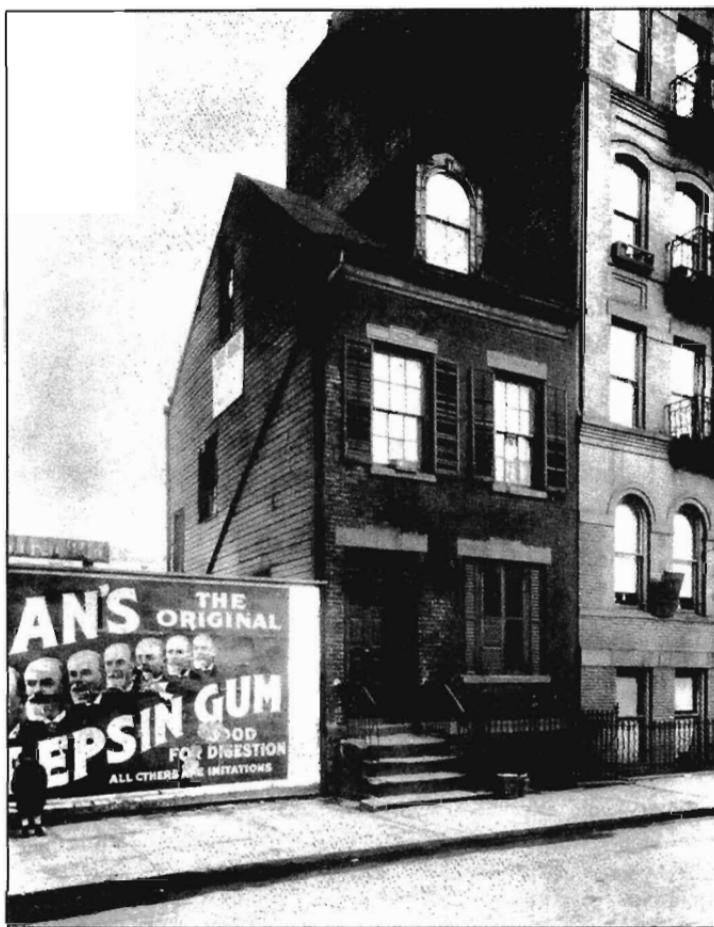
Therefore:

Gradually develop a network of small health centers, perhaps one per community of 7000, across the city; each equipped to treat everyday disease—both mental and physical, in children and adults—but organized essentially around a functional emphasis on those recreational and educational activities which help keep people in good health, like swimming and dancing.



Keep the medical teams small and independent—**SMALL SERVICES WITHOUT RED TAPE** (81), but coordinated with each other and other clinics, like **BIRTH PLACES** (65)—throughout the town. Give each center some functions that fuse with the ordinary course of local work and recreation: swimming pool, workshops, sauna, gym, vegetable garden, greenhouse. But don't force these facilities to form a continuous "health park"—knit them together loosely with other parts of the town—**HOUSING IN BETWEEN** (48), **LOCAL SPORTS** (72), **ADVENTURE PLAYGROUND** (73), **HOME WORKSHOP** (157), **VEGETABLE GARDEN** (177). Perhaps the most important subsidiary pattern for helping people to keep healthy is the opportunity for swimming; ideally, try and put a swimming pool on every block—**STILL WATER** (71). . . .

48 HOUSING IN BETWEEN**



. . . most housing is in residential neighborhoods, and in the clusters within neighborhoods—**IDENTIFIABLE NEIGHBORHOOD** (14), **HOUSE CLUSTER** (37); and according to our patterns these housing areas need to be separated by boundaries which contain public land and work communities—**SUBCULTURE BOUNDARY** (13), **NEIGHBORHOOD BOUNDARY** (15), **WORK COMMUNITY** (41). But even these work communities, and boundaries, and shopping streets, must contain houses which have people living in them.

* * *

Wherever there is a sharp separation between residential and nonresidential parts of town, the nonresidential areas will quickly turn to slums.

The personal rhythms of maintenance and repair are central to the well being of any part of a community, because it is only these rhythms which keep up a steady sequence of adaptations and corrections in the organization of the whole. Slums happen when these rhythms break down.

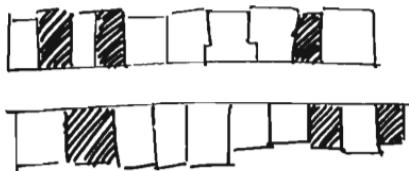
Now in a town, the processes of maintenance and repair hinge on the fact of user ownership. In other words, the places where people are user-owners are kept up nicely; the places where they are not, tend to run down. When people have their own homes among shops, workplaces, schools, services, the university, these places are enhanced by the vitality that is natural to their homes. They extend themselves to make it personal and comfortable. A person will put more of himself into his home than into any of the other places where he spends his time. And it is unlikely that a person can put this kind of feeling into two places, two parts of his life. We conclude that many parts of the environment have the arid quality of not being cared for personally, for the simple reason that indeed nobody lives there.

It is only where houses are mixed in between the other functions, in twos and threes, in rows and tiny clusters, that the personal quality of the households and house-building activities gives energy to the workshops and offices and services.

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Therefore:

Build houses into the fabric of shops, small industry, schools, public services, universities—all those parts of cities which draw people in during the day, but which tend to be “nonresidential.” The houses may be in rows or “hills” with shops beneath, or they may be free-standing, so long as they mix with the other functions, and make the entire area “lived-in.”



occasional houses

* * *

Make sure that, in spite of its position in a public area, each house still has enough private territory for people to feel at home in it—YOUR OWN HOME (79). If there are several houses in one area, treat them as a cluster or as a row—HOUSE CLUSTER (37), ROW HOUSES (38). . . .

between the house clusters and work communities, allow the local road and path network to grow informally, piecemeal:

- 49. LOOPEd LOCAL ROADS
- 50. T JUNCTIONS
- 51. GREEN STREETS
- 52. NETWORK OF PATHS AND CARS
- 53. MAIN GATEWAYS
- 54. ROAD CROSSING
- 55. RAISED WALK
- 56. BIKE PATHS AND RACKS
- 57. CHILDREN IN THE CITY

49 LOOPED LOCAL ROADS**



. . . assume that neighborhoods, house clusters, work communities, and major roads are more or less defined—LOCAL TRANSPORT AREAS (11), IDENTIFIABLE NEIGHBORHOOD (14), PARALLEL ROADS (23), HOUSE CLUSTER (37), WORK COMMUNITY (41). Now, for the layout of the local roads.



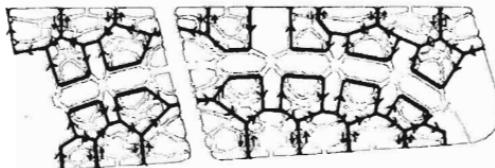
Nobody wants fast through traffic going by their homes.

Through traffic is fast, noisy, and dangerous. At the same time cars are important, and cannot be excluded altogether from the areas where people live. Local roads must provide access to houses but prevent traffic from coming through.

This problem can only be solved if all roads which have houses on them are laid out to be “loops.” We define a looped road as any road in a road network so placed that no path along other roads in the road network can be shortened by travel along the “loop.”

The loops themselves must be designed to discourage high volumes or high speeds: this depends on the total number of houses served by the loop, the road surface, the road width, and the number of curves and corners. Our observations suggest that a loop can be made safe so long as it serves less than 50 cars. At one and one-half cars per house, such a loop serves 30 houses; at one car per house, 50 houses; at one-half car per house, 100 houses.

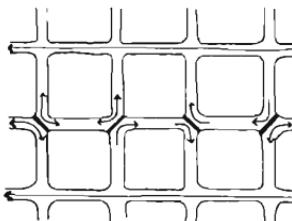
Here is an example of an entire system of looped local roads designed for a community of 1500 houses in Peru.



Looped local roads in Lima.

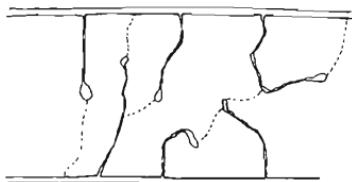
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Even a simple grid can be changed to have looped local roads.



A way of closing streets to form looped local roads.

Dead-end streets are also loops, according to the definition. However, cul-de-sacs are very bad from a social standpoint—they force interaction and they feel claustrophobic, because there is only one entrance. When auto traffic forms a dead end, make sure that the pedestrian path is a through path, leading into the cul-de-sac from one direction, and out of it in another direction.



Pedestrian paths which go beyond a dead end.

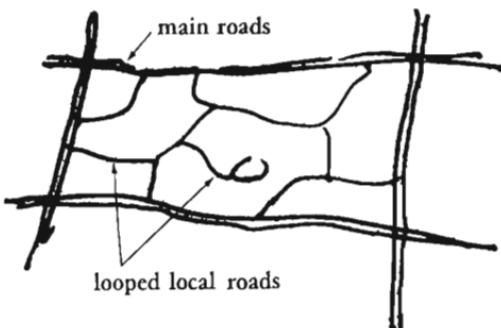
Recognize also that many roads which appear looped are actually not. This map looks as though it has looped roads. Actually, only one or two of these roads are looped in the functional sense defined.



These are not looped local roads.

Therefore:

Lay out local roads so that they form loops. A loop is defined as any stretch of road which makes it impossible for cars that don't have destinations on it to use it as a shortcut. Do not allow any one loop to serve more than 50 cars, and keep the road really narrow—17 to 20 feet is quite enough.



* * *

Make all the junctions between local roads three-way T junctions, never four-way intersections—T JUNCTIONS (50); wherever there is any possibility of life from buildings being oriented toward the road, give the road a very rough surface of grass and gravel, with paving stones for wheels of cars—GREEN STREETS (51); keep parking off the road in driveways—SMALL PARKING LOTS (103) and CAR CONNECTION (113); except where the roads are very quiet, run pedestrian paths at right angles to them, not along them, and make buildings open off these paths, not off the roads—NETWORK OF PATHS AND CARS (52). . . .

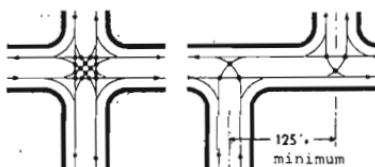
50 T JUNCTIONS*

. . . if major roads are in position—PARALLEL ROADS (23), and you are in the process of defining the local roads, this pattern gives the nature of the intersections. It will also greatly influence the layout of the local roads, and will help to generate their loop-like character—LOOPED LOCAL ROADS (49).



Traffic accidents are far more frequent where two roads cross than at T junctions.

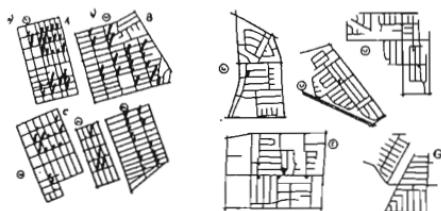
This follows from the geometry. Where two two-way roads cross, there are 16 major collision points, compared with three for a T junction (John Callendar, *Time Saver Standards*, Fourth Edition, New York, 1966, p. 1230).



Sixteen collision points. . . . Three collision points.

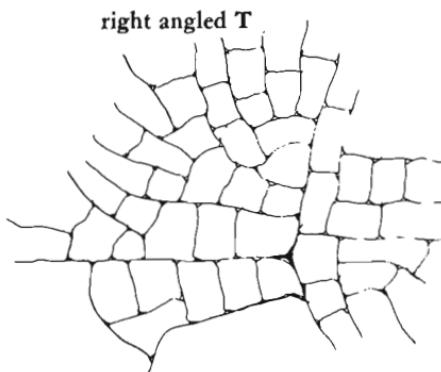
Maps from an empirical study which compares the number of accidents over a period of five years for different street patterns are shown below. They show clearly that T junctions have many fewer accidents than four-way intersections (from *Planning for Man and Motor*, by Paul Ritter, p. 307).

Further evidence shows that the T junction is safest if it is a right-angled junction. When the angle deviates from the right angle, it is hard for drivers to see round the corner, and accidents increase (Swedish National Board of Urban Planning, "Principles for Urban Planning with Respect to Road Safety," *The Scaft Guidelines 1968*, Publication No. 5, Stockholm, Sweden, p. 11).

*Accidents at different intersections.*

Therefore:

Lay out the road system so that any two roads which meet at grade, meet in three-way T junctions as near 90 degrees as possible. Avoid four-way intersections and crossing movements.



At busy junctions, where pedestrian paths converge, make a special raised crossing for pedestrians, something more than the usual crosswalk—ROAD CROSSING (54). . . .

51 GREEN STREETS**



. . . this pattern helps to give the character of local roads. Even though it only defines the surface of the road, and the position of parking, the gradual emergence of this pattern in an area, can be used, piecemeal, to create LOOPEd LOCAL ROADS (49), T JUNCtIONS (50), and COMMON LAND (67). This pattern was inspired by a beautiful road in the north of Denmark, built by Anne-Marie Rubin, and illustrated here.



There is too much hot hard asphalt in the world. A local road, which only gives access to buildings, needs a few stones for the wheels of the cars; nothing more. Most of it can still be green.

In a typical low density American suburb, more than 50 per cent of the land is covered with concrete or asphalt paving. In some areas, like downtown Los Angeles, it is more than 65 per cent.

This concrete and asphalt have a terrible effect on the local environment. They destroy the microclimate; they do nothing useful with the solar energy that falls on them; they are unpleasant to walk on; there is nowhere to sit; nowhere for children to play; the natural drainage of the ground is devastated; animals and plants can hardly survive.

The fact is that asphalt and concrete are only suitable for use on high speed roads. They are unsuitable, and quite unnecessary, on local roads, where a few cars are moving in and out. When local roads are paved, wide and smooth, like major roads, drivers are encouraged to travel past our houses at 35 or 40 miles per hour. What is needed, instead, on local roads is a grassy surface that is adapted to the primary uses of the common land between the buildings, with just enough hard paving to cope with the few cars that do go on it.

The best solution is a field of grass, with paving stones set into it. This arrangement provides for animals and children and makes the street a focal point for the neighborhood. On hot summer

days the air over the grass surface is 10 to 14 degrees cooler than the air over an asphalt road. And the cars are woven into this scheme, but they do not dominate it.



Paving stones.

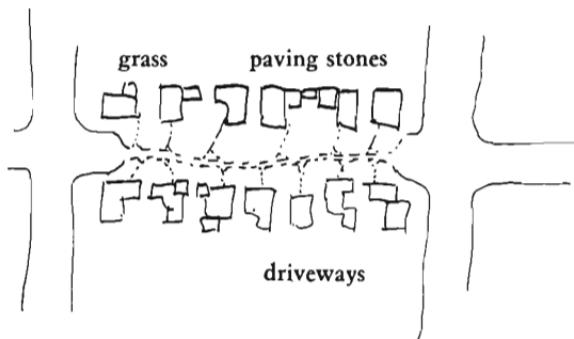
Of course, such a scheme raises immediately the question of parking. How shall it be organized? It is possible to arrange for parking on green streets, so long as it is parking for residents and their guests, only. When overflow parking from shopping streets and work communities sprawls onto streets that were intended to be quiet neighborhoods, the character of the neighborhood is drastically altered. The residents generally resent this situation. Often it means they cannot park in front of their own homes. The neighborhood becomes a parking lot for strangers who care nothing about it, who simply store their cars there.

The green street will only work if it is based on the principle that the street need not, and should not, provide for more parking than its people need. Parking for visitors can be in small parking lots at the ends of the street; parking for people in the individual houses and workshops can either be in the same parking lots or in the driveways of the buildings.

This does not imply that commercial activities, shops, and businesses should be excluded from residential areas. In fact, as we have said in SCATTERED WORK (9), it is extremely important to build such functions into neighborhoods. The point is, however, that businesses cannot assume when they move into a neighborhood that they have the right to a huge amount of free parking. They must pay for their parking; and they must pay for it in a way which is consistent with the environmental needs of the neighborhood.

Therefore:

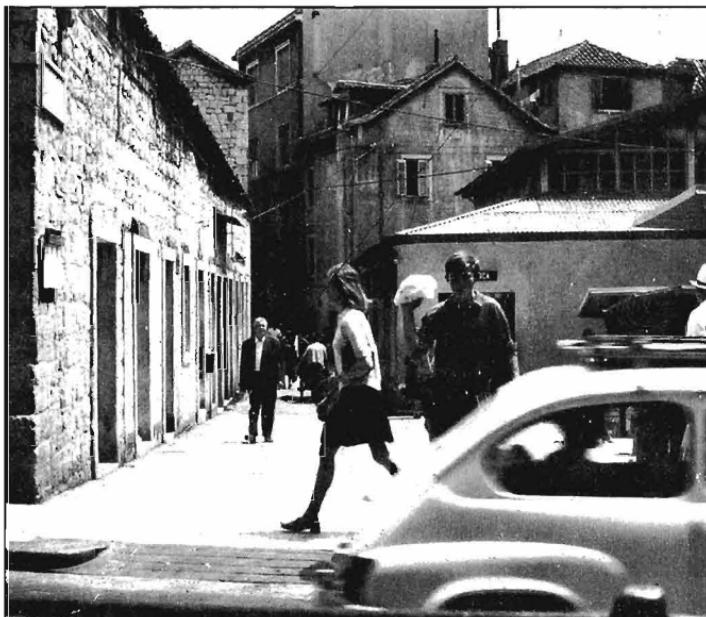
On local roads, closed to through traffic, plant grass all over the road and set occasional paving stones into the grass to form a surface for the wheels of those cars that need access to the street. Make no distinction between street and sidewalk. Where houses open off the street, put in more paving stones or gravel to let cars turn onto their own land.



* * *

When a road is a green street, it is so pleasant that it naturally tends to attract activity to it. In this case, the paths and the green street are one—**COMMON LAND** (67). However, even when the street is green, it may be pleasant to put in occasional very small lanes, a few feet wide, at right angles to the green streets, according to **NETWORK OF PATHS AND CARS** (52). In order to preserve the greenness of the street, it will be essential, too, to keep parked cars in driveways on the individual lots, or in tiny parking lots, at the ends of the street, reserved for the house owners and their visitors—**SMALL PARKING LOTS** (103). Fruit trees and flowers will make the street more beautiful—**FRUIT TREES** (170), **RAISED FLOWERS** (245)—and the paving stones which form the beds for cars to drive on, can themselves be laid with cracks between them and with grass and moss and flowers in the cracks between the stones—**PAVING WITH CRACKS BETWEEN THE STONES** (247). . . .

52 NETWORK OF PATHS AND CARS**



. . . roads may be governed by PARALLEL ROADS (23), LOOPED LOCAL ROADS (49), GREEN STREETS (51); major paths by ACTIVITY NODES (30), PROMENADE (31), and PATHS AND GOALS (120). This pattern governs the interaction between the two.



Cars are dangerous to pedestrians; yet activities occur just where cars and pedestrians meet.

It is common planning practice to separate pedestrians and cars. This makes pedestrian areas more human and safer. However, this practice fails to take account of the fact that cars and pedestrians also need each other: and that, in fact, a great deal of urban life occurs at just the point where these two systems meet. Many of the greatest places in cities, Piccadilly Circus, Times Square, the Champs Elysées, are alive because they are at places where pedestrians and vehicles meet. New towns like Cumbernauld, in Scotland, where there is total separation between the two, seldom have the same sort of liveliness.

The same thing is true at the local residential scale. A great deal of everyday social life occurs where cars and pedestrians meet. In Lima, for example, the car is used as an extension of the house: men, especially, often sit in parked cars, near their houses, drinking beer and talking. And in one way or another, something like this happens everywhere. Conversation and discussion grow naturally around the lots where people wash their cars. Vendors set themselves up where cars and pedestrians meet; they need all the traffic they can get. Children play in parking

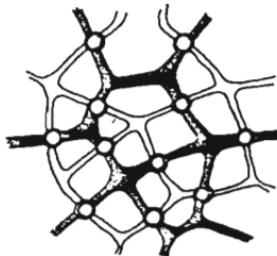


Children like cars.

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lots—perhaps because they sense that this is the main point of arrival and departure; and of course because they like the cars. Yet, at the same time, it is essential to keep pedestrians separate from vehicles: to protect children and old people; to preserve the tranquility of pedestrian life.

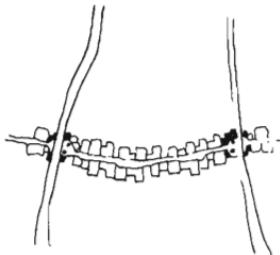
To resolve the conflict, it is necessary to find an arrangement of pedestrian paths and roads, so that the two are separate, but meet frequently, with the points where they meet recognized as focal points. In general, this requires two orthogonal networks, one for roads, one for paths, each connected and continuous, crossing at frequent intervals (our observations suggest that most points on the path network should be within 150 feet of the nearest road), meeting, when they meet, at right angles.



Two orthogonal networks.

In practice, there are several possible ways of forming this relationship between the roads and paths.

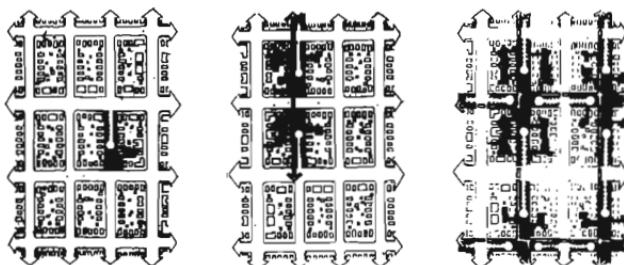
It can be done within the system of fast one-way roads about 300 feet apart described in PARALLEL ROADS (23). Between the roads there are pedestrian paths running at right angles to the roads, with buildings opening off the pedestrian paths. Where the



Path between parallel roads.

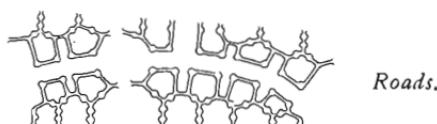
paths intersect the roads there are small parking lots with space for kiosks and shops.

It can be applied to an existing neighborhood—as it is in the following sequence of plans drawn by the People's Architects, Berkeley, California. This shows a beautiful and simple way of creating a path network in an existing grid of streets, by closing off alternate streets, in each direction. As the drawings show, it can be done gradually.



The growth of a path network in a street grid.

Different again, is our project for housing in Lima. Here the two orthogonal systems are laid out as follows:



Roads.



Pedestrian paths.



The two together.

In all these cases, we see a global pattern, in which roads and paths are created more or less at the same time—and therefore brought into the proper relationship. However, it is essential to recognize that in most practical applications of this pattern, it is

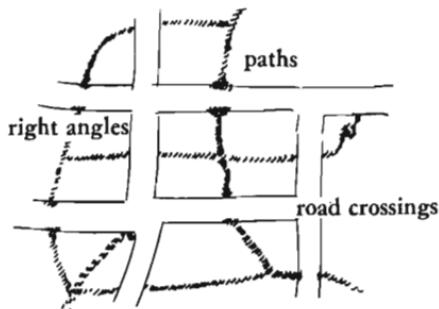
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not necessary to locate the roads and paths together. Most typically of all, there is an existing road system: and the paths can be put in one by one, piecemeal, at right angles to the existing roads. Slowly, very slowly, a coherent path network will be created by the accumulation of these piecemeal acts.

Finally, note that this kind of separation of cars from pedestrians is only appropriate where traffic densities are medium or medium high. At low densities (for instance, a cul-de-sac gravel road serving half-a-dozen houses), the paths and roads can obviously be combined. There is no reason even to have sidewalks—**GREEN STREETS** (51). At very high densities, like the Champs Elysées, or Piccadilly Circus, a great deal of the excitement is actually created by the fact that pedestrian paths are running *along* the roads. In these cases the problem is best solved by extra wide sidewalks—**RAISED WALKS** (55)—which actually contain the resolution of the conflict in their width. The edge away from the road is safe—the edge near the road is the place where the activities happen.

Therefore:

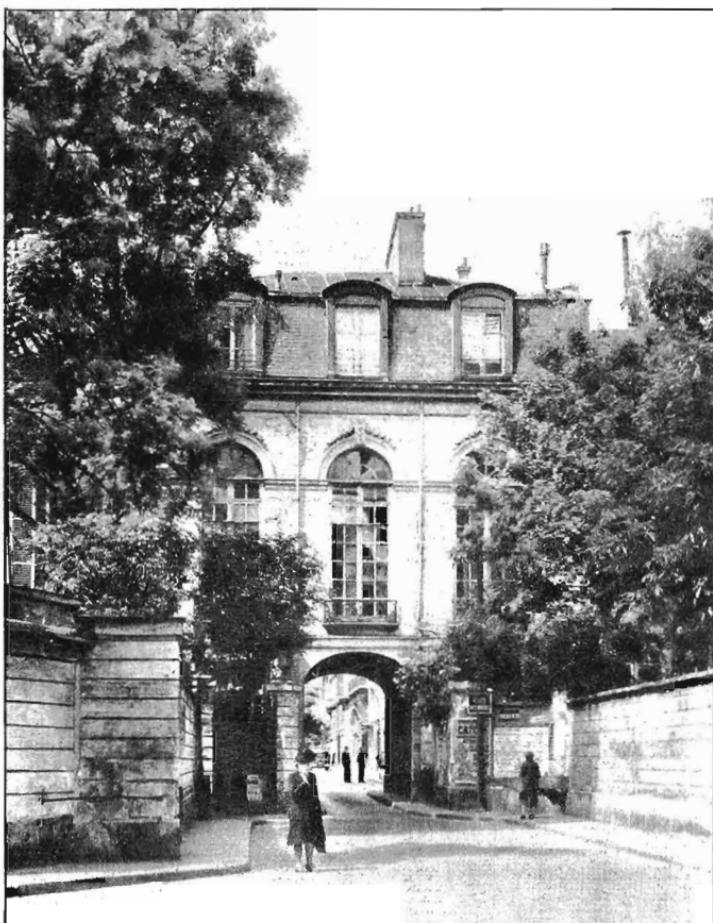
Except where traffic densities are very high or very low, lay out pedestrian paths at right angles to roads, not along them, so that the paths gradually begin to form a second network, distinct from the road system, and orthogonal to it. This can be done quite gradually—even if you put in one path at a time, but always put them in the middle of the “block,” so that they run across the roads.



♦ ♦ ♦

Where paths have to run along major roads—as they do occasionally—build them 18 inches higher than the road, on one side of the road only, and twice the usual width—RAISED WALK (55); on GREEN STREETS (51) the paths can be in the road since there is nothing but grass and paving stones there; but even then, occasional narrow paths at right angles to the green streets are very beautiful. Place the paths in detail according to PATHS AND GOALS (120); shape them according to PATH SHAPE (121). Finally, treat the important street crossings as crosswalks, raised to the level of the pedestrian path—so cars have to slow down as they go over them—ROAD CROSSING (54). . . .

53 MAIN GATEWAYS**



. . . at various levels in the structure of the town, there are identifiable units. There are neighborhoods—**IDENTIFIABLE NEIGHBORHOOD** (14), clusters—**HOUSE CLUSTER** (37), communities of work—**WORK COMMUNITY** (41); and there are many smaller building complexes ringed around some realms of circulation—**BUILDING COMPLEX** (95), **CIRCULATION REALMS** (98). All of them get their identity most clearly from the fact that you pass through a definite gateway to enter them—it is this gateway acting as a threshold which creates the unit.



Any part of a town—large or small—which is to be identified by its inhabitants as a precinct of some kind, will be reinforced, helped in its distinctness, marked, and made more vivid, if the paths which enter it are marked by gateways where they cross the boundary.

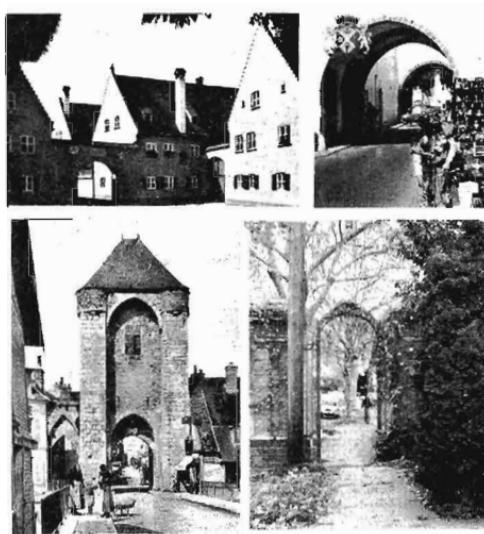
Many parts of a town have boundaries drawn around them. These boundaries are usually in people's minds. They mark the end of one kind of activity, one kind of place, and the beginning of another. In many cases, the activities themselves are made more sharp, more vivid, more alive, if the boundary which exists in people's minds is also present physically in the world.

A boundary around an important precinct, whether a neighborhood, a building complex, or some other area, is most critical at those points where paths cross the boundary. If the point where the path crosses the boundary is invisible, then to all intents and purposes the boundary is not there. It will be there, it will be felt, only if the crossing is marked. And essentially, the crossing of a boundary by a path can only be marked by a gateway. That is why all forms of gateway play such an important role in the environment.

A gateway can have many forms: a literal gate, a bridge, a passage between narrowly separated buildings, an avenue of trees, a gateway through a building. All of these have the same function: they mark the point where a path crosses a boundary and help

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maintain the boundary. All of them are "things"—not merely holes or gaps, but solid entities.

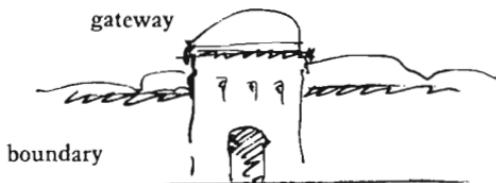


Gateways mark the point of transition.

In every case, the crucial feeling which this solid thing must create is the feeling of transition.

Therefore:

Mark every boundary in the city which has important human meaning—the boundary of a building cluster, a neighborhood, a precinct—by great gateways where the major entering paths cross the boundary.



53 MAIN GATEWAYS



Make the gateways solid elements, visible from every line of approach, enclosing the paths, punching a hole through a building, creating a bridge or a sharp change of level—but above all make them “things,” in just the same way specified for **MAIN ENTRANCE** (110), but make them larger. Whenever possible, emphasize the feeling of transition for the person passing through the gateway, by allowing change of light, or surface, view, crossing water, a change of level—**ENTRANCE TRANSITION** (112). In every case, treat the main gateway as the starting point of the pedestrian circulation inside the precinct—**CIRCULATION REALMS** (98). . . .

54 ROAD CROSSING



. . . under the impetus of PARALLEL ROADS (23) and NETWORK OF PATHS AND CARS (52), paths will gradually grow at right angles to major roads—not along them as they do now. This is an entirely new kind of situation, and requires an entirely new physical treatment to make it work.



Where paths cross roads, the cars have power to frighten and subdue the people walking, even when the people walking have the legal right-of-way.

This will happen whenever the path and the road are at the same level. No amount of painted white lines, crosswalks, traffic lights, button operated signals, ever quite manage to change the fact that a car weighs a ton or more, and will run over any pedestrian, unless the driver brakes. Most often the driver does brake. But everyone knows of enough occasions when brakes have failed, or drivers gone to sleep, to be perpetually wary and afraid.

The people who cross a road will only feel comfortable and safe if the road crossing is a physical obstruction, which physically guarantees that the cars must slow down and give way to pedestrians. In many places it is recognized by law that pedestrians have the right-of-way over automobiles. Yet at the crucial points where paths cross roads, the *physical* arrangement gives priority to *cars*. The road is continuous, smooth, and fast, interrupting the pedestrian walkway at the junctions. This continuous road surface actually implies that the car has the right-of-way.

What should crossings be like to accommodate the needs of the pedestrians?

The fact that pedestrians feel less vulnerable to cars when they are about 18 inches above them, is discussed in the next pattern RAISED WALK (55). The same principle applies, even more powerfully, where pedestrians have to cross a road. The pedestrians who cross must be extremely visible from the road. Cars should also be forced to slow down when they approach the crossing. If the pedestrian way crosses 6 to 12 inches above the road-

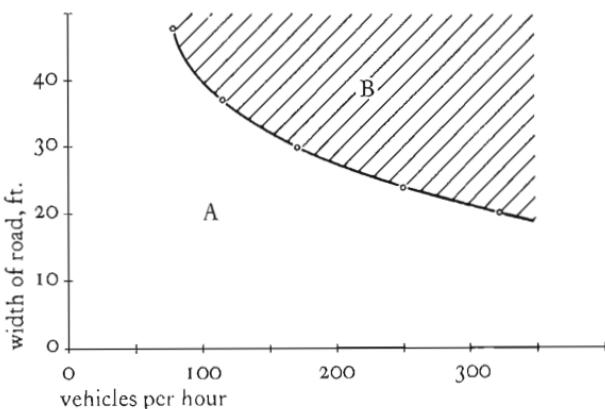
way, and the roadway slopes up to it, this satisfies both requirements. A slope of 1 in 6, or less, is safe for cars and solid enough to slow them down. To make the crossing even easier to see from a distance and to give weight to the pedestrian's right to be there, the pedestrian path could be marked by a canopy at the edge of the road—CANVAS ROOFS (244).



Almost a road crossing . . . but no bump.

We know that this pattern is rather extraordinary. For this reason, we consider it quite essential that readers do not try to use it on every road, for formalistic reasons, but only on those roads where it is badly needed. We therefore complete the problem statement by defining a simple experiment which you can do to decide whether or not a given crossing needs this treatment.

Go to the road in question several times, at different times of day. Each time you go, count the number of seconds you have to wait before you can cross the road. If the average of these waiting times is more than two seconds, then we recommend you use the pattern. (On the basis of Buchanan's statement that roads become threatening to pedestrians when the volume of traffic on them creates an average delay of two seconds or more, for people trying to cross on foot. See the extensive discussion, Colin Buchanan et al., *Traffic in Towns*, HMSO, London, 1963, pp. 203–13.) If you cannot do this experiment, or the road is not yet built, you may be able to guess, by using the chart below. It shows which combinations of volume and width will typically create more than a two-second average delay.



Roads that fall in the shaded region require special crossings.

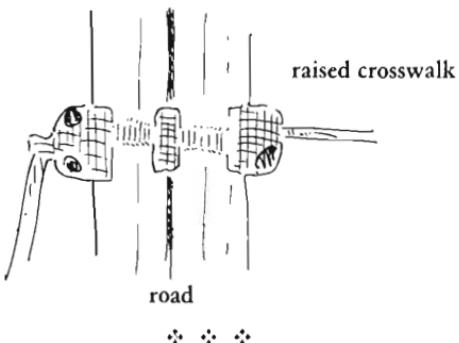
One final note. This pattern may be impossible to implement, in places where traffic engineers are still in control. Nevertheless the functional issue is vital, and must not be ignored. A big wide road, with several lanes of heavy traffic can form an almost impenetrable barrier. In this case, you can solve the problem, at least partially, by creating islands—certainly one in the middle, and perhaps extra islands, between adjacent lanes. This has a huge effect on a person's capacity to cross the road, for a very simple reason. If you are trying to cross a wide road, you have to wait for a gap to occur simultaneously in each of the lanes. It is the waiting for this coincidence of gaps that creates the problem. But if you can hop, from island to island, each time a gap occurs in any one lane, one lane at a time, you can get across in no time at all—because the gaps which occur in individual lanes are many many times more frequent, than the big gaps in all lanes at the same time. So, if you can't raise the crossing, at least use islands, like stepping stones.

Therefore:

At any point where a pedestrian path crosses a road that has enough traffic to create more than a two second delay to people crossing, make a “knuckle” at the crossing:

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narrow the road to the width of the through lanes only; continue the pedestrian path through the crossing about a foot above the roadway; put in islands between lanes; slope the road up toward the crossing (1 in 6 maximum); mark the path with a canopy or shelter to make it visible.



◆ ◆ ◆

On one side or the other of the road make the pedestrian path swell out to form a tiny square, where food stands cluster round a bus stop—SMALL PUBLIC SQUARES (61), BUS STOP (92), FOOD STANDS (93); provide one or two bays for standing space for buses and cars—SMALL PARKING LOTS (103), and when a path must run from the road crossing along the side of the road, keep it to one side only, make it as wide as possible, and raised above the roadway—RAISED WALK (55). Perhaps build the canopy as a trellis or canvas roof—TRELLISED WALK (174), CANVAS ROOFS (244). . . .

55 RAISED WALK*



. . . this pattern helps complete the NETWORK OF PATHS AND CARS (52) and ROAD CROSSINGS (54). It is true that in most cases, pedestrian paths which follow the path network will be running across roads, not next to them. But still, from time to time, especially along major PARALLEL ROADS (23), between one road crossing and the next, there is a need for paths along the road. This pattern gives these special paths their character.



Where fast moving cars and pedestrians meet in cities, the cars overwhelm the pedestrians. The car is king, and people are made to feel small.

This cannot be solved by keeping pedestrians separate from cars; it is in their nature that they have to meet, at least occasionally—NETWORK OF PATHS AND CARS (52). What can be done at those points where cars and pedestrians do meet?

On an ordinary street, cars make pedestrians feel small and vulnerable because the sidewalks are too narrow and too low. When the sidewalk is too narrow, you feel you are going to fall off, or get pushed off—and there is always a chance that you will step off just in front of a passing car. When the sidewalk is too low, you feel that cars can easily mount the sidewalk, if they go out of control, and crush you. It is clear, then, that pedestrians will feel comfortable, powerful, safe, and free in their movements when the walks they walk on are both wide enough to keep the



Traditional raised walk in Pichucalis, Mexico.

55 RAISED WALK

people well away from the cars, and high enough to make it quite impossible for any car to drive up on them by accident.

We first consider the width. What is the appropriate width for a raised walk? The famous example, of course, is the Champs Elysées, where the sidewalk is more than 30 feet wide, and very comfortable. In our own experience, a walk of half this width, along a typical shopping street with traffic, is still comfortable; but 12 feet or less, and a pedestrian begins to feel cramped and threatened by cars. A conventional sidewalk is often no more than 6 feet wide; and people really feel the presence of the cars. How can we afford the extra width which people need in order to be comfortable? One way: instead of putting sidewalks along both sides of a road, we can put a double width raised walk along one side of the road only, with road crossings at intervals of 200 to 300 feet. This means, of course, that there can only be shops along one side of the road.

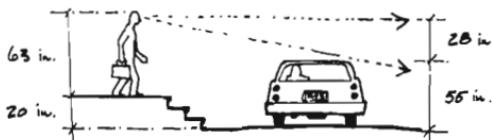
What is the right height for a raised walk? Our experiments suggest that pedestrians begin to feel secure when they are about 18 inches above the cars. There are a number of possible reasons for this finding.

One possible reason. When the car is down low and the pedestrian world physically higher, pedestrians feel, symbolically, that they are more important than the cars and therefore feel secure.

Another possible reason. It may be that the car overwhelms the pedestrian because of a constant, unspoken possibility that a runaway car might at any moment mount the curb and run him down. A car can climb an ordinary six inch curb easily. For the pedestrian to feel certain that a car could not climb the curb, the curb height would have to be greater than the radius of a car tire (10 to 15 inches).

Another possible reason. Most people's eye level is between 51 and 63 inches. A typical car has an overall height of 55 inches. Although tall people can see over cars, even for them, the cars fill the landscape since a standing person's normal line of sight is 10 degrees below the horizontal (Henry Dreyfus, *The Measure of Man*, New York, 1958, sheet F). To put a car 12 feet away completely below a pedestrian's line of sight, it would have to be on a road some 18 to 30 inches below the pedestrian.

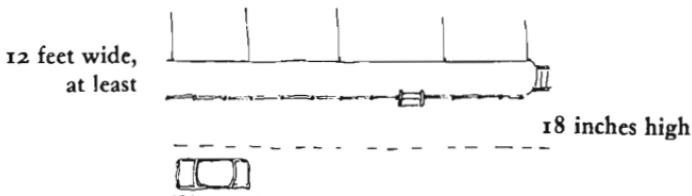
TOWNS



Keep the cars below a person's line of sight.

Therefore:

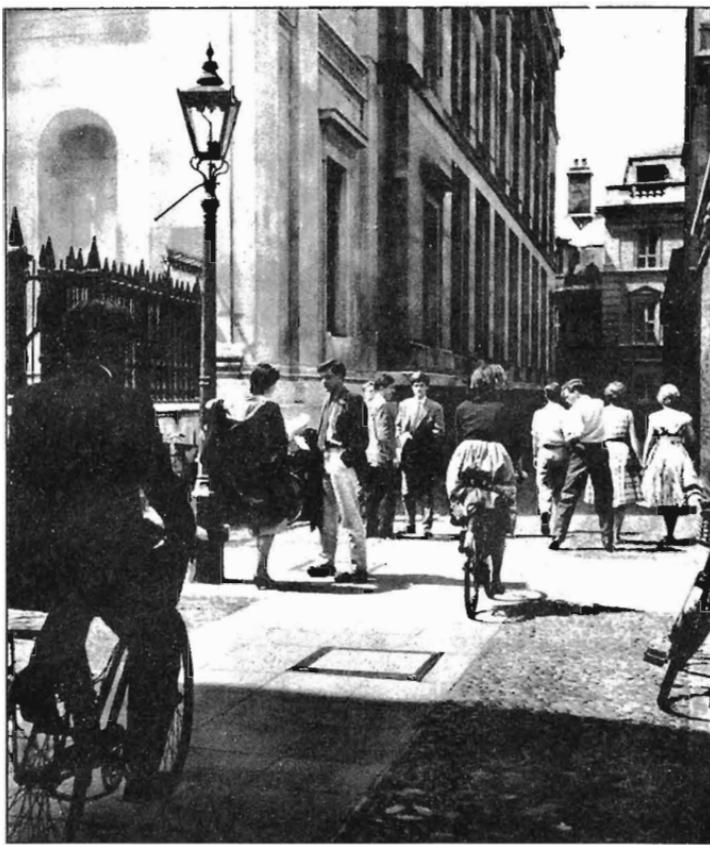
We conclude that any pedestrian path along a road carrying fast-moving cars should be about 18 inches above the road, with a low wall or railing, or balustrade along the edge, to mark the edge. Put the raised walk on only one side of the road—make it as wide as possible.



❖ ❖ ❖

Protect the raised walk from the road, by means of a low wall —SITTING WALL (243). An arcade built over the walk, will, with its columns, give an even greater sense of comfort and protection —ARCADES (119). At the end of blocks and at special points where a car might pull in to pick up or drop passengers, build steps into the raised walk, large enough so people can sit there and wait in comfort—STAIR SEATS (125). . . .

56 BIKE PATHS AND RACKS*



. . . within a LOCAL TRANSPORT AREA (11) there is a heavy concentration of small vehicles like bikes, electric carts, perhaps even horses, which need a system of bike paths. The bike paths will play a very large role in helping to create the local transport areas, and may also help to modify LOOPED LOCAL ROADS (49) and NETWORK OF PATHS AND CARS (52).

* * *

Bikes are cheap, healthy, and good for the environment; but the environment is not designed for them. Bikes on roads are threatened by cars; bikes on paths threaten pedestrians.

In making the environment safe for bikes, the following problems must be solved:

1. Bikes are threatened where they meet or cross heavy automobile traffic.
2. They are also threatened by parked cars. Parked cars make it difficult for the bike rider to see other people, and they make it difficult for other people to see him. In addition, since the bike rider usually has to ride close to parked cars, he is always in danger of someone opening a car door in front of him.
3. Bikes endanger pedestrians along pedestrian paths; yet people often tend to ride bikes along pedestrian paths, not roads, because they are the shortest routes.
4. Where bikes are in heavy use, for instance around schools and universities, they can lay a pedestrian precinct to waste in their own way, just as cars can.

An obvious solution to these problems is to create a completely independent system of bike paths. However, it is doubtful that this is a viable or desirable solution. The study "Students on Wheels" (Jany, Putney, and Ritter; Department of Landscape Architecture, University of Oregon, Eugene, Oregon, 1972) shows that bike riders and nonbike riders want a mixed system, so long as it is reasonably safe.

We also think that it is essential for bike paths to run in streets

and along pedestrian paths: if bikes are forced onto a separate system, it will almost certainly be violated by people taking shortcuts across the other networks. And laws which would keep bikes completely off the road and path systems would be discouraging to the already hassled bike riders. Wherever possible, then, bike paths should coincide with roads and major pedestrian paths.

Where bike paths coincide with major roads, they must be separated from the roadway. It helps put the bike rider in a safer position with respect to the cars if the bike path is raised a few inches from the road; or separated by a row of trees.

Where bike paths run alongside local roads, parking should be removed from that side of the road; the bike surface may simply be part of the road and level with it. An article by Bascome in the *Oregon Daily Emerald* (October 1971) suggested that bike lanes along streets should always be on the sunny side of the street.

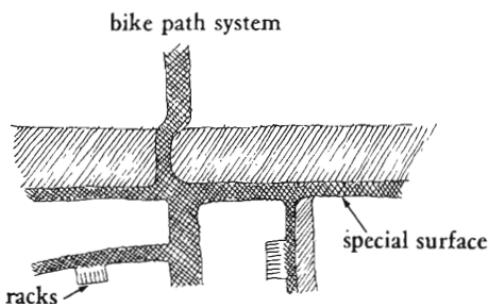
Where bike paths coincide with major pedestrian paths, they should be separate from the paths, perhaps a few inches below them. Here, the change in level gives the pedestrian a sense of safety from the bikes.

Quiet paths and certain pedestrian precincts should be completely protected from bikes for the same reasons that they need to be protected from cars. This can be handled by making the bike path system bypass these places, or by enclosing these places with steps or low walls which force bike riders to dismount and walk their bikes.

Therefore:

Build a system of paths designated as bike paths, with the following properties: the bike paths are marked clearly with a special, easily recognizable surface (for example, a red asphalt surface). As far as possible they run along local roads, or major pedestrian paths. Where a bike path runs along a local road, its surface may be level with the road—if possible, on the sunny side; where a bike path runs along a pedestrian path, keep it separate from that path and a few inches below it. Bring the system of bike paths to

within 100 feet of every building, and give every building a bike rack near its main entrance.



Build the racks for bikes to one side of the main entrance, so that the bikes don't interfere with people's natural movement in and out—**MAIN ENTRANCE** (110), and give it some shelter, with the path from the racks to the entrance also under shelter—**ARCADES** (119); keep the bikes out of quiet walks and quiet gardens—**QUIET BACKS** (59), **GARDEN WALL** (173). . . .

57 CHILDREN IN
THE CITY



. . . roads, bike paths, and main pedestrian paths are given their position by PARALLEL ROADS (23), PROMENADE (31), LOOPED LOCAL ROADS (49), GREEN STREETS (51), NETWORK OF PATHS AND CARS (52), BIKE PATHS AND RACKS (56). Some of them are safe for children, others are less safe. Now, finally, to complete the paths and roads, it is essential to define at least one place, right in the very heart of cities, where children can be completely free and safe. If handled properly, this pattern can play a great role in helping to create the NETWORK OF LEARNING (18).

* * *

If children are not able to explore the whole of the adult world round about them, they cannot become adults. But modern cities are so dangerous that children cannot be allowed to explore them freely.

The need for children to have access to the world of adults is so obvious that it goes without saying. The adults transmit their ethos and their way of life to children through their actions, not through statements. Children learn by doing and by copying. If the child's education is limited to school and home, and all the vast undertakings of a modern city are mysterious and inaccessible, it is impossible for the child to find out what it really means to be an adult and impossible, certainly, for him to copy it by doing.

This separation between the child's world and the adult world is unknown among animals and unknown in traditional societies. In simple villages, children spend their days side by side with farmers in the fields, side by side with people who are building houses, side by side, in fact, with all the daily actions of the men and women round about them: making pottery, counting money, curing the sick, praying to God, grinding corn, arguing about the future of the village.

But in the city, life is so enormous and so dangerous, that children can't be left alone to roam around. There is constant danger from fast-moving cars and trucks, and dangerous machinery. There is a small but ominous danger of kidnap, or rape,

57 CHILDREN IN THE CITY

or assault. And, for the smallest children, there is the simple danger of getting lost. A small child just doesn't know enough to find his way around a city.

The problem seems nearly insoluble. But we believe it can be at least partly solved by enlarging those parts of cities where small children can be left to roam, alone, and by trying to make sure that these protected children's belts are so widespread and so far-reaching that they touch the full variety of adult activities and ways of life.

We imagine a carefully developed childrens' bicycle path, within the larger network of bike paths. The path goes past and through interesting parts of the city; and it is relatively safe. It is part of the overall system and therefore used by everyone. It is not a special children's "ride"—which would immediately be shunned by the adventurous young—but it does have a special name, and perhaps it is specially colored.



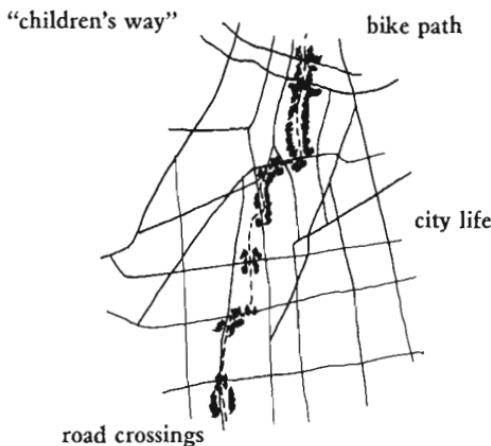
The path is always a bike path; it never runs beside cars. Where it crosses traffic there are lights or bridges. There are many homes and shops along the path—adults are nearby, especially the old enjoy spending an hour a day sitting along this path, themselves riding along the loop, watching the kids out of the corner of one eye.

And most important, the great beauty of this path is that it passes along and even through those functions and parts of a town which are normally out of reach: the place where newspapers are printed, the place where milk arrives from the countryside and is bottled, the pier, the garage where people make doors and windows, the alley behind restaurant row, the cemetery.

Therefore:

As part of the network of bike paths, develop one system of paths that is extra safe—entirely separate from automo-

biles, with lights and bridges at the crossings, with homes and shops along it, so that there are always many eyes on the path. Let this path go through every neighborhood, so that children can get onto it without crossing a main road. And run the path all through the city, down pedestrian streets, through workshops, assembly plants, warehouses, interchanges, print houses, bakeries, all the interesting "invisible" life of a town—so that the children can roam freely on their bikes and trikes.



Line the children's path with windows, especially from rooms that are in frequent use, so that the eyes upon the street make it safe for the children—STREET WINDOWS (164); make it touch the children's places all along the path—CONNECTED PLAY (68), ADVENTURE PLAYGROUND (73), SHOPFRONT SCHOOLS (85), CHILDREN'S HOME (86), but also make it touch other phases of the life cycle—OLD PEOPLE EVERYWHERE (40), WORK COMMUNITY (41), UNIVERSITY AS A MARKETPLACE (43), GRAVE SITES (70), LOCAL SPORTS (72), ANIMALS (74), TEENAGE SOCIETY (84). . . .

in the communities and neighborhoods provide public open land where people can relax, rub shoulders and renew themselves;

58. CARNIVAL
59. QUIET BACKS
60. ACCESSIBLE GREEN
61. SMALL PUBLIC SQUARES
62. HIGH PLACES
63. DANCING IN THE STREET
64. POOLS AND STREAMS
65. BIRTH PLACES
66. HOLY GROUND

58 CARNIVAL



. . . once in a while, in a subculture which is particularly open to it, a promenade may break into a wilder rhythm—PROMENADE (31), NIGHT LIFE (33)—and perhaps every promenade may have a touch of this.



Just as an individual person dreams fantastic happenings to release the inner forces which cannot be encompassed by ordinary events, so too a city needs its dreams.

Under normal circumstances, in today's world the entertainments which are available are either healthy and harmless—going to the movies, watching TV, cycling, playing tennis, taking helicopter rides, going for walks, watching football—or downright sick and socially destructive—shooting heroin, driving recklessly, group violence.

But man has a great need for mad, subconscious processes to come into play, without unleashing them to such an extent that they become socially destructive. There is, in short, a need for socially sanctioned activities which are the social, outward equivalents of dreaming.

In primitive societies this kind of process was provided by the rites, witch doctors, shamans. In Western civilization during the last three or four hundred years, the closest available source of this outward acknowledgment of underground life has been the circus, fairs, and carnivals. In the middle ages, the market place itself had a good deal of this kind of atmosphere.

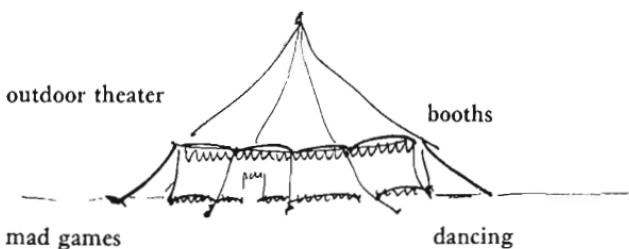
Today, on the whole, this kind of experience is gone. The circuses and the carnivals are drying up. But the need persists. In the Bay Area, the annual Renaissance Fair goes a little way to meet the need—but it is much too bland. We imagine something more along the following lines: street theater, clowns, mad games in the streets and squares and houses; during certain weeks, people may live in the carnival; simple food and shelter are free; day and night people mixing; actors who mingle with the crowd and involve you, willy nilly, in processes whose end cannot be

foreseen; fighting—two men with bags on a slippery log, in front of hundreds; Fellini—clowns, death, crazy people, brought into mesh.

Remember the hunchbacked dwarf in *Ship of Fools*, the only reasonable person on the ship, who says “Everyone has a problem; but I have the good fortune to wear mine on my back, where everyone can see it.”

Therefore:

Set aside some part of the town as a carnival—mad side-shows, tournaments, acts, displays, competitions, dancing, music, street theater, clowns, transvestites, freak events, which allow people to reveal their madness; weave a wide pedestrian street through this area; run booths along the street, narrow alleys; at one end an outdoor theater; perhaps connect the theater stage directly to the carnival street, so the two spill into and feed one another.



Dancing in the street, food stands, an outdoor room or two, a square where the theater is, and tents and canvas will all help to make it even livelier—**SMALL PUBLIC SQUARES (61), DANCING IN THE STREET (63), PUBLIC OUTDOOR ROOM (69), FOOD STANDS (93), PEDESTRIAN STREET (100), CANVAS ROOFS (244).** . . .

59 QUIET BACKS*



. . . the work places are given their general position by SCATTERED WORK (9) and their detailed organization and distribution by WORK COMMUNITIES (41). It is essential though, that they be supported by some kind of quiet, which is complementary to the work. This pattern, and the next few patterns, gives the structure of that quiet.

* * *

Any one who has to work in noise, in offices with people all around, needs to be able to pause and refresh himself with quiet in a more natural situation.

The walk along the Seine, through the middle of Paris, is a classic "quiet back" in the middle of a fast city. People drop down from the streets and the traffic and the commerce to stroll along the river, where the mood is slow and reflective.

The need for such places has often been recognized in universities, where there are quiet walks where people go to think, or pause, or have a private talk. A beautiful case is the University of Cambridge: each college has its "backs"—quiet courts stretching down to the River Cam. But the need for quiet backs goes far beyond the university. It exists everywhere where people work in densely populated, noisy areas.

To meet this need, we may conceive all buildings as having a front and a back. If the front is given over to the street life—cars, shopping paths, delivery—then the back can be reserved for quiet.

If the back is to be quiet, a place where you can hear only natural sounds—winds, birds, water—it is critical that it be protected. At the same time, it must be some way from the buildings which it serves. This suggests a walk, some distance behind the buildings, perhaps separated from them by their private small gardens, completely protected by substantial walls and dense planting along its length.

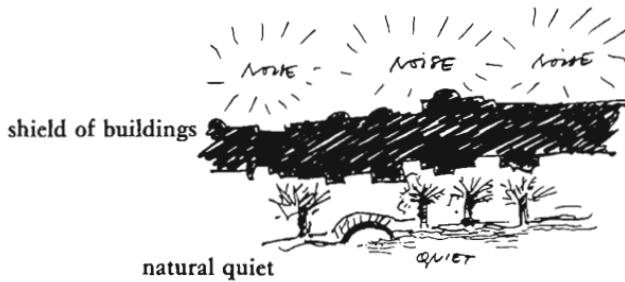
An example we know is the walk through the cathedral close in Chichester. There is a high brick wall on each side of this walk and flowers planted all along it. It leads away from the cathedral,

parallel but set back from the town's major road. On this path, less than a block from the major crossroads of the town, you can hear the bees buzzing.

If a number of these walks are connected, one to another, then slowly, there emerges a ribbon-like system of tiny backs, pleasant alleyways behind the commotion of the street. Since the sound of water plays such a powerful role in establishing the kind of quiet that is required, these paths should always connect up with the local POOLS AND STREAMS (64). And the longer it can be, the better.

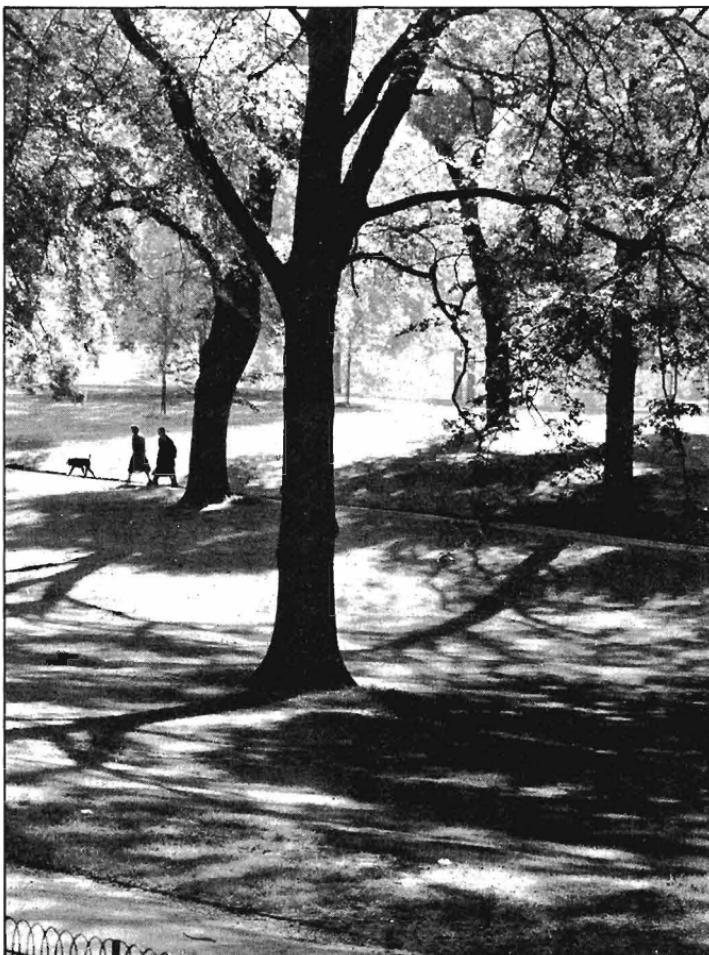
Therefore:

Give the buildings in the busy parts of town a quiet "back" behind them and away from the noise. Build a walk along this quiet back, far enough from the building so that it gets full sunlight, but protected from noise by walls and distance and buildings. Make certain that the path is not a natural shortcut for busy foot traffic, and connect it up with other walks, to form a long ribbon of quiet alleyways which converge on the local pools and streams and the local greens.



If possible, place the backs where there is water—POOLS AND STREAMS (64), STILL WATER (71), and where there are still great trees unharmed by traffic—TREE PLACES (171); connect them to ACCESSIBLE GREENS (60); and protect them from noise with walls or buildings—GARDEN WALL (173). . . .

60 ACCESSIBLE GREEN**



. . . at the heart of neighborhoods, and near all work communities, there need to be small greens—IDENTIFIABLE NEIGHBORHOOD (14), WORK COMMUNITY (41). Of course it makes the most sense to locate these greens in such a way that they help form the boundaries and neighborhoods and backs—SUBCULTURE BOUNDARY (13), NEIGHBORHOOD BOUNDARY (15), QUIET BACKS (59).

* * *

People need green open places to go to; when they are close they use them. But if the greens are more than three minutes away, the distance overwhelms the need.

Parks are meant to satisfy this need. But parks, as they are usually understood, are rather large and widely spread through the city. Very few people live within three minutes of a park.

Our research suggests that even though the need for parks is very important, and even though it is vital for people to be able to nourish themselves by going to walk, and run, and play on open greens, this need is very delicate. The only people who make full, daily use of parks are those who live less than three minutes from them. The other people in a city who live more than 3 minutes away, don't need parks any less; but distance discourages use and so they are unable to nourish themselves, as they need to do.

This problem can only be solved if hundreds of small parks—or greens—are scattered so widely, and so profusely, that every house and every workplace in the city is within three minutes walk of the nearest one.

In more detail: The need for parks within a city is well recognized. A typical example of this awareness is given by the results of a 1971 citizen survey on open space conducted by the Berkeley City Planning Department. The survey showed that the great majority of people living in apartments want two kinds of outdoor spaces above all others: (a) a pleasant, usable private balcony and (b) a quiet public park within walking distance.

But the critical effect of distance on the usefulness of such

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parks is less well known and understood. In order to study this problem, we visited a small park in Berkeley, and asked 22 people who were in the park how often they came there, and how far they had walked to the park. Specifically, we asked each person three questions:

- Did you walk or drive?
- How many blocks have you come?
- How many days ago did you last visit the park?

On the basis of the first question we rejected five subjects who had come by car or bike. The third question gave for each person a measure of the number of times per week that person comes to the park. For example, if he last came three days ago, we may estimate that he typically comes once per week. This is more reliable than asking the frequency directly, since it relies on a fact which the person is sure of, not on his judgment of a rather intangible frequency.

We now construct a table showing the results. In the first column, we write the number of blocks people walked to get to the park. In the second column we write a measure of the area of the ring-shaped zone which lies at that distance. The area of this ring-shaped zone is proportional to the difference of two squares. For example, the measure of area of the ring at three blocks, is $3^2 - 2^2 = 5$.

Radius R Blocks	Measure of area of the ring at Radius R	Trips/ week	P. (Relative probability of trips, for any one person)	Log P.
1	1	19.5	19.5	1.29
2	3	2.6	8.7	.94
3	5	1.1	2.2	.34
4	7	6	0.9	T.95
5	9	0	—	—
6	11	0	—	—
7	13	0	—	—
8	15	6	0.4	T.60
9	17	0	—	—
10	19	3	0.2	T.30
11	21	0	—	—
12	23	2.5	0.1	T.0

Analysis of visiting pattern to a local green

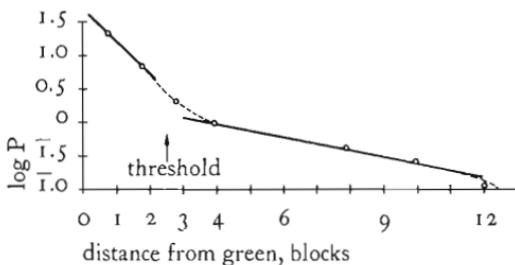
In the third column, we write the number of people who have come from that distance, each person multiplied by the number of trips per week he makes to the park. This gives us a measure of the total number of trips per week, which originate in that ring.

In the fourth column we write the number of trips per week divided by the area of the ring. If we assume that people are distributed throughout the entire area at approximately even density, this gives us a measure of the probability that any one person, in a given ring, will make a trip to the park in a given week.

In the fifth column we write the logarithm (base 10) of this probability measure P .

Simple inspection of these data shows that while the probability measure, P , drops in half between one and two blocks, it drops by a factor of four between two and three blocks. Its rate of decrease diminishes from then on. This indicates that an individual's use of a park changes character radically if he lives more than three blocks away.

For more precision let us examine the relationship between distance and the logarithm of P . Under normal circumstances, the frequency of access to a given center will vary according to some distance decay function, such as $P = Ae^{-Br}$, where A and B are constants, and r is the radius. This means that if behavior and motivation are constant with respect to distance, and we plot the log of P against the radius, we should get a straight line. Any aberration from the straight line will show us the threshold where one kind of behavior and motivation changes to another. This plot is shown below:



Beyond two or three blocks use of the green drops off drastically.

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We see that the resulting curve is S-shaped. It starts going down at a certain angle, then gets much steeper, and then flattens out again. Apparently there is a threshold somewhere between 2 and 3 blocks, where people's behavior and motivation change drastically.

Those people who live in close proximity to a green follow a high intensity use function—it has a steep gradient and it is very sensitive to increasing distance. But those people who live far from a green appear to adopt a low intensity use function (indicated by a shallower gradient), and their behavior is not as sensitive to distance. It is as if those people with ready access to a green display a full, free responsiveness to it; while people far away have lost their awareness of it and have suffered a reduced sensitivity to the pleasures of the green—for these people, the green has ceased to be a vital element in their neighborhood life.

Apparently, within a two to three block radius (a three-minute walking distance) people are able to satisfy their need for access to a green, but a greater distance seriously interferes with their ability to meet this need.

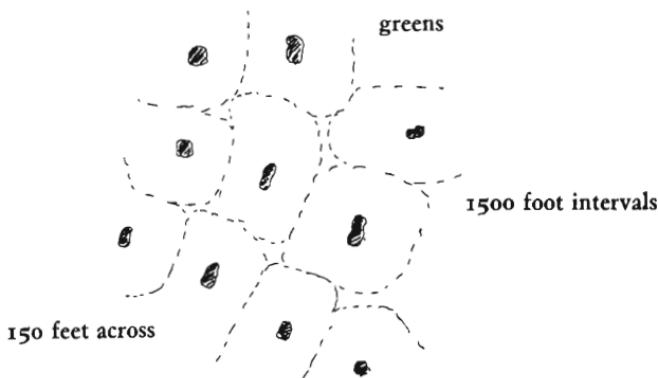
This inference is rather unexpected. We know that people who are close to a green go to it fairly often, presumably because they need the relaxation. The people who live more than three minutes walk from the green also need the relaxation, presumably. But in their case the distance prevents them from meeting their need. It seems then, that to meet this need, everyone—and that means every house and every workplace—must be within three minutes of such a park.

One question remains. How large must a green be in order to satisfy this need? In functional terms this is easy to answer. It must be large enough so that, at least in the middle of it, you feel that you are in touch with nature, and away from the hustle and bustle. Our current estimates suggest that a green should be as much as 60,000 square feet in area, and at least 150 feet wide in the narrowest direction in order to meet this requirement.

Therefore:

Build one open public green within three minutes' walk—about 750 feet—of every house and workplace. This

means that the greens need to be uniformly scattered at 1500-foot intervals, throughout the city. Make the greens at least 150 feet across, and at least 60,000 square feet in area.



Pay special attention to old trees, look after them—TREE PLACES (171); shape the green so that it forms one or more positive room-like spaces and surround it with trees, or walls, or buildings, but not roads or cars—POSITIVE OUTDOOR SPACE (106), GARDEN WALL (173); and perhaps set aside some part of the green for special community functions—HOLY GROUND (66), GRAVE SITES (70), LOCAL SPORTS (72), ANIMALS (74), SLEEPING IN PUBLIC (94). . . .

61 SMALL PUBLIC SQUARES**



. . . this pattern forms the core which makes an ACTIVITY NODE (30): it can also help to generate a node, by its mere existence, provided that it is correctly placed along the intersection of the paths which people use most often. And it can also help to generate a PROMENADE (31), a WORK COMMUNITY (41), an IDENTIFIABLE NEIGHBORHOOD (14), through the action of the people who gather there. But it is essential, in every case, that it is not too large.

* * *

A town needs public squares; they are the largest, most public rooms, that the town has. But when they are too large, they look and feel deserted.

It is natural that every public street will swell out at those important nodes where there is the most activity. And it is only these widened, swollen, public squares which can accommodate the public gatherings, small crowds, festivities, bonfires, carnivals, speeches, dancing, shouting, mourning, which must have their place in the life of the town.

But for some reason there is a temptation to make these public squares too large. Time and again in modern cities, architects and planners build plazas that are too large. They look good on drawings; but in real life they end up desolate and dead.

Our observations suggest strongly that open places intended as public squares should be very small. As a general rule, we have found that they work best when they have a diameter of about 60 feet—at this diameter people often go to them, they become favorite places, and people feel comfortable there. When the diameter gets above 70 feet, the squares begin to seem deserted and unpleasant. The only exceptions we know are places like the Piazza San Marco and Trafalgar Square, which are great town centers, teeming with people.

What possible functional basis is there for these observations? First, we know from the pattern, PEDESTRIAN DENSITY (123),

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*The squares in Lima: one small and alive,
the other huge and deserted.*

that a place begins to seem deserted when it has more than about 300 square feet per person.

On this basis a square with a diameter of 100 feet will begin to seem deserted if there are less than 33 people in it. There are few places in a city where you can be sure there will always be 33 people. On the other hand, it only takes 4 people to give life to a square with a diameter of 35 feet, and only 12 to give life to a square with a diameter of 60 feet. Since there are far far better chances of 4 or 12 people being in a certain place than 33, the smaller squares will feel comfortable for a far greater percentage of the time.

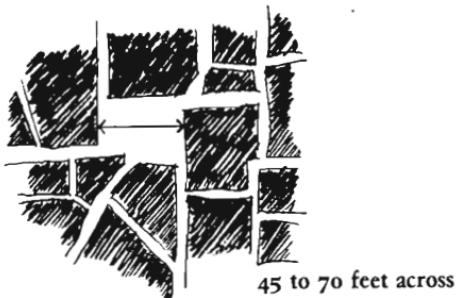
The second possible basis for our observations depends on the diameter. A person's face is just recognizable at about 70 feet; and under typical urban noise conditions, a loud voice can just barely be heard across 70 feet. This may mean that people feel half-consciously tied together in plazas that have diameters of

70 feet or less—where they can make out the faces and half-hear the talk of the people around them; and this feeling of being at one with a loosely knit square is lost in the larger spaces. Roughly similar things have been said by Philip Thiel ("An Architectural and Urban Space Sequence Notation," unpublished ms., University of California, Department of Architecture, August 1960, p. 5) and by Hans Blumenfeld ("Scale in Civic Design," *Town Planning Review*, April 1953, pp. 35-46). For example, Blumenfeld gives the following figures: a person's face can be recognized at up to 70 or 80 feet; a person's face can be recognized as "a portrait," in rich detail, at up to about 48 feet.

Our own informal experiments show the following results. Two people with normal vision can communicate comfortably up to 75 feet. They can talk with raised voice, and they can see the general outlines of the expression on one another's faces. This 75 foot maximum is extremely reliable. Repeated experiments gave the same distance again and again, ± 10 per cent. At 100 feet it is uncomfortable to talk, and facial expression is no longer clear. Anything above 100 feet is hopeless.

Therefore:

Make a public square much smaller than you would at first imagine; usually no more than 45 to 60 feet across, never more than 70 feet across. This applies only to its width in the short direction. In the long direction it can certainly be longer.



◆ ◆ ◆

An even better estimate for the size of the square: make a guess about the number of people who will typically be there (say, P), and make the area of the square no greater than 150 to 300 P square feet—PEDESTRIAN DENSITY (123); ring the square around with pockets of activity where people congregate—ACTIVITY POCKETS (124); build buildings round the square in such a way that they give it a definite shape, with views out into other larger places—POSITIVE OUTDOOR SPACE (106), HIERARCHY OF OPEN SPACE (114), BUILDING FRONTS (122), STAIR SEATS (125); and to make the center of the square as useful as the edges, build SOMETHING ROUGHLY IN THE MIDDLE (126). . . .

62 HIGH PLACES*



. . . according to FOUR-STORY LIMIT (21), most roofs in the community are no higher than four stories, about 40 or 50 feet. However, it is very important that this height limit be punctuated, just occasionally, by higher buildings which have special functions. They can help the character of the SMALL PUBLIC SQUARES (61) and HOLY GROUND (66); they can give particular identity to their communities, provided that they do not occur more frequently than one in each COMMUNITY OF 7000 (12).



The instinct to climb up to some high place, from which you can look down and survey your world, seems to be a fundamental human instinct.

The tiniest hamlets have a dominating landmark—usually the church tower. Great cities have hundreds of them. The instinct to build these towers is certainly not merely Christian; the same thing happens in different cultures and religions, all over the world. Persian villages have pigeon towers; Turkey, its minarets; San Gimignano, its houses in the form of towers; castles, their lookout; Athens, its Acropolis; Rio, its rock.

These high places have two separate and complementary functions. They give people a place to climb up to, from which they can look down upon their world. And they give people a place which they can see from far away and orient themselves toward, when they are on the ground.

Listen to Proust:

Combray at a distance, from a twenty-mile radius, as we used to see it from the railway when we arrived there every year in Holy Week, was no more than a church epitomising the town, representing it, speaking of it and for it to the horizon, and as one drew near, gathering close about its long, dark cloak, sheltering from the wind, on the open plain, as a shepherd gathers his sheep, the woolly grey backs of its blocking houses. . . .

From a long way off one could distinguish and identify the steeple of Sainte-Hilaire inscribing its unforgettable form upon a horizon beneath which Combray had not yet appeared; when from the train

which brought us down from Paris at Eastertime my father caught sight of it, as it slipped into every fold of the sky in turn, its little iron cock veering continually in all directions, he could say: "Come, get your wraps together, we are there." (Marcel Proust, *Swann's Way*.)



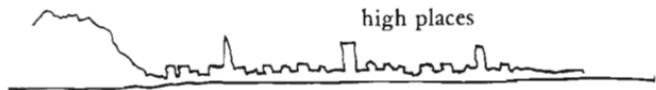
Oxford: the city of dreaming spires.

High places are equally important, too, as places from which to look down: places that give a spectacular, comprehensive view of the town. Visitors can go to them to get a sense of the entire area they have come to; and the people who live there can do so too—to reassess the shape and scope of their surroundings. But these visits to the high places will have no freshness or exhilaration if there is a ride to the top in a car or elevator. To get a full sense of the magnificence of the view, it seems necessary to work for it, to leave the car or elevator, and to climb. The act of climbing, even if only for a few steps, clears the mind and prepares the body.

As for distribution, we suggest about one of these high places for each community of 7000, high enough to be seen throughout the community. If high places are less frequent, they tend to be too special, and they have less power as landmarks.

Therefore:

Build occasional high places as landmarks throughout the city. They can be a natural part of the topography, or towers, or part of the roofs of the highest local building—but, in any case, they should include a physical climb.



* * *

Elaborate the area around the base of the high place—it is a natural position for a **SMALL PUBLIC SQUARE** (61); give the stair which leads up to the top, openings with views out, so that people can stop on the stair, sit down, look out, and be seen while they are climbing—**STAIR SEATS** (125), **ZEN VIEW** (134), **OPEN STAIRS** (158). . . .

63 DANCING IN THE STREET*



. . . several patterns have laid the groundwork for evening activity in public—MAGIC OF THE CITY (10), PROMENADE (31), NIGHT LIFE (33), CARNIVAL (58), SMALL PUBLIC SQUARES (61). To make these places alive at night, there is nothing like music and dancing; this pattern simply states the physical conditions which will encourage dancing and music to fill the streets.



Why is it that people don't dance in the streets today?

All over the earth, people once danced in the streets; in theater, song, and natural speech, “dancing in the street” is an image of supreme joy. Many cultures still have some version of this activity. There are the Balinese dancers who fall into a trance whirling around in the street; the mariachi bands in Mexico—every town has several squares where the bands play and the neighborhood comes out to dance; there is the European and American tradition of bandstands and jubilees in the park; there is the *bon odori* festival in Japan, when everybody claps and dances in the streets.

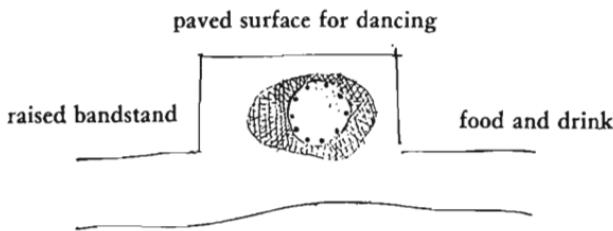
But in those parts of the world that have become “modern” and technically sophisticated, this experience has died. Communities are fragmented; people are uncomfortable in the streets, afraid with one another; not many people play the right kind of music; people are embarrassed.

Certainly there is no way in which a change in the environment, as simple as the one which we propose, can remedy these circumstances. But we detect a change in mood. The embarrassment and the alienation are recent developments, blocking a more basic need. And as we get in touch with these needs, things start to happen. People remember how to dance; everyone takes up an instrument; many hundreds form little bands. At this writing, in San Francisco, Berkeley, and Oakland there is a controversy over “street musicians”—bands that have spontaneously begun playing in streets and plazas whenever the weather is good—where should they be allowed to play, do they obstruct traffic, shall people dance?

It is in this atmosphere that we propose the pattern. Where there is feeling for the importance of the activity re-emerging, then the right setting can actualize it and give it roots. The essentials are straightforward: a platform for the musicians, perhaps with a cover; hard surface for dancing, all around the bandstand; places to sit and lean for people who want to watch and rest; provision for some drink and refreshment (some Mexican bandstands have a beautiful way of building tiny stalls into the base of the bandstand, so that people are drawn though the dancers and up to the music, for a fruit drink or a beer); the whole thing set somewhere where people congregate.

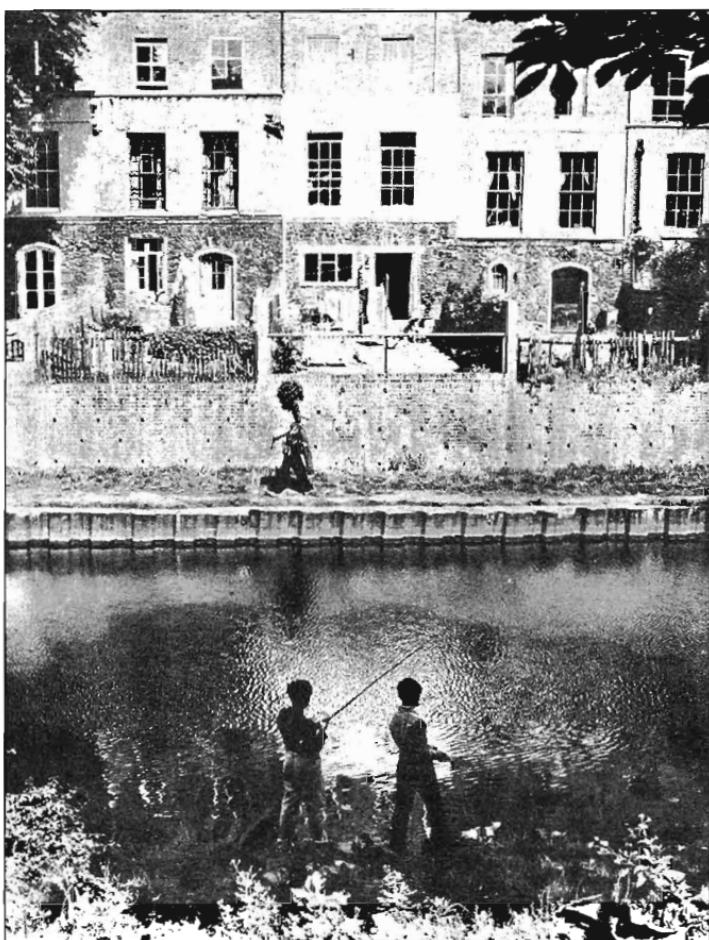
Therefore:

Along promenades, in squares and evening centers, make a slightly raised platform to form a bandstand, where street musicians and local bands can play. Cover it, and perhaps build in at ground level tiny stalls for refreshment. Surround the bandstand with paved surface for dancing—no admission charge.



Place the bandstand in a pocket of activity, toward the edge of a square or a promenade—ACTIVITY POCKETS (124); make it a room, defined by trellises and columns—PUBLIC OUTDOOR ROOM (69); build FOOD STANDS (93) around the bandstand; and for dancing, maybe colored canvas canopies, which reach out over portions of the street, and make the street, or parts of it, into a great, half-open tent—CANVAS ROOFS (244). . . .

64 POOLS AND STREAMS*



. . . the land, in its natural state, is hardly ever flat, and was, in its most primitive condition, overrun with rills and streams which carried off the rainwater. There is no reason to destroy this natural feature of the land in a town—**SACRED SITES** (24), **ACCESS TO WATER** (25)—in fact, it is essential that it be preserved, or recreated. And in doing so it will be possible to deepen several larger patterns—boundaries between neighborhoods can easily be formed by streams—**NEIGHBORHOOD BOUNDARY** (15), quiet backs can be made more tranquil—**QUIET BACKS** (59), pedestrian streets can be made more human and more natural—**PEDESTRIAN STREET** (100).

♦ ♦ ♦

We came from the water; our bodies are largely water; and water plays a fundamental role in our psychology. We need constant access to water, all around us; and we cannot have it without reverence for water in all its forms. But everywhere in cities water is out of reach.

Even in the temperate climates that are water rich, the natural sources of water are dried up, hidden, covered, lost. Rainwater runs underground in sewers; water reservoirs are covered and fenced off; swimming pools are saturated with chlorine and fenced off; ponds are so polluted that no one wants to go near them any more.

And especially in heavily populated areas water is scarce. We cannot possibly have the daily access to it which we and our children need, unless all water, in all its forms, is exposed, preserved, and nourished in an endless local texture of small pools, ponds, reservoirs, and streams in every neighborhood.

There are various ways of expressing the connection between people and water. The biologist, L. J. Henderson, observed that the saline content of human blood is essentially the same as that of the sea, because we came from the sea. Elaine Morgan, an anthropologist, speculates that during the drought of the Pliocene era, we went back to the sea and lived 10 million years as sea mammals.

mals in the shallow waters along the edge of the ocean. Apparently, this hypothesis explains a great deal about the human body, the way in which it is adapted to water, which is otherwise obscure (*The Descent of Woman*, New York: Bantam Books, 1973).

Furthermore, among psychoanalysts it is common to consider the bodies of water that appear in people's dreams as loaded with meaning. Jung and the Jungian analysts take great bodies of water as representing the dreamer's unconscious. We even speculate, in light of the psychoanalytic evidence, that going into the water may bring a person closer to the unconscious processes in his life. We guess that people who swim and dive often, in lakes and pools and in the ocean, may be closer to their dreams, more in contact with their unconscious, than people who swim rarely. Several studies have in fact demonstrated that water has a positive therapeutic effect; that it sets up growth experience. (For references, see Ruth Hartley et al., *Understanding Children's Play*, Columbia University Press, New York: 1964, Chapter V).

All of this suggests that our lives are diminished if we cannot establish rich and abiding contact with water. But of course, in most cities we cannot. Swimming pools, lakes, and beaches are few in number and far away. And consider also the water supply. Our only contact with this water is to turn on the tap. We take the water for granted. But as marvelous as the high technology of water treatment and distribution has become, it does not satisfy the emotional need to make contact with the local reservoirs, and to understand the cycle of water: its limits and its mystery.

But it is possible to imagine a town where there are many hundreds of places near every home and workplace where there is water. Water to swim in, water to sit beside, water where you can dangle your feet. Consider, for example, the running water: the brooks and streams. Today they are paved over and forced underground. Instead of building with them, and alongside them, planners simply get them out of the way, as if to say: "the vagaries of nature have no place in a rational street grid." But we can build in ways which maintain contact with water, in ponds and pools, in reservoirs, and in brooks and streams. We can

even build details that connect people with the collection and run-off of rain water.

Think of the shallow ponds and pools that children need. It is possible for these pools and ponds to be available throughout the city, close enough for children to walk to. Some can be part of the larger pools. Others can be bulges of streams that run through the city, where a balanced ecology is allowed to develop along their edges—ponds with ducks and carp, with edges safe enough for children to come close.

And consider the system of local and distribution reservoirs. We can locate local reservoirs and distribution reservoirs so that people can get at them; we might build them as kinds of shrines, where people can come to get in touch with the source of their water supply; the place immediately around the water an atmosphere inviting contemplation. These shrines could be set into the public space: perhaps as one end of a promenade, or as a boundary of common land between two communities.



Indian stepped well.

And think of running water, in all its possible forms. People who have been deprived of it in their daily surroundings go to great lengths to get out of their towns into the countryside, where they can watch a river flow, or sit by a stream and gaze at the water. Children are fascinated by running water. They use it endlessly, to play in, to throw sticks and see them disappear, to run little paper boats along, to stir up mud and watch it clear gradually.

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Natural streams in their original streambeds, together with their surrounding vegetation, can be preserved and maintained. Rainwater can be allowed to assemble from rooftops into small pools and to run through channels along garden paths and public pedestrian paths, where it can be seen and enjoyed. Fountains can be built in public places. And in those cities where streams have been buried, it may even be possible to unravel them again.



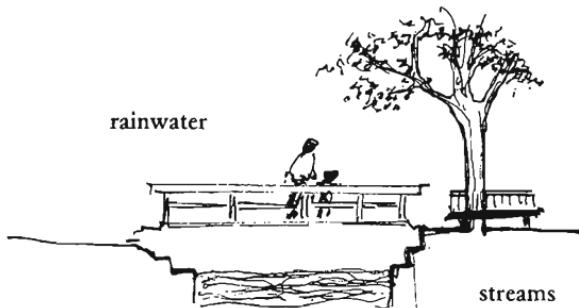
The buried streams.

In summary, we propose that every building project, at every scale, take stock of the distribution of water and the access to water in its neighborhood. Where there is a gap, where nourishing contact with water is missing, then each project should make some attempt, on its own and in combination with other projects, to bring some water into the environment. There is no other way to build up an adequate texture of water in cities: we need pools for swimming, ornamental and natural pools, streams of rain water, fountains, falls, natural brooks and streams running through towns, tiny garden pools, and reservoirs we can get to and appreciate.

Therefore:

Preserve natural pools and streams and allow them to run through the city; make paths for people to walk along them and footbridges to cross them. Let the streams form natural barriers in the city, with traffic crossing them only infrequently on bridges.

Whenever possible, collect rainwater in open gutters and allow it to flow above ground, along pedestrian paths and in front of houses. In places without natural running water, create fountains in the streets.



If at all possible, make all the pools and swimming holes part of the running water—not separate—since this is the only way that pools are able to keep alive and clean without the paraphernalia of pumps and chlorine—**STILL WATER** (71). Sometimes, here and there, give the place immediately around the water the atmosphere of contemplation; perhaps with arcades, perhaps some special common land, perhaps one end of a promenade—**PROMENADE** (31), **HOLY GROUND** (66), **ARCADES** (119). . . .

65 BIRTH PLACES

. . . both birth and death need recognition throughout society, where people are, as part of local communities and neighborhoods—COMMUNITY OF 7000 (12), IDENTIFIABLE NEIGHBORHOOD (14), LIFE CYCLE (26). As far as birth is concerned, each group of neighborhoods must be able to take care of the birth process, in local, human terms. (Note: The development of this pattern is due largely to the work of Judith Shaw, at this writing a graduate student in architecture at the University of California, Berkeley, and a mother of three children.)

* * *

It seems unlikely that any process which treats child-birth as a sickness could possibly be a healthy part of a healthy society.

“Pregnancy is no state of emergency from which the mother may hopefully be returned to ‘normality’ after the birth of the child. . . . It is a highly active, potent, developmental process of the family going forward to its natural culmination in delivery.” (I. H. Pearse and L. H. Crocker, *The Peckham Experiment*, New Haven: Yale University Press, 1946, p. 153.)

The existing obstetrics service in most hospitals follows a well outlined procedure. Having a baby is thought of as an illness and the stay in the hospital as recuperation. Women who are about to deliver are treated as “patients” about to undergo surgery. They are sterilized. Their genitals are scrubbed and shaved. They are gowned in white, and put on a table to be moved back and forth between the various parts of the hospital. Women in labor are put in cubicles to pass the time with virtually no social contact. This time can last for many hours. It is a time when father and children could be present to provide encouragement. But this is not permitted. Delivery usually takes place in a “delivery room” which has the proper “table” for childbirth.

Except for the particular workings of the delivery table the room has the same properties as an operating theater. The birth becomes a time for separation rather than togetherness. It may be as long as 12 hours before the mother is even allowed to touch her baby, and if she was sedated for the delivery, even longer before she may see her husband.

For about fifteen years there has been a subtle movement to try and recapture the essence of childbirth as a natural phenomenon. There has been no loud protest against obstetricians and hospital rules, but a rather quiet one: several good books, word of mouth, concerned professionals and nonprofessionals, the La Leche League, a few groups around the country whose prime concern is with birth, and the re-emergence of the nurse-midwife. The original effort of these people was aimed at "natural" childbirth, the name being applied in an attempt to bring the concept of childbirth back to a normal physiological occurrence. Lately the focus of the effort has been expanded to include an altered environment for childbirth and to include the family in a positive way. (For an architectural slant, see Lewis Mumford, *The Urban Prospect*, New York: Harcourt Brace and World, 1968, p. 25.)

We quote now from Judith Shaw's description of a good birth place. She is describing a place comparable to a small nursing home, perhaps associated with a local health center, and with emergency connections to the local hospital:

A small basket for the baby would be provided. . . . The nurse-midwife would be there always to provide post-partum care. . . . The nurse-midwife, who lives in, would have a small suite containing a bedroom, sitting room-kitchen and bath. . . .

The eating place would be communal. Each baby would have a place too (his movable basket) so that the mother can bring her child with her to feed or to watch. . . . The pattern FARMHOUSE KITCHEN (139) could play an important role in this building. . . . families can come not only to have babies but have their prenatal care, learn methods of natural childbirth, possibly child care, maybe just to talk and in general to become familiar with the place they will come to for the delivery.

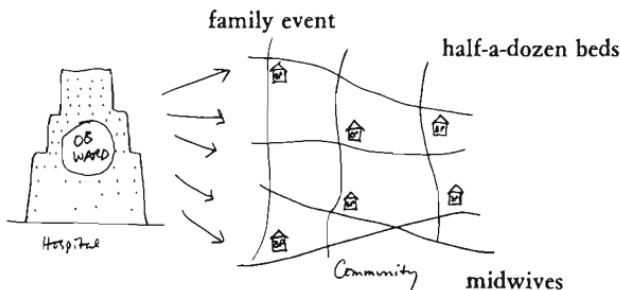
The birthing place should have accommodations for the entire family. They can occupy a suite in which they live and in which the mother gives birth to the baby. . . . Since the delivery would take place in the family suite, the baby, mother, and the family can be

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together immediately. Each suite would have to be equipped with running water and a simple table on which to lay the baby, wash it and give it its initial examination.

Therefore:

Build local birth places where women go to have their children: places that are specially tailored to childbirth as a natural, eventful moment—where the entire family comes for prenatal care and education; where fathers and midwives help during the hours of labor and birth.



Include rooms where after the birth the mother and her baby can stay together with the other members of the family—sleep together, eat together, cook together—COMMON AREAS AT THE HEART (129), COUPLE'S REALM (136), FARMHOUSE KITCHEN (139); provide a partly private garden to walk in—HALF-HIDDEN GARDEN (111), GARDEN WALL (173); for the shape of the building, gardens, parking, and surroundings, begin with BUILDING COMPLEX (95). . . .

66 HOLY GROUND*



. . . we have defined the need for a full life cycle, with rites of passage between stages of the cycle—LIFE CYCLE (26); and we have recommended that certain pieces of land be set aside because of their importance and meaning—SACRED SITES (24). This pattern gives the detailed organization of the space around these places. The organization is so powerful, that to some extent it can itself create the sacredness of sites, perhaps even encourage the slow emergence of coherent rites of passage.



What is a church or temple? It is a place of worship, spirit, contemplation, of course. But above all, from a human point of view, it is a gateway. A person comes into the world through the church. He leaves it through the church. And, at each of the important thresholds of his life, he once again steps through the church.

The rites that accompany birth, puberty, marriage, and death are fundamental to human growth. Unless these rites are given the emotional weight they need, it is impossible for a man or woman to pass thoroughly from one stage of life to another.

In all traditional societies, where these rites are treated with enormous power and respect, the rites, in one form or another, are supported by parts of the physical environment which have the character of gates. Of course, a gate, or gateway, by itself cannot create a rite. But it is also true that the rites cannot evolve in an environment which specifically ignores them or makes them trivial. A hospital is no place for a baptism; a funeral home makes it impossible to feel the meaning of a funeral.

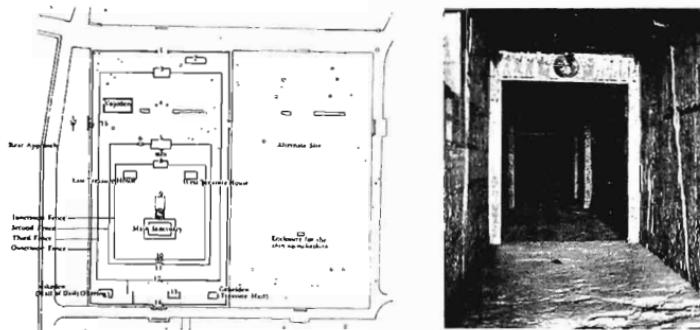
In functional terms, it is essential that each person have the opportunity to enter into some kind of social communion with his fellows at the times when he himself or his friends pass through these critical points in their lives. And this social communion at this moment needs to be rooted in some place which is recognized as a kind of spiritual gateway for these events.

What physical shape or organization must this “gateway” have

in order to support the rites of passage, and in order to create the sanctity and holiness and feeling of connection to the earth which makes the rites significant.

Of course, it will vary in detail, from culture to culture. Whatever it is exactly that is held to be sacred—whether it is nature, god, a special place, a spirit, holy relics, the earth itself, or an idea—it takes different forms, in different cultures, and requires different physical environments to support it.

However, we do believe that one fundamental characteristic is invariant from culture to culture. In all cultures it seems that whatever it is that is holy will only be felt as holy, if it is hard to reach, if it requires layers of access, waiting, levels of approach, a gradual unpeeling, gradual revelation, passage through a series of gates. There are many examples: the Inner City of Peking; the fact that anyone who has audience with the Pope must wait in each of seven waiting rooms; the Aztec sacrifices took place on stepped pyramids, each step closer to the sacrifice; the Ise shrine, the most famous shrine in Japan, is a nest of precincts, each one inside the other.



Layers of access.

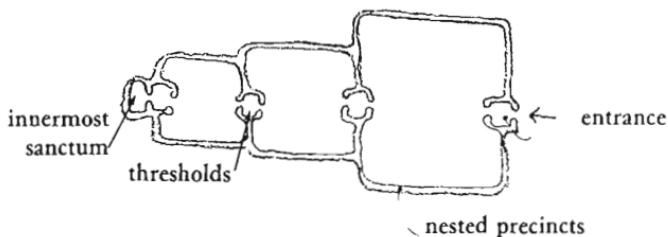
Even in an ordinary Christian church, you pass first through the churchyard, then through the nave; then, on special occasions, beyond the altar rail into the chancel and only the priest himself is able to go into the tabernacle. The holy bread is sheltered by five layers of ever more difficult approach.

This layering, or nesting of precincts, seems to correspond to

a fundamental aspect of human psychology. We believe that every community, regardless of its particular faith, regardless of whether it even has a faith in any organized sense, needs some place where this feeling of slow, progressive access through gates to a holy center may be experienced. When such a place exists in a community, even if it is not associated with any particular religion, we believe that the feeling of holiness, in some form or other, will gradually come to life there among the people who share in the experience.

Therefore:

In each community and neighborhood, identify some sacred site as consecrated ground, and form a series of nested precincts, each marked by a gateway, each one progressively more private, and more sacred than the last, the innermost a final sanctum that can only be reached by passing through all of the outer ones.



* * *

At each threshold between precincts build a gate—MAIN GATEWAYS (53); at each gate, a place to pause with a new view toward the next most inner place—ZEN VIEW (134); and at the innermost sanctum, something very quiet and able to inspire—perhaps a view, or no more than a simple tree, or pool—POOLS AND STREAMS (64), TREE PLACES (171). . . .

in each house cluster and work community, provide the smaller bits of common land, to provide for local versions of the same needs:

67. COMMON LAND
68. CONNECTED PLAY
69. PUBLIC OUTDOOR ROOM
70. GRAVE SITES
71. STILL WATER
72. LOCAL SPORTS
73. ADVENTURE PLAYGROUND
74. ANIMALS

67 COMMON LAND**



. . . just as there is a need for public land at the neighborhood level—**ACCESSIBLE GREEN** (60), so also, within the clusters and work communities from which the neighborhoods are made, there is a need for smaller and more private kinds of common land shared by a few work groups or a few families. This common land, in fact, forms the very heart and soul of any cluster. Once it is defined, the individual buildings of the cluster form around it—**HOUSE CLUSTER** (37), **ROW HOUSES** (38), **HOUSING HILL** (39), **WORK COMMUNITY** (41).



Without common land no social system can survive.

In pre-industrial societies, common land between houses and between workshops existed automatically—so it was never necessary to make a point of it. The paths and streets which gave access to buildings were safe, social spaces, and therefore functioned automatically as common land.

But in a society with cars and trucks, the common land which can play an effective social role in knitting people together no longer happens automatically. Those streets which carry cars and trucks at more than crawling speeds, definitely do not function as common land; and many buildings find themselves entirely isolated from the social fabric because they are not joined to one another by land they hold in common. In such a situation common land must be provided, separately, and with deliberation, as a social necessity, as vital as the streets.

The common land has two specific social functions. First, the land makes it possible for people to feel comfortable outside their buildings and their private territory, and therefore allows them to feel connected to the larger social system—though not necessarily to any specific neighbor. And second, common land acts as a meeting place for people.

The first function is subtle. Certainly one's immediate neighbors are less important in modern society than in traditional

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society. This is because people meet friends at work, at school, at meetings of interest groups and therefore no longer rely exclusively on neighbors for friendship. (See for instance, Melvin Webber, "Order in Diversity: Community Without Propinquity," *Cities and Space*, ed. Lowdon Wingo, Baltimore: Resources for the Future, 1963; and Webber, "The Urban Place and the Nonplace Urban Realm," in Webber et al., *Explorations into Urban Structure*, Philadelphia, 1964, pp. 79-153.)

To the extent that this is true, the common land between houses might be less important than it used to be as a meeting ground for friendship. But the common land between buildings may have a deeper psychological function, which remains important, even when people have no relation to their neighbors. In order to portray this function, imagine that your house is separated from the city by a gaping chasm, and that you have to pass across this chasm every time you leave your house, or enter it. The house would be disturbingly isolated; and you, in the house, would be isolated from society, merely by this physical fact. In psychological terms, we believe that a building without common land in front of it is as isolated from society as if it had just such a chasm there.

There is a new emotional disorder—a type of agoraphobia—making its appearance in today's cities. Victims of this disorder are afraid to go out of their houses for any reason—even to mail a letter or to go to the corner grocery store—literally, they are afraid of the marketplace—the agora. We speculate—entirely without evidence—that this disorder may be reinforced by the absence of common land, by an environment in which people feel they have no "right" to be outside their own front doors. If this is so, agoraphobia would be the most concrete manifestation of the breakdown of common land.

The second social function of common land is straightforward. Common land provides a *meeting ground* for the fluid, common activities that a house cluster shares. The larger pieces of public land which serve neighborhoods—the parks, the community facilities—do not fill the bill. They are fine for the neighborhood as a whole. But they do not provide a base for the functions that are common to a cluster of households.

Lewis Mumford:

Even in housing estates that are laid out at twelve families to the acre—perhaps one should say especially there—there is often a lack of common meeting places for the mothers, where, on a good day, they might come together under a big tree, or a pergola, to sew or gossip, while their infants slept in a pram or their runabout children grubbed around in a play pit. Perhaps the best part of Sir Charles Reilly's plans for village greens was that they provided for such common activities: as the planners of Sunnyside, Long Island, Messrs. Stein and Wright, had done as early as 1924. (*The Urban Prospect*, New York: Harcourt, Brace and World, 1968, p. 26.)

How much common land must there be? There must be enough to be useful, to contain children's games and small gatherings. And enough land must be common so that private land doesn't dominate it psychologically. We guess that the amount of common land needed in a neighborhood is on the order of 25 per cent of the land held privately. This is the figure that the greenbelt planners typically devoted to their commons and greens. (See Clarence Stein, *Toward New Towns in America*, Cambridge: M.I.T. Press, 1966.)

With cooperation among the people, it is possible to build this pattern piecemeal, into our existing neighborhoods by closing streets.



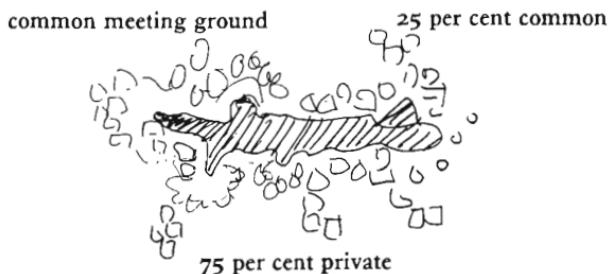
Berkeley street transformed to neighborhood commons.

Therefore:

Give over 25 per cent of the land in house clusters to common land which touches, or is very very near, the

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homes which share it. Basic: be wary of the automobile; on no account let it dominate this land.



* * *

Shape the common land so it has some enclosure and good sunlight—SOUTH FACING OUTDOORS (105), POSITIVE OUTDOOR SPACE (106); and so that smaller and more private pieces of land and pockets always open onto it—HIERARCHY OF OPEN SPACE (114); provide communal functions within the land—PUBLIC OUTDOOR ROOM (69), LOCAL SPORTS (72), VEGETABLE GARDEN (177); and connect the different and adjacent pieces of common land to one another to form swaths of connected play space—CONNECTED PLAY (68). Roads can be part of common land if they are treated as GREEN STREETS (51). . . .

68 CONNECTED PLAY*

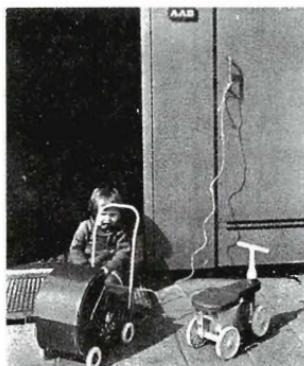


. . . suppose the common land that connects clusters to one another is being provided—COMMON LAND (67). Within this common land, it is necessary to identify play space for children and, above all, to make sure that the relationship between adjacent pieces of common land allows this play space to form.



If children don't play enough with other children during the first five years of life, there is a great chance that they will have some kind of mental illness later in their lives.

Children need other children. Some findings suggest that they need other children even more than they need their own mothers. And empirical evidence shows that if they are forced to spend their early years with too little contact with other children, they will be likely to suffer from psychosis and neurosis in their later years.



Alone . . .

Since the layout of the land between the houses in a neighborhood virtually controls the formation of play groups, it therefore has a critical effect on people's mental health. A typical suburban subdivision with private lots opening off streets almost confines

children to their houses. Parents, afraid of traffic or of their neighbors, keep their small children indoors or in their own gardens: so the children never have enough chance meetings with other children of their own age to form the groups which are essential to a healthy emotional development.

We shall show that children will only be able to have the access to other children which they need, if each household opens onto some kind of safe, connected common land, which touches at least 64 other households.

First, let us review the evidence for the problem. The most dramatic evidence comes from the Harlows' work on monkeys. The Harlows have shown that monkeys isolated from other infant monkeys during the first six months of life are incapable of normal social, sexual, or play relations with other monkeys in their later lives:

They exhibit abnormalities of behavior rarely seen in animals born in the wild. They sit in their cages and stare fixedly into space, circle their cages in a repetitively stereotyped manner, and clasp their heads in their hands or arms and rock for long periods of time . . . the animal may chew and tear at its body until it bleeds . . . similar symptoms of emotional pathology are observed in deprived children in orphanages and in withdrawn adolescents and adults in mental hospitals. (Henry F. Harlow and Margaret K. Harlow, "The Effect of Rearing Conditions on Behavior," *Bull. Menniger Clinic*, 26, 1962, pp. 213-14.)

It is well known that infant monkeys—like infant human beings—have these defects if brought up without a mother or a mother surrogate. It is not well known that the effects of separation from other infant monkeys are even stronger than the effects of maternal deprivation. Indeed, the Harlows showed that although monkeys can be raised successfully without a mother, provided that they have other infant monkeys to play with, they cannot be raised successfully by a mother alone, without other infant monkeys, even if the mother is entirely normal. They conclude: "It seems possible that the infant-mother affectional system is dispensable, whereas the infant-infant system is a sine-qua-non for later adjustment in all spheres of monkey life." (Harry F. Harlow and Margaret K. Harlow, "Social Deprivation in Monkeys," *Scientific American*, 207, No. 5, 1962, pp. 136-46.)

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The first six months of a rhesus monkey's life correspond to the first three years of a child's life. Although there is no formal evidence to show that lack of contact during these first three years damages human children—and as far as we know, it has never been studied—there is very strong evidence for the effect of isolation between the ages of four to ten.

Herman Lantz questioned a random sample of 1,000 men in the United States Army, who had been referred to a mental hygiene clinic because of emotional difficulties. (Herman K. Lantz, "Number of Childhood Friends as Reported in the Life Histories of a Psychiatrically Diagnosed Group of 1,000," *Marriage and Family Life*, May 1956, pp. 107-108.) Army psychiatrists classified each of the men as normal, suffering from mild psychoneurosis, severe psychoneurosis, or psychosis. Lantz then put each man into one of three categories: those who reported having five friends or more at any typical moment when they were between four and ten years old, those who reported an average of about two friends, and those who reported having no friends at that time. The following table shows the relative percentages in each of the three friendship categories separately. The results are astounding:

	5 or More Friends	About 2 Friends	No Friends
Normal	39.5	7.2	0.0
Mild psychoneurosis	22.0	16.4	5.0
Severe psychoneurosis	27.0	54.6	47.5
Psychosis	0.8	3.1	37.5
Other	<u>10.7</u>	<u>18.7</u>	<u>10.0</u>
	100.0	100.0	100.0

Among people who have five friends or more as children, 61.5 per cent have mild cases, while 27.8 per cent have severe cases. Among people who had no friends, only 5 per cent have mild cases, and 85 per cent have severe cases.

On the positive side, an informal account by Anna Freud shows how powerful the effect of contact among tiny children can be on the emotional development of the children. She describes five young German children who lost their parents during infancy

in a concentration camp, and then looked after one another inside the camp until the war ended, at which point they were brought to England. (Anna Freud and Sophie Dann, "An Experiment in Group Upbringing," *Reading in Child Behavior and Development*, ed. Celia Stendler, New York, 1964, pp. 122-40.) She describes the beautiful social and emotional maturity of these tiny children. Reading the account, one feels that these children, at the age of three, were more aware of each other and more sensitive to each other's needs than many people ever are.

It is almost certain, then, that contact is essential, and that lack of contact, when it is extreme, has extreme effects. A considerable body of literature beyond that which we have quoted, is given in Christopher Alexander, "The City as a Mechanism for Sustaining Human Contact," *Environment for Man*, ed. W. R. Ewald, Indiana University Press, Bloomington, 1967, pp. 60-109.

If we assume that informal, neighborhood contact between children is a vital experience, we may then ask what kinds of neighborhoods support the formation of spontaneous play groups. The answer, we believe, is some form of safe common land, connected to a child's home, and from which he can make contact with several other children. The critical question is: How many households need to share this connected play space?

The exact number of households that are required depends on the child population within the households. Let us assume that children represent about one-fourth of a given population (slightly less than the modal figure for suburban households), and that these children are evenly distributed in age from 0 to 18. Roughly speaking, a given pre-school child who is x years old will play with children who are $x - 1$ or x or $x + 1$ years old. In order to have a reasonable amount of contact, and in order for playgroups to form, each child must be able to reach at least five children in his age range. Statistical analysis shows that for each child to have a 95 per cent chance of reaching five such potential playmates, each child must be in reach of 64 households.

The problem may be stated as follows: In an infinite population of children, one-sixth are the right age and five-sixths are the wrong age for any given child. A group of r children is

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chosen at random. The probability that this group of r children contains 5 or more right-age children in it is $1 - \sum_{k=0}^4 P_{r,k}$, where $P_{r,k}$ is the hypergeometric distribution. If we now ask what is the least r which makes $1 - \sum_{k=0}^4 P_{r,k} > 0.95$, r turns out to be 54.

If we need 54 children, we need a total population of $4(54) = 216$, which at 3.4 persons per household, needs 64 households.

Sixty-four is a rather large number of households to share connected common land. In fact, in the face of this requirement, there is a strong temptation to try to solve the problem by grouping 10 or 12 homes in a cluster. But this will not work: while it is a useful configuration for other reasons—HOUSE CLUSTER (37) and COMMON LAND (67)—by itself it will not solve the problem of connected play space for children. There must also be safe paths to connect the bits of common land.

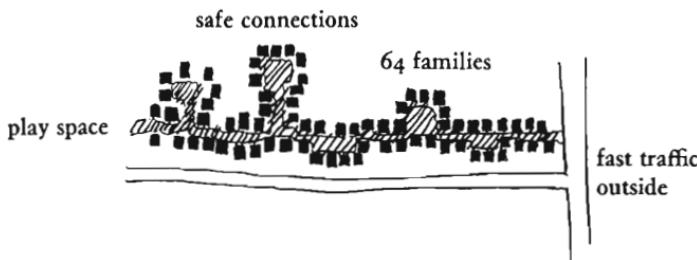


Connecting paths.

Therefore:

Lay out common land, paths, gardens, and bridges so that groups of at least 64 households are connected by a

swath of land that does not cross traffic. Establish this land as the connected play space for the children in these households.



* * *

Do this by connecting several **HOUSE CLUSTERS** (37) with **GREEN STREETS** (51) and safe paths. Place the local **CHILDREN'S HOME** (86) in this play space. Within the play space, make sure the children have access to mud, and plants, and animals, and water—**STILL WATER** (71), **ANIMALS** (74); set aside one area where there is all kinds of junk that they can use to make things—**ADVENTURE PLAYGROUND** (73). . . .

69 PUBLIC OUTDOOR ROOM**



. . . the common land in MAIN GATEWAYS (53), ACCESSIBLE GREEN (60), SMALL PUBLIC SQUARES (61), COMMON LAND (67), PEDESTRIAN STREET (100), PATHS AND GOALS (120) needs at least some place where hanging out and being "out" in public become possible. For this purpose it is necessary to distinguish one part of the common land and to define it with a little more elaboration. Also, if none of the larger patterns exist yet, this pattern can act as a nucleus, and help them to crystallize around it.



There are very few spots along the streets of modern towns and neighborhoods where people can hang out, comfortably, for hours at a time.

Men seek corner beer shops, where they spend hours talking and drinking; teenagers, especially boys, choose special corners too, where they hang around, waiting for their friends. Old people like a special spot to go to, where they can expect to find others; small children need sand lots, mud, plants, and water to play with in the open; young mothers who go to watch their children often use the children's play as an opportunity to meet and talk with other mothers.

Because of the diverse and casual nature of these activities, they require a space which has a subtle balance of being defined and yet not too defined, so that any activity which is natural to the neighborhood at any given time can develop freely and yet has something to start from.

For example, it would be possible to leave an outdoor room unfinished, with the understanding it can be finished by people who live nearby, to fill whatever needs seem most pressing. It may need sand, or water faucets, or play equipment for small children—ADVENTURE PLAYGROUND (73); it may have steps and seats, where teenagers can meet—TEENAGE SOCIETY (84); someone may build a small bar or coffee shop in a house that opens into the area, with an arcade, making the arcade a place to eat and

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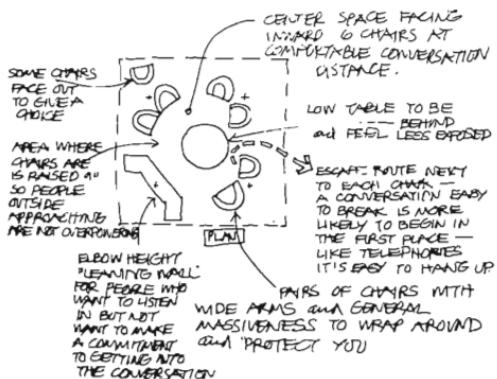
drink—FOOD STANDS (93); there may be games like chess and checkers for old people.

Modern housing projects especially suffer from the lack of this kind of space. When indoor community rooms are provided, they are rarely used. People don't want to plunge into a situation which they don't know; and the degree of involvement created in such an enclosed space is too intimate to allow a casual passing interest to build up gradually. On the other hand, vacant land is not enclosed enough. It takes years for anything to happen on vacant land; it provides too little shelter, and too little "reason to be there."

What is needed is a framework which is just enough defined so that people naturally tend to stop there; and so that curiosity naturally takes people there, and invites them to stay. Then, once community groups begin to gravitate toward this framework, there is a good chance that they will themselves, if they are permitted, create an environment which is appropriate to their activities.

We conjecture that a small open space, roofed, with columns, but without walls at least in part, will just about provide the necessary balance of "openness" and "closedness."

A beautiful example of the pattern was built by Dave Chapin and George Gordon with architecture students from Case Western Reserve in Cleveland, Ohio. They built a sequence of public out-



Public outdoor room built by Chapin and Gordon in Cleveland, Ohio.

door rooms on the grounds and on the public land surrounding a local mental health clinic. According to staff reports, these places changed the life of the clinic dramatically: many more people than had been usual were drawn into the outdoors, public talk was more animated, outdoor space that had always been dominated by automobiles suddenly became human and the cars had to inch along.

In all, Chapin and Gordon and their crew built seven public outdoor rooms in the neighborhood. Each one was slightly different, varying according to views, orientation, size.

We have also discovered a version of this pattern from medieval society. Apparently, in the twelfth and thirteenth centuries there were many such public structures dotted through the towns. They were the scene of auctions, open-air meetings, and market fairs. They are very much in the spirit of the places we are proposing for neighborhoods and work communities.

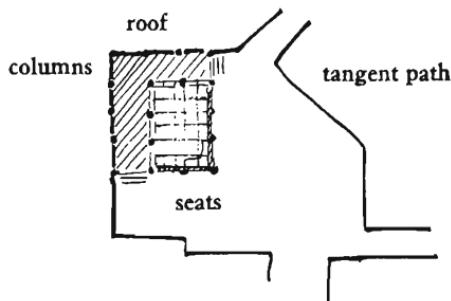


Outdoor rooms in England and Peru.

Therefore:

In every neighborhood and work community, make a

piece of the common land into an outdoor room—a partly enclosed place, with some roof, columns, without walls, perhaps with a trellis; place it beside an important path and within view of many homes and workshops.



Place the outdoor room where several paths are tangent to it, like any other common area—**COMMON AREAS AT THE HEART** (129); in the bulge of a path—**PATH SHAPE** (121); or around a square—**ACTIVITY POCKETS** (124); use surrounding **BUILDING EDGES** (160) to define part of it; build it like any smaller outdoor room, with columns, and half-trellised roofs—**OUTDOOR ROOM** (163); perhaps put an open courtyard next to it—**COURTYARDS WHICH LIVE** (115), an **ARCADE** (119) around the edge, or other simple cover—**CANVAS ROOFS** (244), and seats for casual sitting—**STAIR SEATS** (125), **SEAT SPOTS** (241). . . .

70 GRAVE SITES*



. . . according to LIFE CYCLE (26) the transitions of a person's life must be available and visible in every community. Death is no exception. This pattern helps to integrate the fact of death with the public spaces of each neighborhood, and, by its very existence, helps to form IDENTIFIABLE NEIGHBORHOODS (14), and HOLY GROUND (66) and COMMON LAND (67).

* * *

No people who turn their backs on death can be alive. The presence of the dead among the living will be a daily fact in any society which encourages its people to live.

Huge cemeteries on the outskirts of cities, or in places no one ever visits, impersonal funeral rites, taboos which hide the fact of death from children, all conspire to keep the fact of death away from us, the living. If you live in a modern suburb, ask yourself how comfortable you would be if your house were next to a graveyard. Very likely the thought frightens you. But this is only because we are no longer used to it. We shall be healthy, when graves of friends and family, and memorials to the people of the recent and the distant past, are intermingled with our houses, in small grave yards, as naturally as winter always comes before the spring.

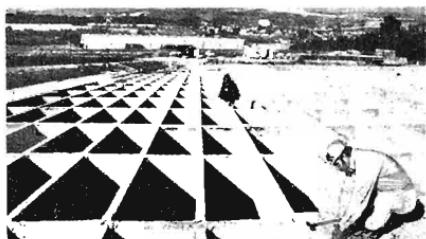
In every culture there is some form of intense ceremony surrounding death, grieving for the dead, and disposal of the body. There are thousands of variations, but the point is always to give the community of friends left alive the chance to reconcile themselves to the facts of death: the emptiness, the loss; their own transience.

These ceremonies bring people into contact with the experience of mortality, and in this way, they bring us closer to the facts of life, as well as death. When these experiences are integrated with the environment and each person's life, we are able to live through them fully and go on. But when circumstances or custom prevent us from making contact with the experience of mortality, and living with it, we are left depressed, diminished,

less alive. There is a great deal of clinical evidence to support this notion.

In one documented case, a young boy lost his grandmother; the people around him told him that she had merely "gone away" to "protect his feelings." The boy was uneasily aware that something had happened, but in this atmosphere of secrecy, could not know it for what it was and could not therefore experience it fully. Instead of being protected, he became a victim of a massive neurosis, which was only cured, many years later, when he finally recognized, and lived through the fact of his grandmother's death.

This case, and others which make it abundantly clear that a person must live through the death of those he loves as fully as possible, in order to remain emotionally healthy, have been described by Eric Lindemann. We have lost the crucial reference for this work, but two other papers by Lindemann converge on the same point: "Symptomatology and Management of Acute Grief," *American Journal of Psychiatry*, 1944, 101, 141-48; and "A Study of Grief: Emotional Responses to Suicide," *Pastoral Psychology*, 1953, 4(39), 9-13. We also recommend a recent paper by Robert Kastenbaum, on the ways in which children explore their mortality: "The Kingdom Where Nobody Dies," *Saturday Review*, January 1973, pp. 33-38.



A concrete honeycomb graveyard in Colma, California. The superintendent of the cemetery said, "Families will never see the sinking . . . which so distressed them in older parts of the cemetery. . . ."

In the big industrial cities, during the past 100 years, the ceremonies of death and their functional power for the living have

been completely undermined. What were once beautifully simple forms of mourning have been replaced by grotesque cemeteries, plastic flowers, everything but the reality of death. And above all, the small graveyards which once put people into daily contact with the fact of death, have vanished—replaced by massive cemeteries, far away from people's daily business.

What must be done to set things right? We can solve the problem by fusing some of the old ritual forms with the kinds of situations we face today.

1. Most important, it is essential to break down the scale of modern cemeteries, and to reinstate the connection between burial grounds and local communities. Intense decentralization: a person can choose a spot for himself, in parks, common lands, on his land.

2. The right setting requires some enclosure; paths beside the gravesites; the graves visible, and protected by low walls, edges, trees.

3. Property rights. There must be some legal basis for hallowing small pieces of ground—to give a guarantee that the ground a person chooses will not be sold and developed.

4. With increasing population, it is obviously impossible to go on and on covering the land with graves or memorials. We suggest a process similar to the one followed in traditional Greek villages. The graveyards occupy a fixed area, enough to cope with the dead of 200 years. After 200 years, remains are put out to sea—except for those whose memory is still alive.

5. The ritual itself has to evolve from a group with some shared values, at least a family, perhaps a group that shares a religious view. Three of the basics: friends carrying the casket through the streets in procession; simple pine coffins or urns; gathering round the grave.

Therefore:

Never build massive cemeteries. Instead, allocate pieces of land throughout the community as grave sites—corners of parks, sections of paths, gardens, beside gateways—where memorials to people who have died can be ritually placed with inscriptions and mementos which celebrate their life.

Give each grave site an edge, a path, and a quiet corner where people can sit. By custom, this is hallowed ground.



If possible, keep them in places which are quiet—QUIET BACKS (59); and provide a simple seat or a bench under a tree, where people can be alone with their memories—TREE PLACES (171), SEAT SPOTS (241). . . .

71 STILL WATER*



. . . the patterns ACCESS TO WATER (25) and POOLS AND STREAMS (64) provide a variety of kinds of water throughout the community. This pattern helps to embellish the still waters—the pools and ponds and swimming holes—and provide them with a safe edge for children. It also helps to differentiate the public space in HOUSE CLUSTER (37), WORK COMMUNITY (41), HEALTH CENTER (47), COMMON LAND (67), LOCAL SPORTS (72).



To be in touch with water, we must above all be able to swim; and to swim daily, the pools and ponds and holes for swimming must be so widely scattered through the city, that each person can reach one within minutes.

We have already explained, in POOLS AND STREAMS (64), how important it is to be in touch with water—and how the ordinary water of an area can, if left open, be a natural component of the everyday ecology of a community.

In this pattern we go a little further, and put the emphasis on swimming. On the one hand, adults cannot have any substantial contact with water unless they can swim in it, and for this purpose the body of water must be large enough and deep enough to swim in. On the other hand, the highly chlorinated, private, walled, and fenced off swimming pools, which have become common in rich people's suburbs, work directly against the very forces we have described in POOLS AND STREAMS (64), and make the touch of water almost meaningless, because it is so private and so anti-septic.

We believe that the swimming cannot come into its proper place, unless everyone who wants to can swim every day: and this means, that, to all intents and purposes, there needs to be a swimming pool on every block, almost in every cluster, and at least in every neighborhood, within no more than about 100 yards of every house.

In this pattern, we shall therefore try to establish a model for a kind of "swimming hole": public, so that it becomes a communal

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function, not a wholly private one; and safe, so that this public water can be deep enough for swimming without being dangerous to tiny children playing at the edge.

For millions of years, children have grown up in perfect safety along the edge of oceans, rivers, and lakes. Why is a swimming pool so dangerous? The answer depends simply on the edge.



. . . *the edge* . . .

As a rule, the natural edges between water and shore are marked by a slow, rough transition. There is a certain well-marked sequence of changes in materials, texture, and ecology as one passes from land to water. The human consequences of this transition are important: it means that people can walk lazily along the edge, without concern for their safety; they can sit at the edge and have their feet in the water, or walk along with the water around their ankles.

Children can play in the water safely when the edge is gradual. A baby crawling into a lake comes to no abrupt surprises; he stops when the water gets too deep, and goes back out again. It has even been shown that children teach themselves to swim when they are free to play around a pool with an extremely gradual slope toward the deep. In such a pool, some children have even learned to swim before they can walk. Even the rocks at the steep edge of a rock-bound lake are not that surprising—because the sandy earth further from the edge gives way to rocks, which change their angle and their texture, as one comes to the sharp edge.

But a swimming pool, and any kind of water with a hard and artificial edge, has none of this gradualness. A child may be run-

ning along, at top speed, when splash, suddenly he finds himself in six feet of water.

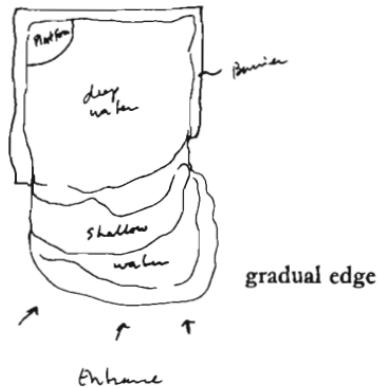
The abrupt edge, most serious for children, has its effects in psychological terms for adults too. Although they are not literally endangered by the edge—since they can learn its dangers—the presence of an ecologically wrong kind of abruptness is disconcerting—and destroys the peace and calm which water often has.

It is therefore essential that every water's edge, whether on a pond, or lake, or swimming pool, or river, or canal, be made so that it has a natural gradient, which changes as a person comes up to the edge, and goes on changing as the water is first very shallow, and then gradually gets deeper.

Of course, some deep water is essential for swimming; but the edge of the deep water must not be directly accessible. Instead, the edge around the deep end needs to be protected by a wall or a fence; and islands can be built there, for people to swim to, and to dive from.

Therefore:

In every neighborhood, provide some still water—a pond, a pool—for swimming. Keep the pool open to the public at all times, but make the entrance to the pool only from the shallow side of the pool, and make the pool deepen gradually, starting from one or two inches deep.



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If possible, arrange the pool as part of a system of natural running water, so that it purifies itself, and does not have to be chlorinated—POOLS AND STREAMS (64). Make sure the pool has southern exposure—SOUTH FACING OUTDOORS (105). If possible, embellish the edge of the pool with a small outdoor room or trellis, where people can sit and watch—PUBLIC OUTDOOR ROOM (69), TRELLISED WALK (174), SITTING WALL (243). . . .

72 LOCAL SPORTS*



. . . all the areas where people live and work—especially the WORK COMMUNITIES (41) and the areas looked after by the preventive programs of the HEALTH CENTER (47)—need to be completed by provisions for sports and exercise. This pattern defines the nature and distribution of this exercise.

* * *

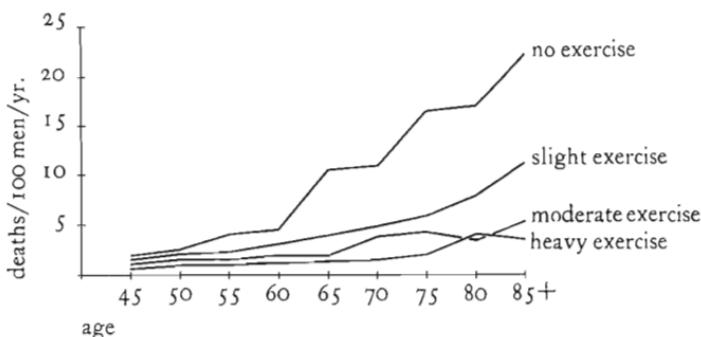
The human body does not wear out with use. On the contrary, it wears down when it is not used.

In agricultural society, people use their bodies every day in many different ways. In urban society, most people use their minds, but not their bodies; or they use their bodies only in a routine way. This is devastating. There is ample empirical evidence that physical health depends on daily physical activity.

Perhaps the most striking evidence for the unbalance in our way of life comes from a comparison of the death rates between groups that have been able to live lives that include daily physical activity with those that have not. For example, in the age group 60 to 64, 1 per cent of the men in the heavy exercise category died during the follow-up year, whereas 5 per cent of those in the no-exercise group died. (See P. B. Johnson et al., *Physical Education, A Problem Solving Approach to Health and Fitness*, University of Toledo, Holt, Rinehart and Winston, 1966.)

There are very few modern societies where these facts are taken seriously. China and Cuba come to mind. In these societies, people work both with their hands and with their minds. Work-days embrace both kinds of skills. Doctors are as apt to be building houses as practicing medicine; and builders are often sitting in administrative sessions.

In any society which has reached this stage, the gross physical atrophy of human bodies will not occur. But in any society which has not learned this wisdom, it is necessary, as a kind of interim solution, to scatter opportunities for physical activity, so that they are close at hand, indeed next door, to every house and place of work. Small fields, swimming pools, gyms, game courts, must be as frequent as corner groceries and restaurants. Ideally,



You will probably live longer if you exercise regularly. (Graph adapted from E. G. Hammond, "Some Preliminary Findings on Physical Complaints from a Prospective Study of 1,064,004 Men and Women," *American Journal of Public Health*, 54:11, 1964).

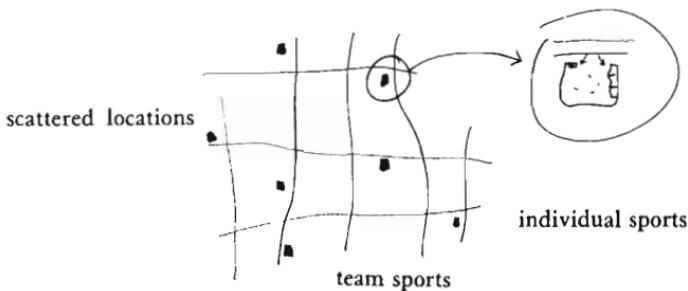
local sports would form a natural part of every neighborhood and work community. We imagine these facilities as nonprofit centers, supported by the people who use them, perhaps coordinated with a program of health prevention like the swimming and dancing at the Pioneer Health Center in Peckham—see **HEALTH CENTER** (47).

Sports also have a special life of their own, which cannot be duplicated. Throwing the ball around, shouting out, winning a crushing victory, losing a long drawn out match, getting a wild ball back on the net somehow, anyhow—these are moments that cannot be captured by a job of work. They are entirely different; perhaps they cater especially to what E. Hart calls the psycho-emotional component of muscular activity. ("The Need for Physical Activity," in S. Maltz, ed., *Health Readings*, Wm. Brown Book Company, Iowa, 1968, p. 240.) In any case, it is a kind of vitality that cannot be replaced.

Therefore:

Scatter places for team and individual sports through every work community and neighborhood: tennis, squash,

table tennis, swimming, billiards, basketball, dancing, gymnasium . . . and make the action visible to passers-by, as an invitation to participate.



* * *

Treat the sports places as a special class of recognizable simple buildings, which are open, easy to get into, with changing rooms and showers—BUILDING COMPLEX (95), BATHING ROOM (144); combine them with community swimming pools, where they exist—STILL WATER (71); keep them open to people passing—BUILDING THOROUGHFARE (101), OPENING TO THE STREET (165), and provide places where people can stop and watch—SEAT SPOTS (241), SITTING WALL (243). . . .

73 ADVENTURE
PLAYGROUND



. . . inside the local neighborhood, even if there is common land where children can meet and play—**COMMON LAND** (67), **CONNECTED PLAY** (68); it is essential that there be at least one smaller part, which is differentiated, where the play is wilder, and where the children have access to all kinds of junk.



A castle, made of cartons, rocks, and old branches, by a group of children for themselves, is worth a thousand perfectly detailed, exactly finished castles, made for them in a factory.

Play has many functions: it gives children a chance to be together, a chance to use their bodies, to build muscles, and to test new skills. But above all, play is a function of the imagination. A child's play is his way of dealing with the issues of his growth, of relieving tensions and exploring the future. It reflects directly the problems and joys of his social reality. Children come to terms with the world, wrestle with their pictures of it, and reform these pictures constantly, through those adventures of imagination we call play.

Any kind of playground which disturbs, or reduces, the role of imagination and makes the child more passive, more the recipient of someone else's imagination, may look nice, may be clean, may be safe, may be healthy—but it just cannot satisfy the fundamental need which play is all about. And, to put it bluntly, it is a waste of time and money. Huge abstract sculptured playlands are just as bad as asphalt playgrounds and jungle gyms. They are not just sterile; they are useless. The functions they perform have nothing to do with the child's most basic needs.

This need for adventurous and imaginative play is taken care of handily in small towns and in the countryside, where children have access to raw materials, space, and a somewhat comprehensible environment. In cities, however, it has become a pressing concern. The world of private toys and asphalt playgrounds does not provide the proper settings for this kind of play.

The basic work on this problem has come from Lady Allen of



No playing.

Hurtwood. In a series of projects and publications over the past twenty years, Lady Allen has developed the concept of the adventure playground for cities, and we refer the reader, above all, to her work. (See, for example, her book, *Planning for Play*, Cambridge: MIT Press, 1968.) We believe that her work is so substantial, that, by itself, it establishes the essential pattern for neighborhood playgrounds.

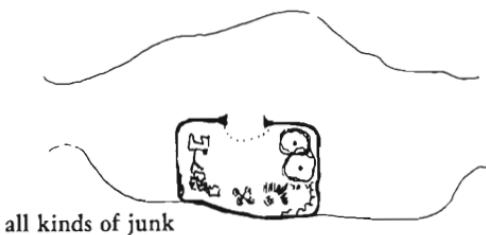
Colin Ward has also written an excellent review, "Adventure Playgrounds: A Parable of Anarchy," *Anarchy* 7, September 1961. Here is a description of the Grimsby playground, from that review:

At the end of each summer the children saw up their shacks and shanties into firewood which they deliver in fantastic quantities to old age pensioners. When they begin building in the spring, "it's just a hole in the ground—and they crawl into it." Gradually the holes give way to two-storey huts. Similarly with the notices above their dens. It begins with nailing up "Keep Out" signs. After this come more personal names like "Bughold Cave" and "Dead Man's Cave," but by the end of the summer they have communal names like "Hospital" or "Estate Agent." There is an everchanging range of activities due entirely to the imagination and enterprise of the children themselves. . . .

Therefore:

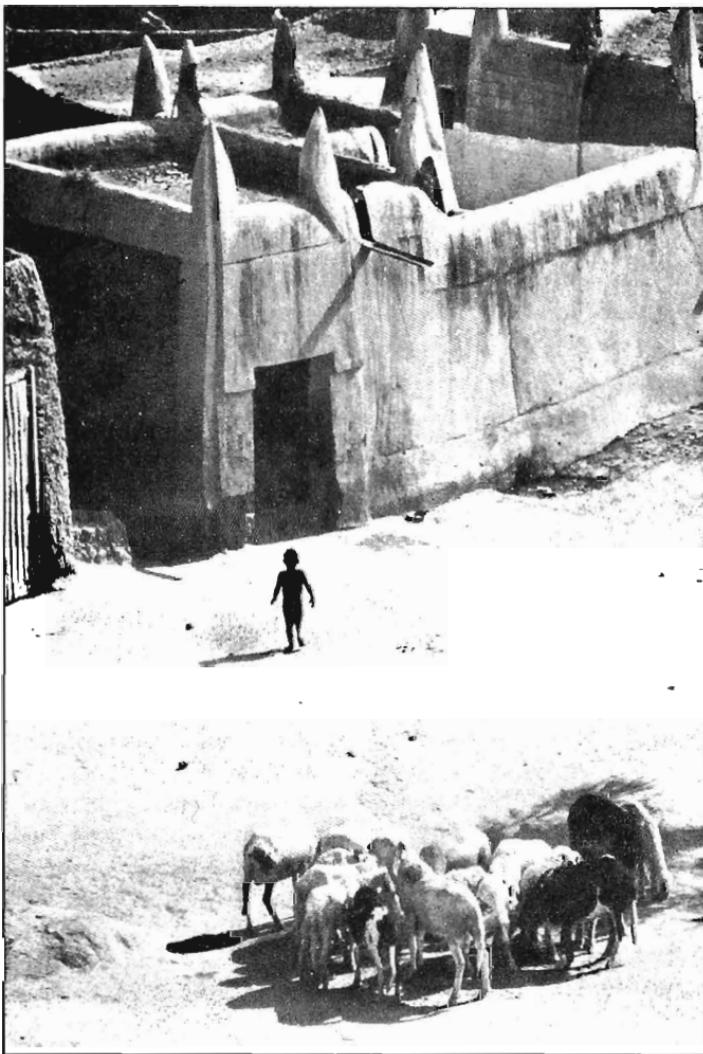
Set up a playground for the children in each neighborhood. Not a highly finished playground, with asphalt and

swings, but a place with raw materials of all kinds—nets, boxes, barrels, trees, ropes, simple tools, frames, grass, and water—where children can create and re-create playgrounds of their own.



Make sure that the adventure playground is in the sun—**SUNNY PLACE** (161); make hard surfaces for bikes and carts and toy trucks and trolleys, and soft surfaces for mud and building things—**BIKE PATHS AND RACKS** (56), **GARDEN GROWING WILD** (172), **CHILD CAVES** (203); and make the boundary substantial with a **GARDEN WALL** (173) or **SITTING WALL** (243). . . .

74 ANIMALS



. . . even when there is public land and private land for individual buildings—**COMMON LAND** (67), **YOUR OWN HOME** (79), there is no guarantee that animals can flourish there. This pattern helps to form **GREEN STREETS** (51) and **COMMON LAND** (67) by giving them the qualities they need to sustain animal life.

* * *

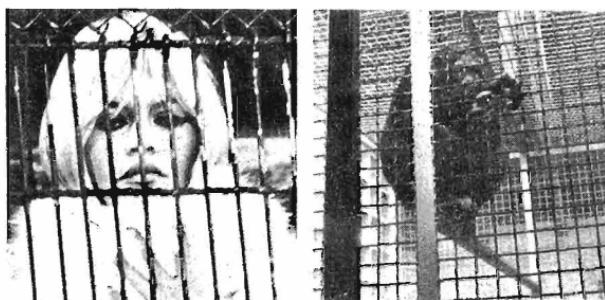
Animals are as important a part of nature as the trees and grass and flowers. There is some evidence, in addition, which suggests that contact with animals may play a vital role in a child's emotional development.

Yet while it is widely accepted that we need "parks"—at least access to some kind of open space where trees and grass and flowers grow—we do not yet have the same kind of wisdom where sheep, horses, cows, goats, birds, snakes, rabbits, deer, chickens, wildcats, gulls, otters, crabs, fish, frogs, beetles, butterflies, and ants are concerned.

Ann Dreyfus, a family therapist in California, has told us about the way that animals like goats and rabbits help children in their therapy. She finds that children who cannot make contact with people, are nevertheless able to establish contact with these animals. Once this has happened and feelings have started to flow again, the children's capacity for making contact starts to grow again, and eventually spreads out to family and friends.

But animals are almost missing from cities. In a city there are, broadly speaking, only three kinds of animal: pets, vermin, and animals in the zoo. None of these three provides the emotional sustenance nor the ecological connections that are needed. Pets are pleasant, but so humanized that they have no wild free life of their own. And they give human beings little opportunity to experience the animalness of animals. Vermin—rats, cockroaches—are animals which are peculiar to cities and which depend ecologically on miserable and disorganized conditions, so they are naturally considered as enemies. Animals in the zoo are more or less inaccessible to most of the human population—except as

occasional curiosities. Besides, it has been said that animals living under the conditions which a zoo provides are essentially psychotic—that is, entirely disturbed from their usual mode of existence—so that it is probably wrong to keep them there—and certainly they can in no way re-create the missing web of animal life which cities need.



Looking in or looking out—what's the difference?

It is perfectly possible to reintroduce animals into the natural ecology of cities in a useful and functioning sense, provided that arrangements are made which allow this and do not create a nuisance.

Examples of ecologically useful animals in a city: horses, ponies, donkeys—for local transportation and sport. Pigs—to recycle garbage and for meat. Ducks and chickens—as a source of eggs and meat. Cows—for milk. Goats—milk. Bees—honey and pollination of fruit trees. Birds—to maintain insect balance.

There are essentially two difficulties to overcome. (1) Many of these animals have been driven out of cities by law because they interrupt traffic, leave dung on the street, and carry disease. (2) Many of the animals cannot survive without protection under modern urban conditions. It is necessary to make specific provisions to overcome these difficulties.

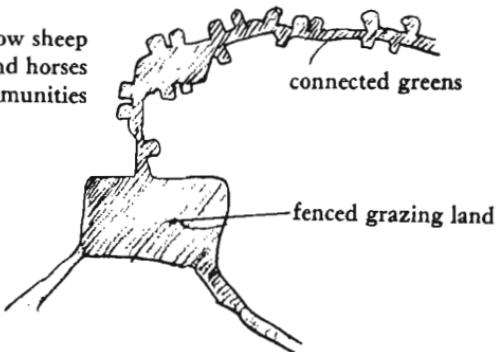
Therefore:

Make legal provisions which allow people to keep any animals on their private lots or in private stables. Create a piece of fenced and protected common land, where animals

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are free to graze, with grass, trees, and water in it. Make at least one system of movement in the neighborhood which is entirely asphalt-free—where dung can fall freely without needing to be cleaned up.

laws which allow sheep
and cows and horses
in communities



Make sure that the green areas—**GREEN STREETS** (51), **ACCESSIBLE GREEN** (60)—are all connected to one another to form a continuous swath throughout the city for domestic and wild animals. Place the animal commons near a children's home and near the local schools, so children can take care of the animals—**CHILDREN'S HOME** (86); if there is a lot of dung, make sure that it can be used as a fertilizer—**COMPOST** (178). . . .

within the framework of the common land, the clusters and the work communities, encourage transformation of the smallest independent social institutions: the families, workgroups, and gathering places.

First, the family, in all its forms;

75. THE FAMILY

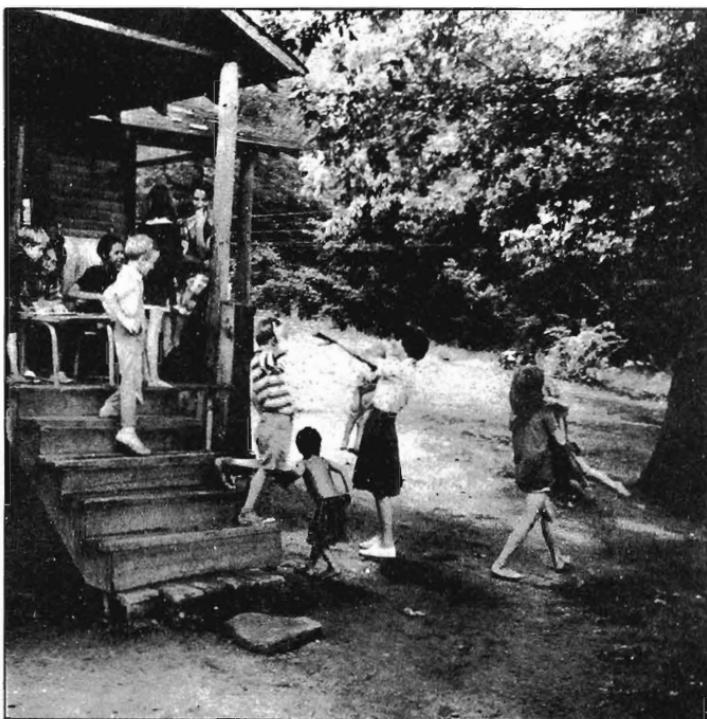
76. HOUSE FOR A SMALL FAMILY

77. HOUSE FOR A COUPLE

78. HOUSE FOR ONE PERSON

79. YOUR OWN HOME

75 THE FAMILY*



. . . assume now, that you have decided to build a house for yourself. If you place it properly, this house can help to form a cluster, or a row of houses, or a hill of houses—HOUSE CLUSTER (37), ROW HOUSES (38), HOUSING HILL (39)—or it can help to keep a working community alive—HOUSING IN BETWEEN (48). This next pattern now gives you some vital information about the social character of the household itself. If you succeed in following this pattern, it will help repair LIFE CYCLE (26) and HOUSEHOLD MIX (35) in your community.

* * *

The nuclear family is not by itself a viable social form.

Until a few years ago, human society was based on the extended family: a family of at least three generations, with parents, children, grandparents, uncles, aunts, and cousins, all living together in a single or loosely knit multiple household. But today people move hundreds of miles to marry, to find education, and to work. Under these circumstances the only family units which are left are those units called nuclear families: father, mother, and children. And many of these are broken down even further by divorce and separation.

Unfortunately, it seems very likely that the nuclear family is not a viable social form. It is too small. Each person in a nuclear family is too tightly linked to other members of the family; any one relationship which goes sour, even for a few hours, becomes critical; people cannot simply turn away toward uncles, aunts, grandchildren, cousins, brothers. Instead, each difficulty twists the family unit into ever tighter spirals of discomfort; the children become prey to all kinds of dependencies and oedipal neuroses; the parents are so dependent on each other that they are finally forced to separate.

Philip Slater describes this situation for American families and finds in the adults of the family, especially the women, a terrible, brooding sense of deprivation. There are simply not enough people around, not enough communal action, to give the ordinary

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experience around the home any depth or richness. (Philip E. Slater, *The Pursuit of Loneliness*, Boston: Beacon Press, 1970, p. 67, and throughout.)

It seems essential that the people in a household have at least a dozen people round them, so that they can find the comfort and relationships they need to sustain them during their ups and downs. Since the old extended family, based on blood ties, seems to be gone—at least for the moment—this can only happen if small families, couples, and single people join together in voluntary “families” of ten or so.

In his final book, *Island*, Aldous Huxley portrayed a lovely vision of such a development:

“How many homes does a Palanese child have?”

“About twenty on the average.”

“Twenty? My God!”

“We all belong,” Susila explained, “to a MAC—a Mutual Adoption Club. Every MAC consists of anything from fifteen to twenty-five assorted couples. Newly elected brides and bridegrooms, old-timers with growing children, grandparents and great-grandparents—everybody in the club adopts everyone else. Besides our own blood relations, we all have our quota of deputy mothers, deputy fathers, deputy aunts and uncles, deputy brothers and sisters, deputy babies and toddlers and teen-agers.”

Will shook his head. “Making twenty families grow where only one grew before.”

“But what grew before was *your* kind of family. . . .” As though reading instructions from a cookery book, “Take one sexually inept wage slave,” she went on, “one dissatisfied female, two or (if preferred) three small television addicts; marinate in a mixture of Freudism and dilute Christianity; then bottle up tightly in a four-room flat and stew for fifteen years in their own juice. *Our* recipe is rather different: Take twenty sexually satisfied couples and their offspring; add science, intuition and humor in equal quantities; steep in Tantrik Buddhism and simmer indefinitely in an open pan in the open air over a brisk flame of affection.”

“And what comes out of your open pan?” he asked.

“An entirely different kind of family. Not exclusive, like *your* families, and not predestined, not compulsory. An inclusive, unpredestined and voluntary family. Twenty pairs of fathers and mothers, eight or nine ex-fathers and ex-mothers, and forty or fifty assorted children of all ages.” (Aldous Huxley, *Island*, New York: Bantam, 1962, pp. 89-90.)

Physically, the setting for a large voluntary family must provide

for a balance of privacy and communalitv. Each small family, each person, each couple, needs a private realm, almost a private household of their own, according to their territorial need. In the movement to build communes, it is our experience that groups have not taken this need for privacy seriously enough. It has been shrugged off, as something to overcome. But it is a deep and basic need; and if the setting does not let each person and each small household regulate itself on this dimension, it is sure to cause trouble. We propose, therefore, that individuals, couples, people young and old—each subgroup—have its own legally independent household—in some cases, physically separate households and cottages, at least separate rooms, suites, and floors.

The private realms are then set off against the common space and the common functions. The most vital commons are the kitchen, the place to sit down and eat, and a garden. Common meals, at least several nights a week, seem to play the biggest role in binding the group. The meals, and taking time at the cooking, provide the kind of casual meeting time when everything else can be comfortably discussed: the child care arrangements, maintenance, projects—see COMMUNAL EATING (147).

This would suggest, then, a large family room-farmhouse kitchen, right at the heart of the site—at the main crossroads, where everyone would tend to meet toward the end of the day. Again, according to the style of the family, this might be a separate building, with workshop and gardens, or one wing of a house, or the entire first floor of a two or three story building.

There is some evidence that processes which generate large voluntary group households are already working in the society. (Cf. Pamela Hollie, "More families share houses with others to enhance 'life style,'" *Wall Street Journal*, July 7, 1972.)

One way to spur the growth of voluntary families: When someone turns over or sells their home or room or apartment, they first tell everyone living around them—their neighbors. These neighbors then have the right to find friends of theirs to take the place—and thus to extend their "family." If friends are able to move in, then they can arrange for themselves how to create a functioning family, with commons, and so on. They might build a connection between the homes, knock out a wall, add a

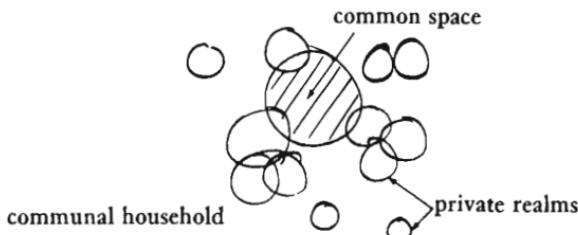
TOWNS

room. If the people immediately around the place cannot make the sale in a few months, then it reverts to the normal market-place.

Therefore:

Set up processes which encourage groups of 8 to 12 people to come together and establish communal households. Morphologically, the important things are:

1. Private realms for the groups and individuals that make up the extended family: couple's realms, private rooms, sub-households for small families.
2. Common space for shared functions: cooking, working, gardening, child care.
3. At the important crossroads of the site, a place where the entire group can meet and sit together.



* * *

Each individual household within the larger family must, at all costs, have a clearly defined territory of its own, which it controls—**YOUR OWN HOME** (79); treat the individual territories according to the nature of the individual households—**HOUSE FOR A SMALL FAMILY** (76), **HOUSE FOR A COUPLE** (77), **HOUSE FOR ONE PERSON** (78); and build common space between them, where the members of the different smaller households can meet and eat together—**COMMON AREAS AT THE HEART** (129), **COMMUNAL EATING** (147). For the shape of the building, gardens, parking, and surroundings, begin with **BUILDING COMPLEX** (95). . . .

76 HOUSE FOR A SMALL
FAMILY*



. . . according to THE FAMILY (75), each nuclear family ought to be a member household of a larger group household. If this is not possible, do what you can, when building a house for a small family, to generate some larger, possible group household, by tying it together with the next door households; in any case, at the very least, form the beginning of a HOUSE CLUSTER (37).



In a house for a small family, it is the relationship between children and adults which is most critical.

Many small households, not large enough to have a full fledged nursery, not rich enough to have a nanny, find themselves swamped by the children. The children naturally want to be where the adults are; their parents don't have the heart, or the energy, to keep them out of special areas; so finally the whole house has the character of a children's room—children's clothes, drawings, boots and shoes, tricycles, toy trucks, and disarray.

Yet, obviously few parents feel happy to give up the calm and cleanliness and quiet of the adult world in every square inch of their homes. To help achieve a balance, a house for a small family needs three distinct areas: a couple's realm, reserved for the adults; a children's realm, where children's needs hold sway; and a common area, between the two, connected to them both.

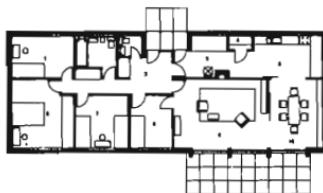
The couple's realm should be more than a room, although rooms are a part of it. It is territory which sustains them as two adults, a couple—not father and mother. Other parts of their lives are involved with children, friends, work; there must be a place which becomes naturally an expression of them as adults, alone. The children come in and out of this territory, but when they are there, they are clearly in the adults' world. See COUPLE'S REALM (136).

The children's world must also be looked upon as territory that they share, as children, CHILDREN'S REALM (137); here, it is important to establish that this is a part of the house, in balance with the others. Again, the critical feature is not that adults are

"excluded" but that, when they are in this world, they are in children's territory.

The common area contains those functions that the children and the adults share: eating together, sitting together, games, perhaps bathing, gardening—again, whatever captures their needs for shared territory. Quite likely, the common territory will be larger than the two other parts of the house.

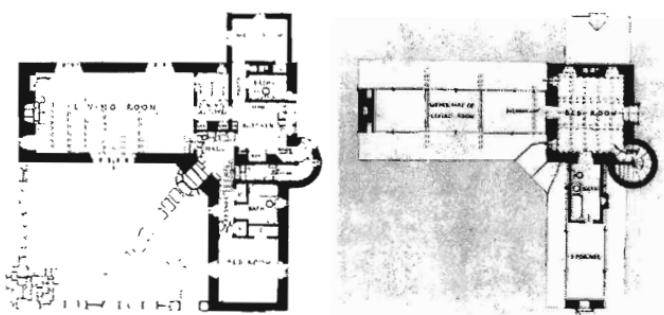
Finally, realize that this pattern is different from the way most small family homes are made today. For example, a popular current conception, comparable to this, but quite different, is a suburban *two part house*: sleeping and commons.



A typical suburban two part house.

Even though there is a "master bedroom" the sleeping part of the house is essentially one thing—the children are all around the master bedroom. This plan does not have the distinctions we are arguing for.

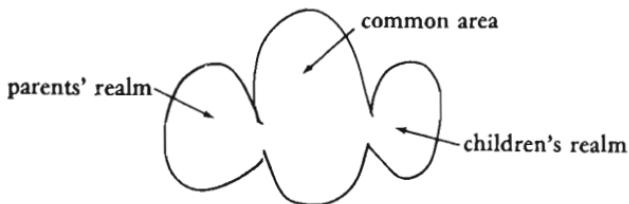
Here is a beautiful plan which does:



A three-part house—the couple's realm upstairs.

Therefore:

Give the house three distinct parts: a realm for parents, a realm for the children, and a common area. Conceive these three realms as roughly similar in size, with the commons the largest.



* * *

Treat the house, like every house, as a distinct piece of territory —YOUR OWN HOME (79); build the three main parts according to the specific patterns for those parts—COMMON AREAS AT THE HEART (129), COUPLE'S REALM (136), BED CLUSTER (143) and connect the common areas, and the bed cluster according to the CHILDREN'S REALM (137). . . .

77 HOUSE FOR A COUPLE*



. . . again, ideally, every couple is a part of a larger group household—THE FAMILY (75). If this can not be so, try to build the house for the couple in such a way as to tie it together with some other households, to form the beginnings of a group household, or, if this fails, at least to form the beginnings of a HOUSE CLUSTER (37).



In a small household shared by two, the most important problem which arises is the possibility that each may have too little opportunity for solitude or privacy.

Consider these forces:

1. Of course, the couple need a shared realm, where they can function together, invite friends, be alone together. This realm needs to be made up of functions which they share.
2. But it is also true that each partner is trying to maintain an individuality, and not be submerged in the identity of the other, or the identity of the "couple." Each partner needs *space* to nourish this need.

It is essential, therefore, that a small house be conceived as a place where the two people may be together but where, from time to time, either one of them may also be alone, in comfort, in dignity, and in such a way that the other does not feel left out or isolated. To this end, there must be two small places—perhaps rooms, perhaps large alcoves, perhaps a corner, screened off by a half-wall—places which are clearly understood as private territories, where each person can keep to himself, pursue his or her own activities.

Still, the problem of the balance of privacy in a couple's lives is delicate. Even with a small place of one's own, tenuously connected to the house, one partner may feel left out at various moments. While we believe that the solution proposed in this pattern helps, the problem will not be entirely settled until the couple itself is in some close, neighborly, and family-like rela-

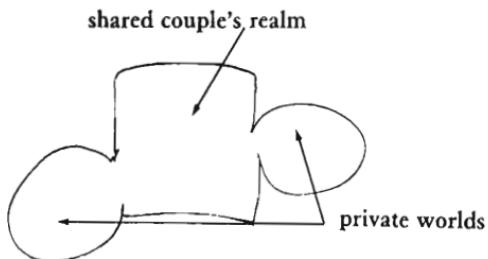
tionship to other adults. Then, when one needs privacy, the other has other possibilities for companionship at hand. This idea and its physical implications are discussed in the pattern, THE FAMILY (75).

Once the opportunity for withdrawal is satisfied, there is also a genuine opportunity for the couple to be together; and then the house can be a place where genuine intimacy, genuine connection can happen.

There is one other problem, unique to a house for a couple, that must be mentioned. In the first years of a couple's life, as they learn more about each other, and find out if indeed they have a future together, the evolution of the house plays a vital role. Improving the house, fixing it up, enlarging it, provides a frame for learning about one another: it brings out conflict, and offers the chance, like almost no other activity, for concrete resolution and growth. This suggests that a couple find a place that they can change gradually over the years, and *not* build or buy for themselves a "dream" home from scratch. The experience of making simple changes in the house, and tuning it to their lives, provides some grist for their own growth. Therefore, it is best to start small, with plenty of room for growth and change.

Therefore:

Conceive a house for a couple as being made up of two kinds of places—a shared couple's realm and individual private worlds. Imagine the shared realm as half-public and half-intimate; and the private worlds as entirely individual and private.





Again, treat the house as a distinct piece of territory, in some fashion owned by its users—**YOUR OWN HOME** (79). Lay out the common part, according to the pattern **COUPLE'S REALM** (136), and give both persons an individual world of their own where they can be alone—**A ROOM OF ONE'S OWN** (141). . . .

78 HOUSE FOR ONE PERSON*



. . . the households with one person in them, more than any other, need to be a part of some kind of larger household—THE FAMILY (75). Either build them to fit into some larger group household, or even attach them, as ancillary cottages to other, ordinary family households like HOUSE FOR A SMALL FAMILY (76) or HOUSE FOR A COUPLE (77).

* * *

Once a household for one person is part of some larger group, the most critical problem which arises is the need for simplicity.

The housing market contains few houses or apartments specifically built for one person. Most often men and women who choose to live alone, live in larger houses and apartments, originally built for two people or families. And yet for one person these larger places are most often uncompact, unwieldy, hard to live in, hard to look after. Most important of all, they do not allow a person to develop a sense of self-sufficiency, simplicity, compactness, and economy in his or her own life.

The kind of place which is most closely suited to one person's needs, and most nearly overcomes this problem, is a place of the utmost simplicity, in which only the bare bones of necessity are there: a place, built like a ploughshare, where every corner, every table, every shelf, each flower pot, each chair, each log, is placed according to the simplest necessity, and supports the person's life directly, plainly, with the harmony of nothing that is not needed, and everything that is.

The plan of such a house will be characteristically different from other houses, primarily because it requires almost no differentiation of its spaces: it need only be one room. It can be a cottage or a studio, built on the ground or in a larger building, part of a group household or a detached structure. In essence, it is simply a central space, with nooks around it. The nooks replace the rooms in a larger house; they are for bed, bath, kitchen, workshop and entrance.

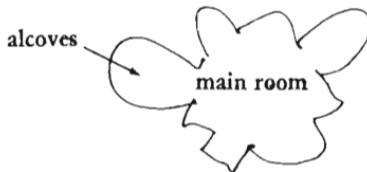
It is important to realize that very many of the patterns in this book can be built into a small house; small size does not pre-

clude richness of form. The trick is to intensify and to overlay; to compress the patterns; to reduce them to simple expressions; to make every inch count double. When it is well done, a small house feels wonderfully continuous—cooking a bowl of soup fills the house; there is no rattling around. This cannot happen if the place is divided into rooms.

We have found it necessary to call special attention to this pattern because it is nearly impossible to build a house this small in cities—there is no way to get hold of a very small lot. Zoning codes and banking practices prohibit such tiny lots; they prohibit “normal” lots from splitting down to the kind of scale that a house for one person requires. The correct development of this pattern will require a change in these ordinances.

Therefore:

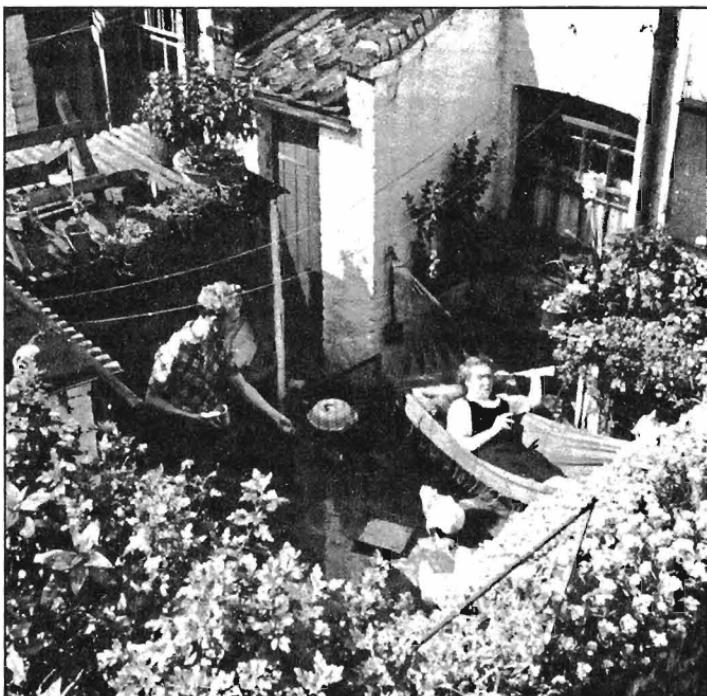
Conceive a house for one person as a place of the utmost simplicity: essentially a one-room cottage or studio, with large and small alcoves around it. When it is most intense, the entire house may be no more than 300 to 400 square feet.



* * *

And again, make the house an individual piece of territory, with its own garden, no matter how small—**YOUR OWN HOME** (79); make the main room essentially a kind of farmhouse kitchen—**FARMHOUSE KITCHEN** (139), with alcoves opening off it for sitting, working, bathing, sleeping, dressing—**BATHING ROOM** (144), **WINDOW PLACE** (180), **WORKSPACE ENCLOSURE** (183), **BED ALCOVE** (188), **DRESSING ROOM** (189); if the house is meant for an old person, or for someone very young, shape it also according to the pattern for **OLD AGE COTTAGE** (155) or **TEENAGER'S COTTAGE** (154). . . .

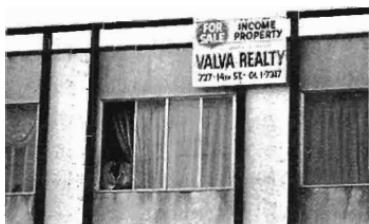
79 YOUR OWN HOME**



. . . according to THE FAMILY (75), each individual household should be a part of a larger family group household. Whether this is so, or not, each individual household, must also have a territory of its own which it controls completely—HOUSE FOR A SMALL FAMILY (76), HOUSE FOR A COUPLE (77), HOUSE FOR ONE PERSON (78); this pattern, which simply sets down the need for such a territory, helps especially to form higher density house clusters like ROW HOUSES (38), HOUSING HILL (39), which often do not have well-defined individual territories for the separate households.

* * *

People cannot be genuinely comfortable and healthy in a house which is not theirs. All forms of rental—whether from private landlords or public housing agencies—work against the natural processes which allow people to form stable, self-healing communities.



Income property.

. . . in the imperishable primal language of the human heart house means my house, your house, a man's own house. The house is the winning throw of the dice which man has wrested from the uncanniness of universe; it is his defense against the chaos that threatens to invade him. Therefore his deeper wish is that it be his own house, that he not have to share with anyone other than his own family. (Martin Buber, *A Believing Humanism: Gleanings*, New York: Simon and Shuster, 1969, p. 93.)

This pattern is not intended as an argument in favor of "private

property," or the process of buying and selling land. Indeed, it is very clear that all those processes which encourage speculation in land, for the sake of profit, are unhealthy and destructive, because they invite people to treat houses as commodities, to build things for "resale," and not in such a way as to fit their own needs.

And just as speculation and the profit motive make it impossible for people to adapt their houses to their own needs, so tenancy, rental, and landlords do the same. Rental areas are always the first to turn to slums. The mechanism is clear and well known. See, for example, George Sternlieb, *The Tenement Landlord* (Rutgers University Press, 1966). The landlord tries to keep his maintenance and repair costs as low as possible; the residents have no incentive to maintain and repair the homes—in fact, the opposite—since improvements add to the wealth of the landlord, and even justify higher rent. And so the typical piece of rental property degenerates over the years. Then landlords try to build new rental properties which are immune to neglect—gardens are replaced with concrete, carpets are replaced with linoleum, and wooden surfaces by formica: it is an attempt to make the new units maintenance-free, and to stop the slums by force; but they turn out cold and sterile and again turn into slums, because nobody loves them.

People will only be able to feel comfortable in their houses, if they can change their houses to suit themselves, add on whatever they need, rearrange the garden as they like it; and, of course, they can only do this in circumstances where they are the legal owners of the house and land; and if, in high density multi-story housing, each apartment, like a house, has a well-defined volume, in which the owner can make changes as he likes.

This requires then, that every house is owned—in some fashion—by the people that live in it; it requires that every house, whether at ground level or in the air, has a well-defined volume within which the family is free to make whatever changes they want; and it requires a form of ownership which discourages speculation.

Several approaches have been put forward in recent years to solve the problem of providing each household with a "home."

At one extreme there are ideas like Habraken's high density "support" system, where families buy pads on publicly owned superstructures and gradually develop their own homes. And at the other extreme there are the rural communes, where people have forsaken the city to create their own homes in the country. Even modified forms of rental can help the situation if they allow people to change their houses according to their needs and give people some financial stake in the process of maintenance. This helps, because renting is often a step along the way to home ownership; but unless tenants can somehow recover their investments in money and labor, the hopeless cycle of degeneration of rental property and the degeneration of the tenants' financial capability will continue. (Cf. Rolf Goetze, "Urban Housing Rehabilitation," in Turner and Fichter, eds., *The Freedom to Build*, New York: Macmillan, 1972.)

A common element in all these cases is the understanding that the successful development of a household's "home" depends upon these features: Each household must possess a clearly defined site for both a house and an outdoor space, and the household must own this site in the sense that they are in full control of its development.

Therefore:

Do everything possible to make the traditional forms of rental impossible, indeed, illegal. Give every household its own home, with space enough for a garden. Keep the emphasis in the definition of ownership on control, not on financial ownership. Indeed, where it is possible to construct forms of ownership which give people control over their houses and gardens, but make financial speculation impossible, choose these forms above all others. In all cases give people the legal power, and the physical opportunity to modify and repair their own places. Pay attention to this rule especially, in the case of high density apartments: build the apartments in such a way that every individual apartment has a garden, or a terrace where vegetables will grow, and that even in this situation, each family

can build, and change, and add on to their house as they wish.



For the shape of the house, begin with **BUILDING COMPLEX** (95). For the shape of the lot, do not accept the common notion of a lot which has a narrow frontage and a great deal of depth. Instead, try to make every house lot roughly square, or even long along the street and shallow. All this is necessary to create the right relation between house and garden—**HALF-HIDDEN GARDEN** (111).

the workgroups, including all kinds of workshops and offices and even children's learning groups;

- 80. SELF-GOVERNING WORKSHOPS AND OFFICES
- 81. SMALL SERVICES WITHOUT RED TAPE
- 82. OFFICE CONNECTIONS
- 83. MASTER AND APPRENTICES
- 84. TEENAGE SOCIETY
- 85. SHOPFRONT SCHOOLS
- 86. CHILDREN'S HOME

80 SELF-GOVERNING
WORKSHOPS AND OFFICES**



. . . all kinds of work, office work and industrial work and agricultural work, are radically decentralized by SCATTERED WORK (9), and INDUSTRIAL RIBBONS (42) and grouped in small communities—WORK COMMUNITY (41). This pattern helps to generate these larger patterns by giving the fundamental nature of all work organizations, no matter what their type.



No one enjoys his work if he is a cog in a machine.

A man enjoys his work when he understands the whole and when he is responsible for the quality of the whole. He can only understand the whole and be responsible for the whole when the work which happens in society, all of it, is undertaken by small self-governing human groups; groups small enough to give people understanding through face-to-face contact, and autonomous enough to let the workers themselves govern their own affairs.

The evidence for this pattern is built upon a single, fundamental proposition: work is a form of living, with its own intrinsic rewards; any way of organizing work which is at odds with this idea, which treats work instrumentally, as a means only to other ends, is inhuman. Down through the ages people have described and proposed ways of working according to this proposition. Recently, E. F. Schumacher, the economist, has made a beautiful statement of this attitude (E. F. Schumacher, "Buddhist Economics," *Resurgence*, 275 Kings Road, Kingston, Surrey, Volume I, Number 11, January, 1968).

The Buddhist point of view takes the function of work to be at least threefold: to give a man a chance to utilize and develop his faculties; to enable him to overcome his ego-centeredness by joining with other people in a common task; and to bring forth the goods and services needed for a becoming existence. Again, the consequences that flow from this view are endless. To organize work in such a manner that it becomes meaningless, boring, stultifying, or nerve-racking for the worker would be little short of criminal; it would indicate a greater concern with goods than with people, an evil lack of compassion and a soul-destroying degree of attachment to the most

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primitive side of this worldly existence. Equally, to strive for leisure as an alternative to work would be considered a complete misunderstanding of one of the basic truths of human existence, namely, that work and leisure are complementary parts of the same living process and cannot be separated without destroying the joy of work and the bliss of leisure.

From the Buddhist point of view, there are therefore two types of mechanization which must be clearly distinguished: one that enhances a man's skill and power and one that turns the work of man over to a mechanical slave, leaving man in a position of having to serve the slave. How to tell the one from the other? "The craftsman himself," says Ananda Coomaraswamy, a man equally competent to talk about the Modern West as the Ancient East, "the craftsman himself can always, if allowed to, draw the delicate distinction between the machine and the tool. The carpet loom is a tool, a contrivance for holding warp threads at a stretch for the pile to be woven round them by the craftsmen's fingers; but the power loom is a machine, and its significance as a destroyer of culture lies in the fact that it does the essentially human part of the work." It is clear, therefore, that Buddhist economics must be very different from the economics of modern materialism, since the Buddhist sees the essence of civilization not in a multiplication of wants but in the purification of human character. Character, at the same time, is formed primarily by a man's work. And work, properly conducted in conditions of human dignity and freedom, blesses those who do it and equally their products. The Indian philosopher and economist J. C. Kumarappa sums the matter up as follows:

"If the nature of the work is properly appreciated and applied, it will stand in the same relation to the higher faculties as food is to the physical body. It nourishes and enlivens the higher man and urges him to produce the best he is capable of. It directs his freewill along the proper course and disciplines the animal in him into progressive channels. It furnishes an excellent background for man to display his scale of values and develop his personality."

In contrast to this form of work stands the style of work that has been created by the technological progress of the past two hundred years. In this style workers are made to operate like parts of a machine; they create parts of no consequence, and have no responsibility for the whole. We may fairly say that the alienation of workers from the intrinsic pleasures of their work has been a primary product of the industrial revolution. The alienation is particularly acute in large organizations, where faceless workers repeat endlessly menial tasks to create products and services with which they cannot identify.

In these organizations, with all the power and benefits that the unions have been able to wrest from the hands of the owners, there is still evidence that workers are fundamentally unhappy with their work. In the auto industry, for example, the absentee rate on Mondays and Fridays is staggering—15 to 20 per cent; and there is evidence of “massive alcoholism, similar to what the Russians are experiencing with their factory workers” (Nicholas von Hoffman, *Washington Post*). The fact is that people cannot find satisfaction in work unless it is performed at a human scale and in a setting where the worker has a say.

Job dissatisfaction in modern industry has also led to industrial sabotage and a faster turnover of workers in recent years. A new super-automated General Motors assembly plant in Lordstown, Ohio, was sabotaged and shut down for several weeks. Absenteeism in the three largest automobile manufacturing companies has doubled in the past seven years. The turnover of workers has also doubled. Some industrial engineers believe that “American industry in some cases may have pushed technology too far by taking the last few bits of skill out of jobs, and that a point of human resistance has been reached” (Agis Salpukis, “Is the machine pushing man over the brink?” *San Francisco Sunday Examiner and Chronicle*, April 16, 1972).

Perhaps the most dramatic empirical evidence for the connection between work and life is that presented in the recent study, “Work in America,” commissioned by Elliot Richardson, as Secretary of Health, Education and Welfare Department, 1972. This study finds that *the single best predictor of long life is not whether a person smokes or how often he sees a doctor, but the extent to which he is satisfied with his job*. The report identifies the two main elements of job dissatisfaction as the diminishing independence of workers, and the increasing simplification, fragmentation, and isolation of tasks—both of which are rampant in modern industrial and office work alike.

But for most of human history, the production of goods and services was for a far more personal, self-regulating affair; when each job of work was a matter of creative interest. And there is no reason why work can’t be like that again, today.

For instance, Seymour Melman, in *Decision Making and Productivity*, compares the manufacture of tractors in Detroit and in

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Coventry, England. He contrasts Detroit's managerial rule with Coventry's gang system and shows that the gang system produced high quality products and the highest wages in British industry. "The most characteristic feature of the decision-formulation process is that of mutuality in decision-making with final authority residing in the hands of the group workers themselves."

Other projects and experiments and evidence which indicate that modern work can be organized in this manner and still be compatible with sophisticated technology, have been collected by Hunnius, Garson, and Chase. See *Workers' Control*, New York: Vintage Books, 1973.

And another example comes from the reports by E. L. Trist, *Organizational Choice* and P. Herbst, *Autonomous Group Functioning*. These authors describe the organization of work in mining pits in Durham which was put into practice by groups of miners.

The composite work organization may be described as one in which the group takes over complete responsibility for the total cycle of operations involved in mining the coal-face. No member of the group has a fixed work-role. Instead, the men deploy themselves, depending on the requirements of the ongoing group task. Within the limits of technological and safety requirements they are free to evolve their way of organizing and carrying out their task.

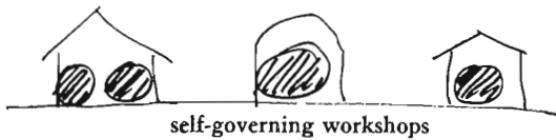
[The experiment demonstrates] the ability of quite large primary work groups of 40-50 members to act as self-regulating, self-developing social organisms able to maintain themselves in a steady state of high productivity. (Quoted in Colin Ward, "The organization of anarchy," *Patterns of Anarchy*, Krimerman and Perry, eds., New York: Anchor Books, 1966, pp. 349-51.)

We believe that these small self-governing groups are not only most efficient, but also the only possible source of job satisfaction. They provide the only style of work that is nourishing and intrinsically satisfying.

Therefore:

Encourage the formation of self-governing workshops and offices of 5 to 20 workers. Make each group autonomous—with respect to organization, style, relation to other groups, hiring and firing, work schedule. Where the work

is complicated and requires larger organizations, several of these work groups can federate and cooperate to produce complex artifacts and services.



* * *

House the workgroup in a building of its own—OFFICE CONNECTIONS (82), BUILDING COMPLEX (95); if the workgroup is large enough, and if it serves the public, break it down into autonomous departments, easily identifiable, with no more than a dozen people each—SMALL SERVICES WITHOUT RED TAPE (81); in any case, divide all work into small team work, either directly within the cooperative workgroup or under the departments, with the people of each team in common space—MASTER AND APPRENTICES (83) and SMALL WORK GROUPS (148). . . .

81 SMALL SERVICES
WITHOUT RED TAPE*



. . . all offices which provide service to the public—WORK COMMUNITY (41), UNIVERSITY AS A MARKETPLACE (43), LOCAL TOWN HALL (44), HEATH CENTER (47), TEENAGE SOCIETY (84) need subsidiary departments, where the members of the public go. And of course, piecemeal development of these small departments, one department at a time, can also help to generate these larger patterns gradually.

* * *

Departments and public services don't work if they are too large. When they are large, their human qualities vanish; they become bureaucratic; red tape takes over.

There is a great deal of literature on the way red tape and bureaucracy work against human needs. See, for example, Gideon Sjoberg, Richard Brymer, and Buford Farris, "Bureaucracy and the Lower Class," *Sociology and Social Research*, 50, April, 1966, pp. 325-77; and Alvin W. Gouldner, "Red Tape as a Social Problem," in Robert Merton, *Reader in Bureaucracy*, Free Press, 1952, pp. 410-18.

According to these authors, red tape can be overcome in two ways. First, it can be overcome by making each service program small and autonomous. A great deal of evidence shows that red tape occurs largely as a result of impersonal relationships in large institutions. When people can no longer communicate on a face-to-face basis, they need formal regulations, and in the lower echelons of the organization, these formal regulations are followed blindly and narrowly.

Second, red tape can be overcome by changing the passive nature of the clients' relation to service programs. There is considerable evidence to show that when clients have an active relationship with a social institution, the institution loses its power to intimidate them.

We have therefore concluded that no service should have more than 12 persons total (all staff, including clerks). We base this figure on the fact that 12 seems to be the largest number of

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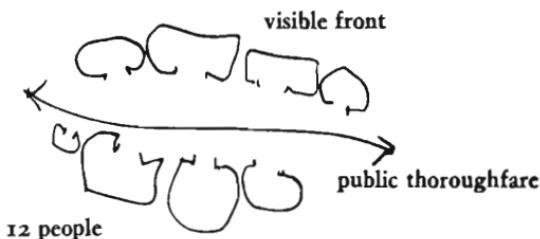
people that can sit down in a face-to-face discussion. It seems likely that a smaller staff size will work better still. Furthermore, each service should be relatively autonomous—subject only to a few simple, coordinative regulations from parent organizations—and that this should be emphasized by physical autonomy. In order to be physically autonomous, each service must have an area which is entirely under its own jurisdiction; with its own door on a public thoroughfare, and complete physical separation from other services.

This pattern applies equally to the departments of a city hall, a medical center, or to the local branches of a welfare agency. In most of these cases the pattern would require basic changes in administrative organization. However difficult they may be to implement, we believe these changes are required.

Therefore:

In any institution whose departments provide public service:

1. Make each service or department autonomous as far as possible.
2. Allow no one service more than 12 staff members total.
3. House each one in an identifiable piece of the building.
4. Give each one direct access to a public thoroughfare.



81 SMALL SERVICES WITHOUT RED TAPE

* * *

Arrange these departments in space, according to the prescription of OFFICE CONNECTIONS (82) and BUILDING COMPLEX (95); if the public thoroughfare is indoors, make it a BUILDING THOROUGHFARE (101), and make the fronts of the services visible as a FAMILY OF ENTRANCES (102); wherever the services are in any way connected to the political life of the community, mix them with ad hoc groups created by the citizens or users—NECKLACE OF COMMUNITY PROJECTS (45); arrange the inside space of the department according to FLEXIBLE OFFICE SPACE (146); and provide rooms where people can team up in two's and three's—SMALL WORK GROUPS (148). . . .

82 OFFICE CONNECTIONS*

. . . in any work community or any office, there are always various human groups—and it is always important to decide how these groups shall be placed, in space. Which should be near each other, which ones further apart? This pattern gives the answer to this question, and in doing so, helps greatly to construct the inner layout of a WORK COMMUNITY (41) or of SELF-GOVERNING WORKSHOPS AND OFFICES (80) or of SMALL SERVICES WITHOUT RED TAPE (81).



If two parts of an office are too far apart, people will not move between them as often as they need to; and if they are more than one floor apart, there will be almost no communication between the two.

Current architectural methods often include a proximity matrix, which shows the amount of movement between different people and functions in an office or a hospital. These methods always make the tacit assumption that the functions which have the most movement between them should be closest together. *However, as usually stated, this concept is completely invalid.*

The concept has been created by a kind of Taylorian quest for efficiency, in which it is assumed that the less people walk about, the less of their salary is spent on "wasteful" walking. The logical conclusion of this kind of analysis is that, if it were only possible, people should not have to walk at all, and should spend the day vegetating in their armchairs.

The fact is that people work best only when they are healthy in mind and body. A person who is forced to sit all day long behind a desk, without ever stretching his legs, will become restless and unable to work, and inefficient in this way. Some walking is very good for you. It is not only good for the body, but also gives people an opportunity for a change of scene, a way

of thinking about something else, a chance to reflect on some detail of the morning's work or one of the everyday human problems in the office.

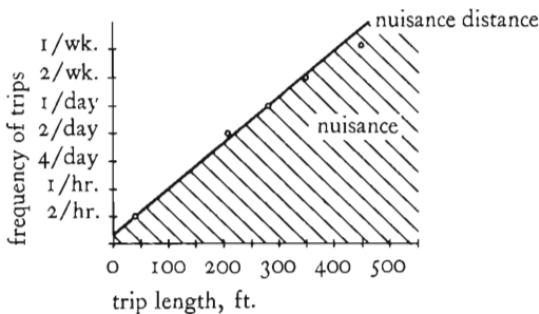
On the other hand, if a person has to make the same trip, many times, there is a point at which the length of the trip becomes time-consuming and annoying, and then inefficient, because it makes the person irritable, and finally critical when a person starts avoiding trips because they are too long and too frequent.

An office will function efficiently so long as the people who work there do not feel that the trips they have to take are a nuisance. Trips need to be short enough so they are not felt a nuisance—but they do not need to be any shorter.

The nuisance of a trip depends on the relationship between length and frequency. You can walk 10 feet to a file many times a day without being annoyed by it; you can walk 400 feet occasionally without being annoyed. In the graph below we plot the nuisance threshold for various combinations of length and frequency.

The graph is based on 127 observations in the Berkeley City Hall. People were asked to define all the trips they had to make regularly during the work week, to state their frequency, and then to state whether they considered the trip to be a nuisance.

The line on the graph shows the median of the distances said to be a nuisance for each different frequency. We define distances to the right of this line as nuisance distances. The nuisance distance for any trip frequency is the distance at which we predict that at least 50 per cent of all people will begin to consider this distance a nuisance.



Nuisance distances.

So far, our discussion of proximity has been based on *horizontal* distances. How do stairs enter in? What part does vertical distance play in the experience of proximity? Or, to put it more precisely, what is the horizontal equivalent of one flight of stairs? Suppose two departments need to be within 100 feet of one another, according to the proximity graph—and suppose that they are for some reason on different stories, one floor apart. How much of the 100 feet does the stair eat up: with the stair between them, how far apart can they be horizontally?

We do not know the exact answer to this question. However, we do have some indirect evidence from an unpublished study by Marina Estabrook and Robert Sommer. As we shall see, this study shows that stairs play a much greater role, and eat up much more "distance" than you might imagine.

Estabrook and Sommer studied the formation of acquaintances in a three-story university building, where several different departments were housed. They asked people to name all the people they knew in departments other than their own. Their results were as follows:

Percent of people known:	When departments are:
12.2	on same floor
8.9	one floor apart
2.2	two floors apart

People knew 12.2 per cent of the people from other departments on the *same* floor as their own, 8.9 per cent of the people from other departments *one* floor apart from their own floor, and only 2.2 per cent of the people from other departments *two* floors apart from their own. In short, by the time departments are separated by two floors or more, there is virtually no informal contact between the departments.

Unfortunately, our own study of proximity was done before we knew about these findings by Estabrook and Sommer; so we have not yet been able to define the relation between the two kinds of distance. It is clear, though, that one stair must be equivalent to a rather considerable horizontal distance; and that two flights of stairs have almost three times the effect of a single stair. On the basis of this evidence, we conjecture that one stair is equal to about 100 horizontal feet in its effect on interaction.

and feelings of distance; and that two flights of stairs are equal to about 300 horizontal feet.

Therefore:

To establish distances between departments, calculate the number of trips per day made between each two departments; get the "nuisance distance" from the graph above; then make sure that the physical distance between the two departments is less than the nuisance distance. Reckon one flight of stairs as about 100 feet, and two flights of stairs as about 300 feet.



* * *

Keep the buildings which house the departments in line with the **FOUR-STORY LIMIT** (21), and get their shape from **BUILDING COMPLEX** (95). Give every working group on upper storys its own stair to connect it directly to the public world—**PEDESTRIAN STREET** (100), **OPEN STAIRS** (158); if there are internal corridors between groups, make them large enough to function as streets—**BUILDING THOROUGHFARE** (101); and identify each workgroup clearly, and give it a well-marked entrance, so that people easily find their way from one to another—**FAMILY OF ENTRANCES** (102). . . .

83 MASTER AND APPRENTICES*



. . . the NETWORK OF LEARNING (18) in the community relies on the fact that learning is decentralized, and part and parcel of every activity—not just a classroom thing. In order to realize this pattern, it is essential that the individual workgroups, throughout industry, offices, workshops, and work communities, are all set up to make the learning process possible. This pattern, which shows the arrangement needed, therefore helps greatly to form SELF-GOVERNING WORKSHOPS AND OFFICES (80) as well as the NETWORK OF LEARNING (18).



The fundamental learning situation is one in which a person learns by helping someone who really knows what he is doing.

It is the simplest way of acquiring knowledge, and it is powerfully effective. By comparison, learning from lectures and books is dry as dust. But this situation has all but disappeared from modern society. The schools and universities have taken over and abstracted many ways of learning which in earlier times were always closely related to the real work of professionals, tradesmen, artisans, independent scholars. In the twelfth century, for instance, young people learned by working beside masters—helping them, making contact directly with every corner of society. When a young person found himself able to contribute to a field of knowledge, or a trade—he would prepare a master “piece”; and with the consent of the masters, become a fellow in the guild.

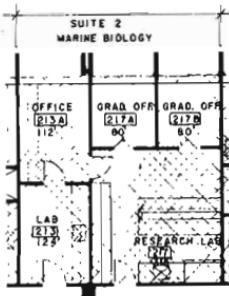
An experiment by Alexander and Goldberg has shown that a class in which one person teaches a small group of others is most likely to be successful in those cases where the “students” are actually helping the “teacher” to do something or solve some problem, which he is working on anyway—not when a subject of abstract or general interest is being taught. (Report to the Muscatine Committee, on experimental course ED. 10X, Department of Architecture, University of California, 1966.)

If this is generally true—in short, if students can learn best when they are acting as apprentices, and helping to do something

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interesting—it follows that our schools and universities and offices and industries must provide physical settings which make this master-apprentice relation possible and natural: physical settings where communal work is centered on the master's efforts and where half a dozen apprentices—not more—have workspace closely connected to the communal work of the studio.

We know of an example of this pattern, in the Molecular Biology building of the University of Oregon. The floors of the building are made up of laboratories, each one under the direction of a professor of biology, each with two or three small rooms opening directly off the lab for graduate students working under the professor's direction.



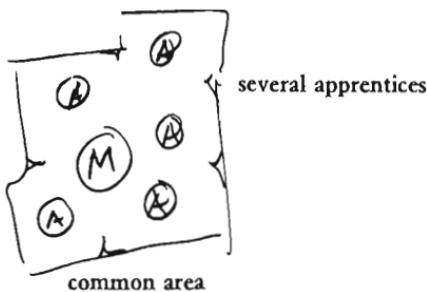
*Master-apprentice relationship
for a biology laboratory.*

We believe that variations of this pattern are possible in many different work organizations, as well as the schools. The practice of law, architecture, medicine, the building trades, social services, engineering—each discipline has the potential to set up its ways of learning, and therefore the environments in which its practitioners work, along these lines.

Therefore:

Arrange the work in every workgroup, industry, and office, in such a way that work and learning go forward hand in hand. Treat every piece of work as an opportunity for learning. To this end, organize work around a tradition of masters and apprentices: and support this form of

social organization with a division of the workspace into spatial clusters—one for each master and his apprentices—where they can work and meet together.



* * *

Arrange the workspaces as HALF-PRIVATE OFFICES (152) or WORKSPACE ENCLOSURES (183). Keep workgroups small, and give every group a common area, a common meeting space, and a place where they can eat together—COMMON AREAS AT THE HEART (129), COMMUNAL EATING (147), SMALL WORK GROUPS (148), SMALL MEETING ROOMS (151). . . .

84 TEEN-AGE SOCIETY

. . . the balanced LIFE CYCLE (26) requires that the transition from childhood to adulthood be treated by a far more subtle and embracing kind of teenage institution than a school; this pattern, which begins to define that institution, can take its place in the NETWORK OF LEARNING (18) and help contribute to the network of MASTERS AND APPRENTICES (83).

* * *

Teenage is the time of passage between childhood and adulthood. In traditional societies, this passage is accompanied by rites which suit the psychological demands of the transition. But in modern society the "high school" fails entirely to provide this passage.

The most striking traditional example we know comes from an east African tribe. In order to become a man, a boy of this tribe embarks on a two year journey, which includes a series of more and more difficult tasks, and culminates in the hardest of all—to kill a lion. During his journey, families and villages all over the territory which he roams take him in, and care for him: they recognize their obligation to do so as part of his ritual. Finally, when the boy has passed through all these tasks, and killed his lion, he is accepted as a man.

In modern society, the transition cannot be so direct or simple. For reasons too complex to discuss here, the process of transition, and the time it takes have been extended and elaborated greatly. (See Edgar Friedenberg, *The Vanishing Adolescent*, Beacon Press, Boston, 1959 and *Coming of Age in America*, Random House Inc. N.Y., 1965). Teenage lasts, typically, from 12 to 18; six years instead of one or two. The simple sexual transformation, the change from childhood to maturity, has given way to a much vaster, slower change, in which the self of a person emerges

during a long struggle in which the person decides "what he or she is going to "be". Almost no one does what his father did before him; instead, in a world of infinite possibilities, it has to be worked out from nothing. This long process, new to the world since the industrial revolution is the process we call adolescence.

And this process of adolescence calls up an extraordinary hope. Since coming of age traditionally marks the birth of self, might not an extended coming of age bring with it a more profound and varied self-conception?

That is the hope; but so far it hasn't worked that way. Every culture that has an adolescent period has also a complicated adolescent problem. Throughout the technically developed world, puberty sets off a chain of forces that lead, in remarkably similar ways, to crisis and impasse. High rates of delinquency, school dropout, teenage suicide, drug addiction, and runaway are the dramatic forms this problem takes. And under these circumstances even "normal" adolescence is full of anxiety and, far from opening the doors to a more whole and complicated self, it tends to benumb us morally and intellectually.

The institution of the high school has particularly borne the brunt of the adolescent problem. Just at the time when teenagers need to band together freely in groups of their own making and explore, step back from, and explore again, the adult world: its work, love, science, laws, habits, travel, play, communications, and governance, they get treated as if they were large children. They have no more responsibility or authority in a high school than the children in a kindergarten do. They are responsible for putting away their things, and for playing in the school band, perhaps even for electing class leaders. But these things all happen in a kindergarten too. There is no new form of society, which is a microcosm of adult society, where they can test their growing adulthood in any serious way. And under these circumstances, the adult forces which are forming in them, lash out, and wreak terrible vengeance. Blind adults can easily, then, call this vengeance "delinquency."

This has finally been recognized by an official agency. In December 1973 the National Commission on the Reform of

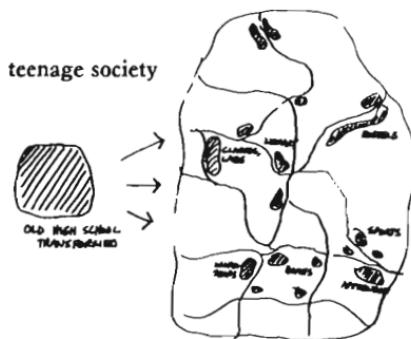
TOWNS

Secondary Education, working with the Kittering Foundation, has come to the conclusion that the high schools in American cities are simply not working; that they are breaking down as institutions. They recommend that high school be non-compulsory after 14 years of age, and that teenagers be given many options for participation in society; that the size of high schools be reduced drastically, so that they are not so much a world apart from society; that each city provide opportunities for its young to work as apprentices in the local businesses and services,—and that such work be considered part of one's formal learning.

More specifically, we believe that the teenagers in a town, boys and girls from the ages of about 12 to 18, should be encouraged to form a miniature society, in which they are as differentiated, and as responsible mutually, as the adults in the full-scale adult society. It is necessary that they are responsible to one another, that they are able to play a useful role with respect to one another, that they have different degrees of power and authority according to their age and their maturity. It is necessary, in short, that their society is a microcosm of adult society, not an artificial society where people play at being adult, but the real thing, with real rewards, real tragedies, real work, real love, real friendship, real achievements, real responsibility. For this to happen it is necessary that each town have one or more actual teenage societies, partly enclosed, watched over, helped by adults, but run, essentially, by adults and the teenagers together.

Therefore:

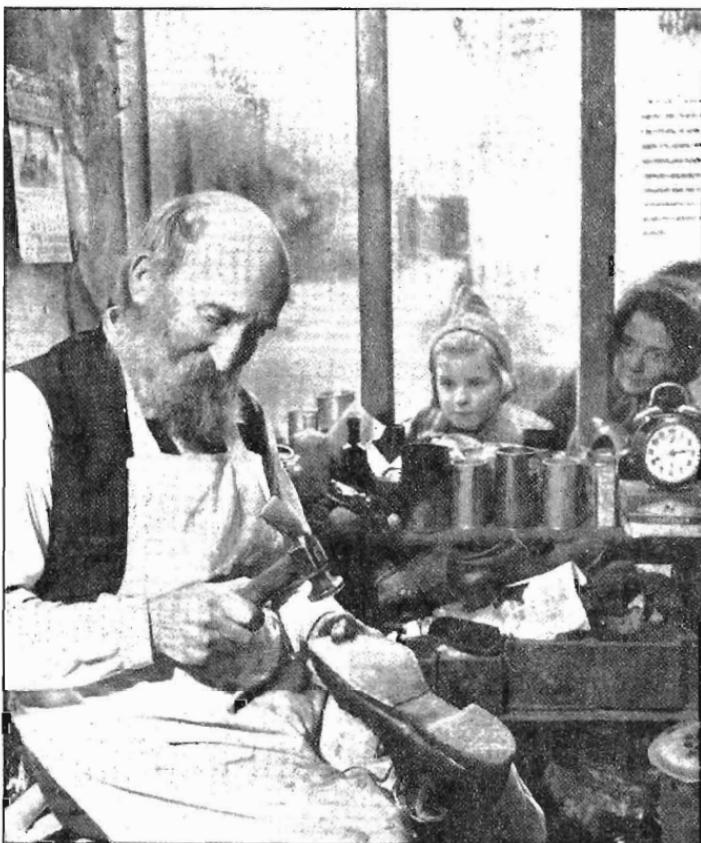
Replace the "high school" with an institution which is actually a model of adult society, in which the students take on most of the responsibility for learning and social life, with clearly defined roles and forms of discipline. Provide adult guidance, both for the learning, and the social structure of the society; but keep them as far as feasible, in the hands of the students.



* * *

Provide one central place which houses social functions, and a directory of classes in the community. Within the central place, provide communal eating for the students, opportunities for sports and games, a library and counseling for the network of learning which gives the students access to the classes, work communities, and home workshops that are scattered through the town—**NETWORK OF LEARNING (18)**, **LOCAL SPORTS (72)**, **COMMUNAL EATING (147)**, **HOME WORKSHOPS (157)**; for the shape of what buildings there are, begin with **BUILDING COMPLEX (95)**. . . .

85 SHOPFRONT SCHOOLS



. . . the CHILDREN'S HOME (86) provides the beginning of learning and forms the foundation of the NETWORK OF LEARNING (18) in a community. As children grow older and more independent, these patterns must be supplemented by a mass of tiny institutions, schools and yet not schools, dotted among the living functions of the community.



Around the age of 6 or 7, children develop a great need to learn by doing, to make their mark on a community outside the home. If the setting is right, these needs lead children directly to basic skills and habits of learning.

The right setting for a child is the community itself, just as the right setting for an infant learning to speak is his own home.

For example:

On the first day of school we had lunch in one of the Los Angeles city parks. After lunch I gathered everyone, and I said, "Let's do some tree identification," and they all moaned. So I said, "Aw, come on, you live with these plants, you could at least know their names. What's the name of these trees we're sitting under?"

They all looked up, and in unison said "Sycamores." So I said, "What kind of sycamore?" and no one knew. I got out my *Trees of North America* book, and said, "Let's find out." There were only three kinds of sycamore in the book, only one on the West Coast, and it was called the California Sycamore. I thought it was all over, but I persisted, "We better make sure by checking these trees against the description in the book." So I started reading the text, "Leaves: six to eight inches." I fished a cloth measuring tape out of a box, handed it to Jeff, and said, "Go check out those leaves." He found that the leaves were indeed six to eight inches.

I went back to the book and read, "Height of mature trees, 30-50 feet." How are we going to check that? A big discussion followed, and we finally decided that I should stand up against one of the trees, they would back off as far as they could and estimate how many "Rusches" high the tree was. A little simple multiplication followed and we had an approximate tree height. Everyone was pretty involved by now, so I asked them "How else could you do it?" Eric was in the seventh grade and knew a little geometry, so he taught us how to measure the height by triangulation.

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I was delighted just to have everyone's attention, so I went back to the book and kept reading. Near the bottom of the paragraph, came the clincher, "Diameter: one to three feet." So I handed over the measuring tape, and said, "Get me the diameter of that tree over there." They went over to the tree, and it wasn't until they were right on top of it that they realized that the only way to measure the diameter of a tree directly is to cut it down. But I insisted that we had to know the diameter of the tree, so two of them stretched out the tape next to the tree, and by eyeballing along one "edge" and then the other, they came up with eighteen inches.

I said, "Is that an accurate answer or just approximate?" They agreed it was only a guess, so I said, "How else could you do it?"

Right off, Daniel said, "Well you could measure all the way around it, lay that circle out in the dirt, and then measure across it." I was really impressed, and said, "Go to it." Meanwhile, I turned to the rest of the group, and said, "How else could you do it?"

Eric, who turned out to be a visualizer and was perhaps visualizing the tree as having two sides, said, "Well, you could measure all the way around it, and divide by two." Since I believe you learn at least as much from mistakes as from successes, I said, "Okay, try it." Meanwhile, Daniel was measuring across the circle on the ground, and by picking the right points on a somewhat lopsided circle came up with the same answer, "Eighteen inches." So I gave the tape to Eric, he measured around the tree, got sixty inches, divided by two, and got thirty for the diameter. He was naturally a little disappointed, so I said, "Well, I like your idea, maybe you just have the wrong number. Is there a better number to divide with than two?"

Right off, Michael said, "Well you could divide by three," and then thinking ahead quickly added, "and subtract two."

I said, "Great! Now you have a formula, check it out on that tree over there," pointing to one only about six inches in diameter. They went over, measured the circumference, divided by three, subtracted two, and checked it against a circle on the ground. The result was disappointing, so I told them try some more trees. They checked about three more trees and came back. "How did it work?"

"Well," Mark said, "Dividing by three works pretty well, but subtracting two isn't so good."

"How good is dividing by three?" I asked, and Michael replied, "It's not quite big enough."

"How big should it be?"

"About three and a half," said Daniel.

"No," said Michael, "It's more like three and an eighth."

At that point, these five kids, ranging in age from 9 to 12 were within two one hundredths of discovering π and I was having trouble containing myself. I suppose I could have extended the lesson by having them convert one-eighth to decimals, but I was too excited.

"Look," I said, "I want to tell you a secret. There's a magic number which is so special it has its own name. It's called π . And the magic is that once you know how big it is, you can take any circle, no matter how big or how small, and go from circumference to diameter, or diameter to circumference. Now here is how it works. . . ."

After my explanation, we went around the park, estimating the circumferences of trees by guessing their diameter, or figuring the diameter by measuring the circumference and dividing by π . Later when I had taught them how to use a slide rule, I pointed out π to them and gave them a whole series of "tree" problems. Later still, I reviewed the whole thing with telephone poles and lighting standards, just to make sure that the concept of π didn't disappear into the obscurity of abstract mathematics. I know that I didn't really understand π until I got to college, despite an excellent math program in high school. But for those five kids at least, π is something real; it "lives" in trees and telephone poles. (Charles W. Rusch, "Moboc: The Mobile Open Classroom," School of Architecture and Urban Planning, University of California, Los Angeles, November 1973.)

A few children in a bus, visiting a city park with a teacher. That works because there are only a few children and one teacher. Any public school can provide the teacher and the bus. But they cannot provide the low student-teacher ratio, because the sheer size of the school eats up all the money in administrative costs and overheads—which end up making higher student ratios economically essential. So even though everyone knows that the secret of good teaching lies in low student-teacher ratios, the schools make this one central thing impossible to get, because they waste their money being large.

But as our example suggests, we can cut back on the overhead costs of large concentrated schools and lower the student-teacher ratio; simply by making our schools smaller. This approach to schooling—the mini-school or storefront school—has been tried in a number of communities across the United States. See, for instance, Paul Goodman, "Mini-schools: a prescription for the reading problem," *New York Review of Books*, January 1968. To date, we know of no systematic empirical account of this experiment. But a good deal has been written about these schools. Perhaps the most interesting account is George Dennison's *The Lives of Children* (New York: Vintage Book, 1969):

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I would like to make clear that in contrasting our own procedures with those of the public schools, I am not trying to criticize the teachers who find themselves embattled in the institutional setting and overburdened to the point of madness. . . . My point is precisely that the intimacy and small scale of our school should be imitated widely, since these things alone make possible the human contact capable of curing the diseases we have been naming with such frequency for the last ten years.

Now that "mini-schools" are being discussed (they have been proposed most cogently by Paul Goodman and Dr. Elliott Shapiro), it's worth saying that that's exactly what we were: the first of the mini-schools. . . .

By eliminating the expenses of the centralized school, Dennison found he was able to reduce the student-teacher ratio by a factor of three!

For the twenty-three children there were three full-time teachers, one part-time (myself), and several others who came at scheduled periods for singing, dancing, and music.

Public school teachers, with their 30 to 1 ratios, will be aware that we have entered the realm of sheer luxury. One of the things that will bear repeating, however, is that this luxury was purchased at a cost per child a good bit lower than that of the public system, for the similarity of operating costs does not reflect the huge capital investment of the public schools or the great difference in the quality of service. Not that our families paid tuition (hardly anyone did); I mean simply that our money was not drained away by vast administrative costs, bookkeeping, elaborate buildings, maintenance, enforcement personnel, and vandalism.

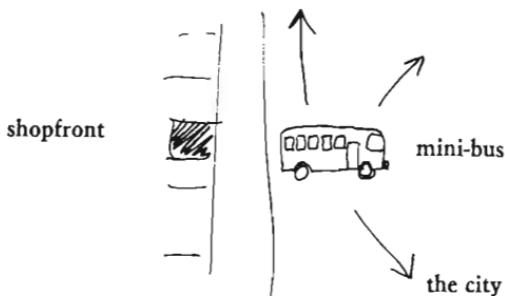
Charles Rusch, director of Moboc, Mobil Open Classroom, has made the same discovery:

. . . by eliminating the building and the salaries of all those persons who do not directly work with the children, the student/teacher ratio can be reduced from something like 35/1 to 10/1. In this one stroke many of the most pressing public school problems can be eliminated at no extra cost to the school or school district. Rusch, "Moboc: The Mobile Open Classroom," p. 7.

Therefore:

Instead of building large public schools for children 7 to 12, set up tiny independent schools, one school at a time. Keep the school small, so that its overheads are low and

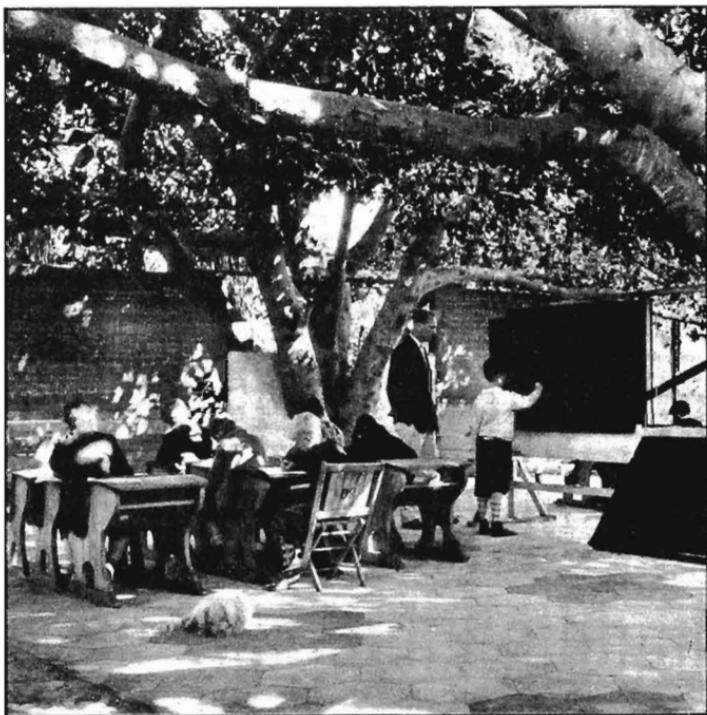
a teacher-student ratio of 1:10 can be maintained. Locate it in the public part of the community, with a shopfront and three or four rooms.



* * *

Place the school on a pedestrian street—PEDESTRIAN STREET (100); near other functioning workshops—SELF-GOVERNING WORKSHOPS AND OFFICES (80) and within walking distance of a park—ACCESSIBLE GREEN (60). Make it an identifiable part of the building it is part of—BUILDING COMPLEX (95); and give it a good strong opening at the front, so that it is connected with the street—OPENING TO THE STREET (165). . . .

86 CHILDREN'S HOME*



. . . within each neighborhood there are hundreds of children. The children, especially the young ones, are helped in their relation to the world by the patterns CHILDREN IN THE CITY (57) and CONNECTED PLAY (68). However, these very general provisions in the form of public land need to be supported by some kind of communal place, where they can stay without their parents for a few hours, or a few days, according to necessity. This pattern is a part of the NETWORK OF LEARNING (18) for the youngest children.

❖ ❖ ❖

The task of looking after little children is a much deeper and more fundamental social issue than the phrases "babysitting" and "child care" suggest.

It is true, of course, that in a society where most children are in the care of single adults or couples, the mothers and fathers must be able to have their children looked after while they work or when they want to meet their friends. This is what child care and babysitting are for. It is, if you like, the adult's view of the situation.

But the fact is that the children themselves have unsatisfied needs which are equally pressing. They need access to other adults beyond their parents, and access to other children; and the situations in which they meet these other adults and other children need to be highly complex, subtle, full of the same complexities and intensities as family life—not merely "schools" and "kindergarten" and "playgrounds."

When we look at the children's needs, and at the needs of the adults, we realize that what is needed is a new institution in the neighborhood: *a children's home*—a place where children can be safe and well looked after, night and day, with the full range of opportunities and social activities that can introduce them, fully, to society.

To a certain extent, these needs were absorbed in the large, extended families of the past. In such a family, the variety of

adults and children of other ages had a positive value for the children. It brought them into contact with more human situations, allowed them to work out their needs with a variety of people, not just two.

However, as this kind of family has gradually disappeared, we have continued to hold fast to the idea that child-raising is the job of the family alone, especially the mother. But it is no longer viable. Here is Philip Slater discussing the difficulties that beset a small nuclear family focussing its attention on one or two children:

The new parents may not be as absorbed in material possessions and occupational self-aggrandizement as their own parents were. They may channel their parental vanity into different spheres, pushing their children to be brilliant artists, thinkers, and performers. But the hard narcissistic core on which the old culture was based will not be dissolved until the parent-child relationship itself is deintensified. . . .

Breaking the pattern means establishing communities in which (a) children are not socialized exclusively by their parents, (b) parents have lives of their own and do not live vicariously through their children (*The Pursuit of Loneliness*, Boston: Beacon Press, 1971, pp. 141-42).

The children's home we propose is a place which "de-intensifies the parent-child relationship" by bringing the child into authentic social relationships with several other adults and many other children.

1. Physically, it is a very large, rambling home, with a good-sized yard.

2. The house is within walking distance of the children's own homes. Terence Lee was found that young children who walk or bike to school learn more than those who go by bus or car. The mechanism is simple and startling. The children who walk or bike, remain in contact with the ground, and are therefore able to create a cognitive map which includes both home and school. The children who are taken by car, are whisked, as if by magic carpet, from one place to the other, and cannot maintain any cognitive map which includes both home and school. To all intents and purposes they feel lost when they are at school; they are perhaps even afraid that they have lost their mothers. (T. R. Lee, "On the relation between the school journey and social and emo-

86 CHILDREN'S HOME

tional adjustment in rural infant children," *British Journal of Educational Psychology*, 27:101, 1957.)

3. There is a core staff of two or three adults who manage the home; and at least one of them, preferably more, actually lives there. In effect, it is the real home of some people; it does not close down at night.

4. Parents and their children join a particular home. And then the children may come and stay there at any time, for an hour, an afternoon, sometimes for long overnight stays.

5. Payment might be made by the hour to begin with. If we assume \$1 per hour as a base fee, and assume that a child might spend 20 hours a week there, the house needs about 30 member children to generate a monthly income of about \$2500.

6. The home focuses on raising children in a big extended family setting. For example, the home might be the center of a local coffee klatch, where a few people meet every day and mix with the children.

7. In line with this atmosphere, the home itself should be relatively open, with a public path passing across the site. Silverstein has indicated that the child's sense of his first school being "separate" from society can be reduced if the play areas of the children's home are open to all passing adults and to all passing children. (Murray Silverstein, "The Child's Urban Environment," Proceedings of the Seventy-First National Convention of the Congress of Parents and Teachers, Chicago, Illinois, 1967, pp. 39-45.)

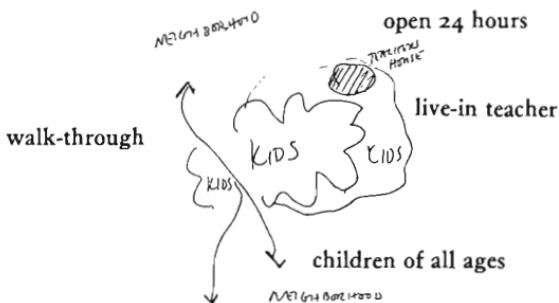
8. To keep the young children safe, and to make it possible to give them this great freedom without losing track of them altogether, the play areas may be sunk slightly, and surrounded by a low wall. If the wall is at seat height, it will encourage people to sit on it—giving them a place from which to watch the children playing, and the children a chance to talk to passers-by.

The children's home pattern has been tried, successfully, in a far more extreme form than we imagine here, in many kibbutzim where children are raised in collective nurseries, and merely visit their parents for a few hours per week. The fact that this very extreme version has been successful should remove any doubts about the workability of the much milder version which we are proposing.

Therefore:

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In every neighborhood, build a children's home—a second home for children—a large rambling house or workplace—a place where children can stay for an hour or two, or for a week. At least one of the people who run it must live on the premises; it must be open 24 hours a day; open to children of all ages; and it must be clear, from the way that it is run, that it is a second family for the children—not just a place where baby-sitting is available.



Treat the building as a collection of small connected buildings—**BUILDING COMPLEX** (95); lay an important neighborhood path right through the building, so that children who are not a part of the school can see and get to know it by meeting the children who are—**BUILDING THOROUGHFARE** (101); attach it to the local **ADVENTURE PLAYGROUND** (73); make the teachers' house an integral part of the interior—**YOUR OWN HOME** (79); and treat the common space itself as the hearth of a larger family—**THE FAMILY** (75), **COMMON AREAS AT THE HEART** (129). . . .

the local shops and gathering places:

87. INDIVIDUALLY OWNED SHOPS
88. STREET CAFE
89. CORNER GROCERY
90. BEER HALL
91. TRAVELER'S INN
92. BUS STOP
93. FOOD STANDS
94. SLEEPING IN PUBLIC

87 INDIVIDUALLY OWNED
SHOPS**



. . . the STREET CAFE (88) and CORNER GROCERY (89) and all the individual shops and stalls in SHOPPING STREETS (32) and MARKETS OF MANY SHOPS (46) must be supported by an ordinance which guarantees that they will stay in local private hands, and not be owned by absentee landlords, or chain stores, or giant franchise operations.



When shops are too large, or controlled by absentee owners, they become plastic, bland, and abstract.

The profit motive creates a tendency for shops to become larger. But the larger they become, the less personal their service is, and the harder it is for other small shops to survive. Soon, the shops in the economy are almost entirely controlled by chain stores and franchises.

The franchises are doubly vicious. They create the image of individual ownership; they give a man who doesn't have enough capital to start his own store the chance to run a store that seems like his; and they spread like wildfire. But they create even more plastic, bland, and abstract services. The individual managers have almost no control over the goods they sell, the food they serve; policies are tightly controlled; the personal quality of individually owned shops is altogether broken down.



Shop run for money alone.



Shop run as a way of life.

Communities can only get this personal quality back if they prohibit all forms of franchise and chain stores, place limits on

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the actual size of stores in a community, and prohibit absentee owners from owning shops. In short, they must do what they can to keep the wealth generated by the local community in the hands of that community.

Even then, it will not be possible to maintain this pattern unless the size of the shop spaces available for rent is small. One of the biggest reasons for the rise of large, nationally owned franchises is that the financial risks of starting a business are so enormous for the average individual. The failure of a single owner's business can be catastrophic for him personally; and it happens, in large part because he can't afford the rent. Many hundreds of tiny shops, with low rents, will keep the initial risk for a shop keeper who is starting, to a minimum.

Shops in Morocco, India, Peru, and the oldest parts of older towns, are often no more than 50 square feet in area. Just room for a person and some merchandise—but plenty big enough.



Fifty square feet.

Therefore:

Do what you can to encourage the development of individually owned shops. Approve applications for business licenses only if the business is owned by those people who actually work and manage the store. Approve new commercial building permits only if the proposed structure includes many very very small rental spaces.

owner occupied

lengths

lengths

some no more than 50 square feet

* * *

Treat each individual shop as an identifiable unit of a larger BUILDING COMPLEX (95); make at least some part of the shop part of the sidewalk, so that people walk through the shop as they are going down the street—OPENING TO THE STREET (165); and build the inside of the shop with all the goods as open and available as possible—THE SHAPE OF INDOOR SPACE (191), THICK WALLS (197), OPEN SHELVES (200). . . .

88 STREET CAFE**



. . . neighborhoods are defined by IDENTIFIABLE NEIGHBORHOOD (14); their natural points of focus are given by ACTIVITY NODES (30) and SMALL PUBLIC SQUARES (61). This pattern, and the ones which follow it, give the neighborhood and its points of focus, their identity.



The street cafe provides a unique setting, special to cities: a place where people can sit lazily, legitimately, be on view, and watch the world go by.

The most humane cities are always full of street cafes. Let us try to understand the experience which makes these places so attractive.

We know that people enjoy mixing in public, in parks, squares, along promenades and avenues, in street cafes. The preconditions seem to be: the setting gives you the right to be there, by custom; there are a few things to do that are part of the scene, almost ritual: reading the newspaper, strolling, nursing a beer, playing catch; and people feel safe enough to relax, nod at each other, perhaps even meet. A good cafe terrace meets these conditions. But it has in addition, special qualities of its own: a person may sit there for hours—in public! Strolling, a person must keep up a pace; loitering is only for a few minutes. You can sit still in a park, but there is not the volume of people passing, it is more a private, peaceful experience. And sitting at home on one's porch is again different: it is far more protected; and there is not the mix of people passing by. But on the cafe terrace, you can sit still, relax, and be very public. As an experience it has special possibilities; “perhaps the next person . . .”; it is a risky place.

It is this experience that the street cafe supports. And it is one of the attractions of cities, for only in cities do we have the concentration of people required to bring it off. But this experience need not be confined to the special, extraordinary parts of town. In European cities and towns, there is a street cafe in every neighborhood—they are as ordinary as gas stations are in the United

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States. And the existence of such places provides social glue for the community. They become like clubs—people tend to return to their favorite, the faces become familiar. When there is a successful cafe within walking distance of your home, in the neighborhood, so much the better. It helps enormously to increase the identity of a neighborhood. It is one of the few settings where a newcomer to the neighborhood can start learning the ropes and meeting the people who have been there many years.

The ingredients of a successful street cafe seem to be:

1. There is an established local clientele. That is, by name, location, and staff, the cafe is very much anchored in the neighborhood in which it is situated.
2. In addition to the terrace which is open to the street, the cafe contains several other spaces: with games, fire, soft chairs, newspapers. . . . This allows a variety of people to start using it, according to slightly different social styles.
3. The cafe serves simple food and drinks—some alcoholic drinks, but it is not a bar. It is a place where you are as likely to go in the morning, to start the day, as in the evening, for a nightcap.

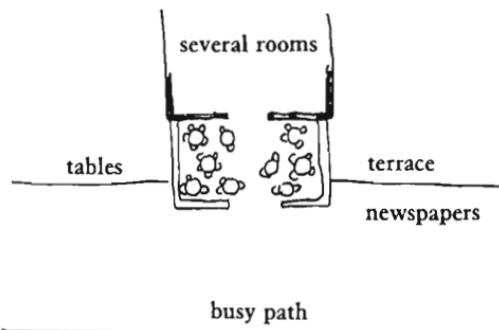
When these conditions are present, and the cafe takes hold, it offers something unique to the lives of the people who use it: it offers a setting for discussions of great spirit—talks, two-bit lectures, half-public, half-private, learning, exchange of thought.

When we worked for the University of Oregon, we compared the importance of such discussion in cafes and cafe-like places, with the instruction students receive in the classroom. We interviewed 30 students to measure the extent that shops and cafes contributed to their intellectual and emotional growth at the University. We found that “talking with a small group of students in a coffee shop” and “discussion over a glass of beer” scored as high and higher than “examinations” and “laboratory study.” Apparently the informal activities of shops and cafes contribute as much to the growth of students, as the more formal educational activities.

We believe this phenomenon is general. The quality that we tried to capture in these interviews, and which is present in a neighborhood cafe, is essential to all neighborhoods—not only student neighborhoods. It is part of their life-blood.

Therefore:

Encourage local cafes to spring up in each neighborhood. Make them intimate places, with several rooms, open to a busy path, where people can sit with coffee or a drink and watch the world go by. Build the front of the cafe so that a set of tables stretch out of the cafe, right into the street.



busy path

* * *

Build a wide, substantial opening between the terrace and the indoors—OPENING TO THE STREET (165); make the terrace double as a PLACE TO WAIT (150) for nearby bus stops and offices; both indoors and on the terrace use a great variety of different kinds of chairs and tables—DIFFERENT CHAIRS (251); and give the terrace some low definition at the street edge if it is in danger of being interrupted by street action—STAIR SEATS (125), SITTING WALL (243), perhaps a CANVAS ROOF (244). For the shape of the building, the terrace, and the surroundings, begin with BUILDING COMPLEX (95). . . .

89 CORNER GROCERY*



. . . the major shopping needs, in any community, are taken care of by the MARKET OF MANY SHOPS (46). However, the WEB OF SHOPPING (19) is not complete, unless there are also much smaller shops, more widely scattered, helping to supplement the markets, and helping to create the natural identity of IDENTIFIABLE NEIGHBORHOODS (14).



It has lately been assumed that people no longer want to walk to local stores. This assumption is mistaken.

Indeed, we believe that people are not only *willing* to walk to their local corner groceries, but that the corner grocery plays an essential role in any healthy neighborhood: partly because it is just more convenient for individuals; partly because it helps to integrate the neighborhood as a whole.

Strong support for this notion comes from a study by Arthur D. Little, Inc., which found that neighborhood stores are one of the two most important elements in people's perception of an area as a neighborhood (*Community Renewal Program*, New York: Praeger Press, 1966). Apparently this is because local stores are an important destination for neighborhood walks. People go to them when they feel like a walk as well as when they need a carton of milk. In this way, as a generator of walks, they draw a residential area together and help to give it the quality of a neighborhood. Similar evidence comes from a report by the management of one of San Francisco's housing projects for the elderly. One of the main reasons why people resisted moving into some of the city's new housing projects, according to the rental manager, was that the projects were not located in "downtown locations, where . . . there is a store on every street corner." (*San Francisco Chronicle*, August 1971.)

To find out how far people will walk to a store we interviewed 20 people at a neighborhood store in Berkeley. We found that 80 per cent of the people interviewed walked, and that those who walked all came three blocks or less. Over half of

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them had been to the store previously within two days. On the other hand, those who came by car usually came from more than four blocks away. We found the pattern to be similar at other public facilities in the neighborhoods that we surveyed. At distances around four blocks, or greater, people who rode outnumbered those who walked. It seems then, that corner groceries need to be within walking distance, three to four blocks or 1200 feet, of every home.

But can they survive? Are these stores doomed by the economics of scale? How many people does it take to support one corner grocery? We may estimate the critical population for grocery stores by consulting the yellow pages. For example, San Francisco, a city of 750,000, has 638 neighborhood grocery stores. This means that there is one grocery for every 1160 people, which corresponds to Berry's estimate—see *WEB OF SHOPPING* (19)—and corresponds also to the size of neighborhoods—see *IDENTIFIABLE NEIGHBORHOOD* (14).

It seems, then, that a corner grocery can survive under circumstances where there are 1000 people within three or four blocks—a net density of at least 20 persons per net acre, or six houses per net acre. Most neighborhoods do have this kind of density. One might even take this figure as a lower limit for a viable neighborhood, on the grounds that a neighborhood *ought* to be able to support a corner grocery, for the sake of its own social cohesion.

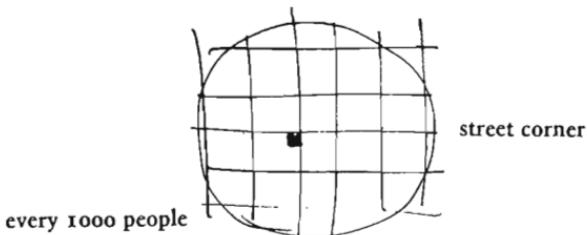
Finally, the success of a neighborhood store will depend on its location. It has been shown that the rents which owners of small retail businesses are willing to pay vary directly with the amount of pedestrian traffic passing by, and are therefore uniformly higher on street corners than in the middle of the block. (Brian J. L. Berry, *Geography of Market Centers and Retail Distribution*, Prentice Hall, 1967, p. 49.)

Therefore:

Give every neighborhood at least one corner grocery, somewhere near its heart. Place these corner groceries every 200 to 800 yards, according to the density, so that each one serves about 1000 people. Place them on corners, where

large numbers of people are going past. And combine them with houses, so that the people who run them can live over them or next to them.

small grocery



Prevent franchises and pass laws which prevent the emergence of those much larger groceries which swallow up the corner groceries—INDIVIDUALLY OWNED SHOPS (87). Treat the inside of the shop as a room, lined with goods—THE SHAPE OF INDOOR SPACE (191), THICK WALLS (197), OPEN SHELVES (200); give it a clear and wide entrance so that everyone can see it—MAIN ENTRANCE (110), OPENING TO THE STREET (165). And for the shape of the grocery, as a small building or as part of a larger building, begin with BUILDING COMPLEX (95). . . .

90 BEER HALL



. . . in an occasional neighborhood, which functions as the focus of a group of neighborhoods, or in a boundary between neighborhoods—NEIGHBORHOOD BOUNDARY (15)—or on the promenade which forms the focus of a large community—PROMENADE (31), NIGHT LIFE (33)—there is a special need for something larger and more raucous than a street cafe.



Where can people sing, and drink, and shout and drink, and let go of their sorrows?

A public drinking house, where strangers and friends are drinking companions, is a natural part of any large community. But all too often, bars degenerate and become nothing more than anchors for the lonely. Robert Sommer has described this in "Design for Drinking," Chapter 8 of his book *Personal Space*, Englewood Cliffs, N.J.: Prentice-Hall, 1969.

. . . it is not difficult in any American city to find examples of the bar where meaningful contact is at a minimum. V. S. Pritchett describes the lonely men in New York City sitting speechlessly on a row of barstools, with their arms triangled on the bar before a bottle of beer, their drinking money before them. If anyone speaks to his neighbor under these circumstances, he is likely to receive a suspicious stare for his efforts. The barman is interested in the patrons as customers—he is there to sell, they are there to buy. . . .

Another visiting Englishman makes the same point when he describes the American bar as a "hoked up saloon; the atmosphere is as chilly as the beer . . . when I asked a stranger to have a drink, he looked at me as if I were mad. In England if a guy's a stranger, . . . each guy buys the other a drink. You enjoy each other's company, and everyone is happy. . . ." (Tony Kirby, "Who's Crazy?" *The Village Voice*, January 26, 1967, p. 39.)

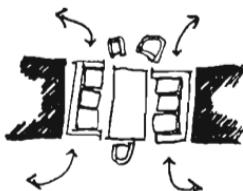
Let us consider drinking more in the style of these English pubs. Drink helps people to relax and become open with one another, to sing and dance. But it only brings out these qualities when the setting is right. We think that there are two critical qualities for the setting:

1. The place holds a crowd that is continuously mixing be-

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tween functions—the bar, the dance floor, a fire, darts, the bathrooms, the entrance, the seats; and these activities are concentrated and located round the edge so that they generate continual criss-crossing.

2. The seats should be largely in the form of tables for four to eight set in open alcoves—that is, tables that are defined for small groups, with walls, columns, and curtains—but open at both ends.

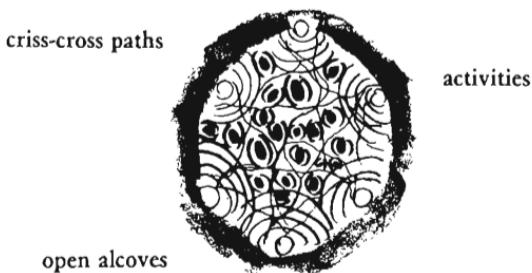


The open alcove—supports the fluidity of the scene.

This form helps sustain the life of the group and lets people come in and out freely. Also, when the tables are large, they invite people to sit down with a stranger or another group.

Therefore:

Somewhere in the community at least one big place where a few hundred people can gather, with beer and wine, music, and perhaps a half-dozen activities, so that people are continuously criss-crossing from one to another.



* * *

Put the tables in two-ended alcoves, roomy enough for people to pass through on their way between activities—ALCOVES (179); provide a fire, as the hub of one activity—THE FIRE (181); and a variety of ceiling heights to correspond to different social groupings—CEILING HEIGHT VARIETY (190). For the shape of the building, gardens, parking, and surroundings, begin with BUILDING COMPLEX (95). . . .

91 TRAVELER'S INN*



. . . any town or city has visitors and travelers passing through, and these visitors will naturally tend to congregate around the centers of activity—MAGIC OF THE CITY (10), ACTIVITY NODES (30), PROMENADE (31), NIGHT LIFE (33), WORK COMMUNITY (41). This pattern shows how the hotels which cater to these visitors can most effectively help to sustain the life of these centers.



A man who stays the night in a strange place is still a member of the human community, and still needs company. There is no reason why he should creep into a hole, and watch TV alone, the way he does in a roadside motel.

At all times, except our own, the inn was a wonderful place, where strangers met for a night, to eat, and drink, play cards, tell stories, and experience extraordinary adventures. But in a modern motel every ounce of this adventure has been lost. The motel owner assumes that strangers are afraid of one another, so he caters to their fear by making each room utterly self-contained and self-sufficient.

But behind the fear, there is a deep need: the need for company—for stories, and adventures, and encounters. It is the business of an inn to create an atmosphere where people can experience and satisfy this need. The most extreme version is the Indian pilgrim's inn, or the Persian caravanserai. There people eat, and meet, and sleep, and talk, and smoke, and drink in one great space, protected from danger by their mutual company, and given entertainment by one another's escapades and stories.

The inspiration for this pattern came from Gita Shah's description of the Indian pilgrim's inn, in *The Timeless Way of Building*:

In India, there are many of these inns. There is a courtyard where the people meet, and a place to one side of the courtyard where they eat, and also on this side there is the person who looks after the Inn, and on the other three sides of the courtyard there are the rooms—in front of the rooms is an arcade, maybe one step up from

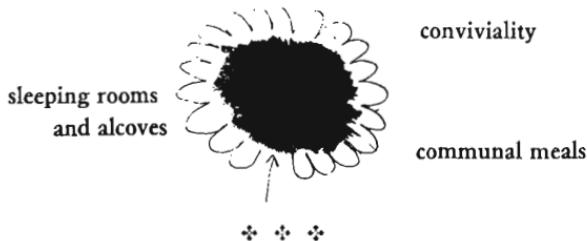
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the courtyard, and about ten feet deep, with another step leading into the rooms. During the evening everyone meets in the courtyard, and they talk and eat together—it is very special—and then at night they all sleep in the arcade, so they are all sleeping together, round the courtyard.

And of course, the size is crucial. The atmosphere comes mainly from the fact that the people who run the place themselves live there and treat the entire inn as their household. A family can't handle more than 30 rooms.

Therefore:

Make the traveler's inn a place where travelers can take rooms for the night, but where—unlike most hotels and motels—the inn draws all its energy from the community of travelers that are there any given evening. The scale is small—30 or 40 guests to an inn; meals are offered communally; there is even a large space ringed round with beds in alcoves.



The heart of the conviviality is the central area, where everyone can meet and talk and dance and drink—**COMMON AREAS AT THE HEART** (129), **DANCING IN THE STREET** (65), and **BEER HALL** (90). Provide the opportunity for communal eating, not a restaurant, but common food around a common table—**COMMUNAL EATING** (147); and, over and above the individual rooms there are at least some areas where people can lie down and sleep in public unafraid—**SLEEPING IN PUBLIC** (94), **COMMUNAL SLEEPING** (186). For the overall shape of the inn, its gardens, parking, and surroundings, begin with **BUILDING COMPLEX** (95). . . .

92 BUS STOP*



. . . within a town whose public transportation is based on MINIBUSES (20), genuinely able to serve people, almost door to door, for a low price, and very fast, there need to be bus stops within a few hundred feet of every house and workplace. This pattern gives the form of the bus stops.



Bus stops must be easy to recognize, and pleasant, with enough activity around them to make people comfortable and safe.

Bus stops are often dreary because they are set down independently, with very little thought given to the experience of waiting there, to the relationship between the bus stop and its surroundings. They are places to stand idly, perhaps anxiously, waiting for the bus, always watching for the bus. It is a shabby experience; nothing that would encourage people to use public transportation.

The secret lies in the web of relationships that are present in the tiny system around the bus stop. If they knit together, and reinforce each other, adding choice and shape to the experience, the system is a good one: but the relationships that make up such a system are extremely subtle. For example, a system as simple as a traffic light, a curb, and street corner can be enhanced by viewing it as a distinct node of public life: people wait for the light to change, their eyes wander, perhaps they are not in such a hurry. Place a newsstand and a flower wagon at the corner and the experience becomes more coherent.

The curb and the light, the paperstand and the flowers, the awning over the shop on the corner, the change in people's pockets—all this forms a web of mutually sustaining relationships.

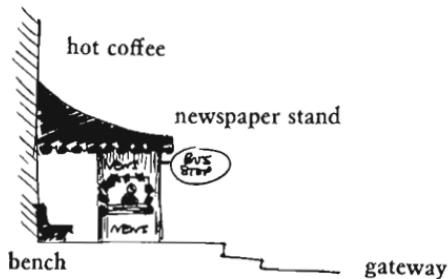
The possibilities for each bus stop to become part of such a web are different—in some cases it will be right to make a system that will draw people into a private reverie—an old tree; another time one that will do the opposite—give shape to the social possibilities—a coffee stand, a canvas roof, a decent place to sit for people who are not waiting for the bus.



Two bus stops.

Therefore:

Build bus stops so that they form tiny centers of public life. Build them as part of the gateways into neighborhoods, work communities, parts of town. Locate them so that they work together with several other activities, at least a newsstand, maps, outdoor shelter, seats, and in various combinations, corner groceries, smoke shops, coffee bar, tree places, special road crossings, public bathrooms, squares. . . .



Make a full gateway to the neighborhood next to the bus stop, or place the bus stop where the best gateway is already—MAIN GATEWAY (53); treat the physical arrangement according to the patterns for PUBLIC OUTDOOR ROOM (69), PATH SHAPE (121), and A PLACE TO WAIT (150); provide a FOOD STAND (93); place the seats according to sun, wind protection, and view—SEAT SPOTS (241). . . .

93 FOOD STANDS*



. . . throughout the neighborhood there are natural public gathering places—ACTIVITY NODES (30), ROAD CROSSINGS (54), RAISED WALKS (55), SMALL PUBLIC SQUARES (61), BUS STOPS (92). All draw their life, to some extent, from the food stands, the hawkers, and the vendors who fill the street with the smell of food.

* * *

Many of our habits and institutions are bolstered by the fact that we can get simple, inexpensive food on the street, on the way to shopping, work, and friends.

The food stands which make the best food, and which contribute most to city life, are the smallest shacks and carts from which individual vendors sell their wares. Everyone has memories of them.

But in their place we now have shining hamburger kitchens, fried chicken shops, and pancake houses. They are chain operations, with no roots in the local community. They sell “plastic,” mass-produced frozen food, and they generate a shabby quality of life around them. They are built to attract the eye of a person driving: the signs are huge; the light is bright neon. They are insensitive to the fabric of the community. Their parking lots around them kill the public open space.

If we want food in our streets contributing to the social life of the streets, not helping to destroy it, the food stands must be made and placed accordingly.

We propose four rules:

1. The food stands are concentrated at ROAD CROSSINGS (54) of the NETWORK OF PATHS AND CARS (52). It is possible to see them from cars and to expect them at certain kinds of intersections, but they do not have special parking lots around them—see NINE PER CENT PARKING (22).

2. The food stands are free to take on a character that is compatible with the neighborhood around them. They can be

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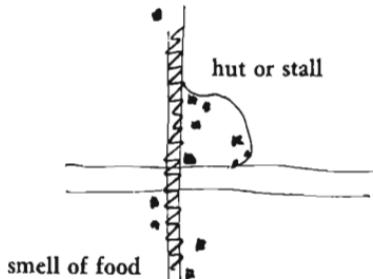
freestanding carts, or built into the corners and crevices of existing buildings; they can be small huts, part of the fabric of the street.

3. The smell of the food is out in the street; the place can be surrounded with covered seats, sitting walls, places to lean and sip coffee, part of the larger scene, not sealed away in a plate glass structure, surrounded by cars. The more they smell, the better.

4. They are never franchises, but always operated by their owners. The best food always comes from family restaurants; and the best food in a foodstand always comes when people prepare the food and sell it themselves, according to their own ideas, their own recipes, their own choice.

Therefore:

Concentrate food stands where cars and paths meet—either portable stands or small huts, or built into the fronts of buildings, half-open to the street.



Treat these food stands as ACTIVITY POCKETS (124) when they are part of a square; Use canvas roofs to make a simple shelter over them—CANVAS ROOF (244); and keep them in line with the precepts of INDIVIDUALLY OWNED SHOPS (87): the best food always comes from people who are in business for themselves, who buy the raw food, and prepare it in their own style. . . .

94 SLEEPING IN PUBLIC



. . . this pattern helps to make places like the INTERCHANGE (34), SMALL PUBLIC SQUARES (61), PUBLIC OUTDOOR ROOMS (69), STREET CAFE (88), PEDESTRIAN STREET (100), BUILDING THOROUGHFARE (101), A PLACE TO WAIT (150) completely public.

* * *

It is a mark of success in a park, public lobby or a porch, when people can come there and fall asleep.

In a society which nurtures people and fosters trust, the fact that people sometimes want to sleep in public is the most natural thing in the world. If someone lies down on a pavement or a bench and falls asleep, it is possible to treat it seriously as a need. If he has no place to go—then, we, the people of the town, can be happy that he can at least sleep on the public paths and benches; and, of course, it may also be someone who does have a place to go, but happens to like napping in the street.

But our society does not invite this kind of behavior. In our society, sleeping in public, like loitering, is thought of as an act for criminals and destitutes. In our world, when homeless people start sleeping on public benches or in public buildings, upright citizens get nervous, and the police soon restore “public order.”

Thus we cleared these difficult straits, my bicycle and I, together. But a little further on I heard myself hailed. I raised my head and saw a policeman. Elliptically speaking, for it was only later, by way of induction, or deduction, I forgot which, that I knew what it was. What are you doing there? he said. I’m used to that question, I understood it immediately. Resting, I said. Resting, he said. Resting, I said. Will you answer my question? he cried. So it always is when I’m reduced to confabulation. I honestly believe I have answered the question I am asked and in reality I do nothing of the kind. I won’t reconstruct the conversation in all its meanderings. It ended in my understanding that my way of resting, my attitude when at rest, astride my bicycle, my arms on the handlebars, my head on my arms, was a violation of I don’t know what, public order, public decency. . . .

What is certain is this, that I never rested in that way again, my

feet obscenely resting on the earth, my arms on the handlebars and on my arms my head, rocking and abandoned. It is indeed a deplorable sight, a deplorable example, for the people, who so need to be encouraged, in their bitter toil, and to have before their eyes manifestations of strength only, of courage and joy, without which they might collapse, at the end of the day, and roll on the ground. (Samuel Beckett, *Molloy*.)

It seems, at first, as though this is purely a social problem and that it can only be changed by changing people's attitudes. But the fact is, that these attitudes are largely shaped by the environment itself. In an environment where there are very few places to lie down and sleep people who sleep in public seem unnatural, because it is so rare.

Therefore:

Keep the environment filled with ample benches, comfortable places, corners to sit on the ground, or lie in comfort in the sand. Make these places relatively sheltered, protected from circulation, perhaps up a step, with seats and grass to slump down upon, read the paper and doze off.



* * *

Above all, put the places for sleeping along BUILDING EDGES (160); make seats there, and perhaps even a bed alcove or two in public might be a nice touch—BED ALCOVE (188), SEAT SPOTS (241); but above all, it will hinge on the attitudes which people have—do anything you can to create trust, so that people feel no fear in going to sleep in public and so that other people feel no fear of people sleeping in the street.

