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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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with

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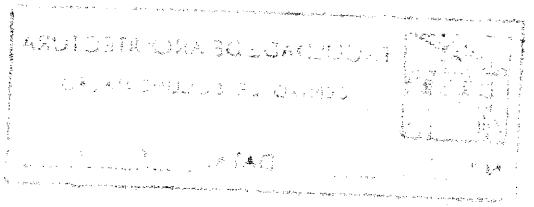
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Volume 1, *The Timeless Way of Building*, and Volume 2, *A Pattern Language*, are two halves of a single work. This book provides a language, for building and planning; the other book provides the theory and instructions for the use of the language. 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.

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.

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 SUBCULTURE 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

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.

SUMMARY OF THE LANGUAGE

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

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 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.

1. 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

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

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

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

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

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

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

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

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;

119. ARCADES
120. PATHS AND GOALS
121. PATH SHAPE
122. BUILDING FRONTS
123. PEDESTRIAN DENSITY
124. ACTIVITY POCKETS
125. STAIR SEATS
126. 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;

127. INTIMACY GRADIENT
128. INDOOR SUNLIGHT
129. COMMON AREAS AT THE HEART
130. ENTRANCE ROOM
131. THE FLOW THROUGH ROOMS
132. SHORT PASSAGES
133. STAIRCASE AS A STAGE
134. ZEN VIEW
135. TAPESTRY OF LIGHT AND DARK

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;

136. COUPLE'S REALM

137. CHILDREN'S REALM

138. SLEEPING TO THE EAST

139. FARMHOUSE KITCHEN

140. PRIVATE TERRACE ON THE STREET

141. A ROOM OF ONE'S OWN

142. SEQUENCE OF SITTING SPACES

143. BED CLUSTER

144. BATHING ROOM

145. BULK STORAGE

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

146. FLEXIBLE OFFICE SPACE

147. COMMUNAL EATING

148. SMALL WORK GROUPS

149. RECEPTION WELCOMES YOU

150. A PLACE TO WAIT

151. SMALL MEETING ROOMS

152. 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;

153. ROOMS TO RENT

154. TEENAGER'S COTTAGE

155. OLD AGE COTTAGE

156. SETTLED WORK

157. HOME WORKSHOP

158. 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;

159. LIGHT ON TWO SIDES OF EVERY ROOM

160. BUILDING EDGE

161. SUNNY PLACE

162. NORTH FACE

163. OUTDOOR ROOM

164. STREET WINDOWS

165. OPENING TO THE STREET

166. GALLERY SURROUND

167. SIX-FOOT BALCONY

168. CONNECTION TO THE EARTH

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

169. TERRACED SLOPE

170. FRUIT TREES

171. TREE PLACES

172. GARDEN GROWING WILD

173. GARDEN WALL

174. TRELLISED WALK

175. GREENHOUSE

176. GARDEN SEAT

177. VEGETABLE GARDEN

178. COMPOST

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

179. ALCOVES

180. WINDOW PLACE

181. THE FIRE

182. EATING ATMOSPHERE

183. WORKSPACE ENCLOSURE

184. COOKING LAYOUT

185. SITTING CIRCLE

186. COMMUNAL SLEEPING

187. MARRIAGE BED

188. BED ALCOVE

189. DRESSING ROOM

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

190. CEILING HEIGHT VARIETY

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

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

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

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

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.

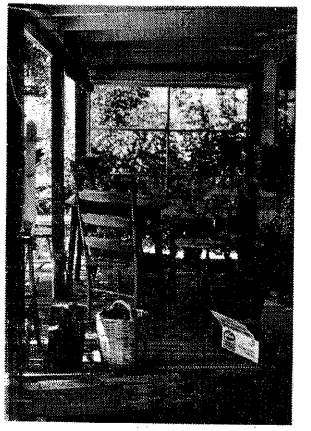
The height of the platform above the ground was determined by CEILING HEIGHT VARIETY (190). By building the platform approximately one foot above the ground line, the ceiling height of the covered portion came out at between 6 and 7 feet—just right for a space as small as this. Since this height above 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

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.

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

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

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.

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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.

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

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,

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.

TOWNS

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.

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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

process which we believe is compatible with this piecemeal 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 cooperative 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

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

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

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.

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

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.

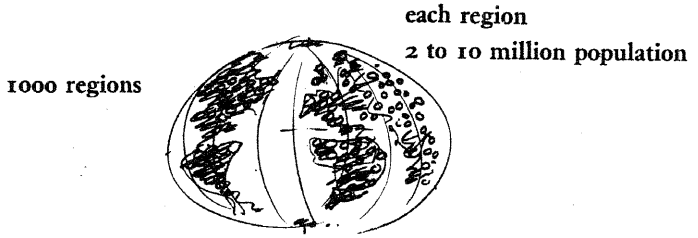
4. Finally, unless the present-day great nations have their power greatly decentralized, the beautiful and differentiated languages, cultures, customs, and ways of life of the earth's people, vital to the health of the planet, will vanish. In short, we believe that independent regions are the natural 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.

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.



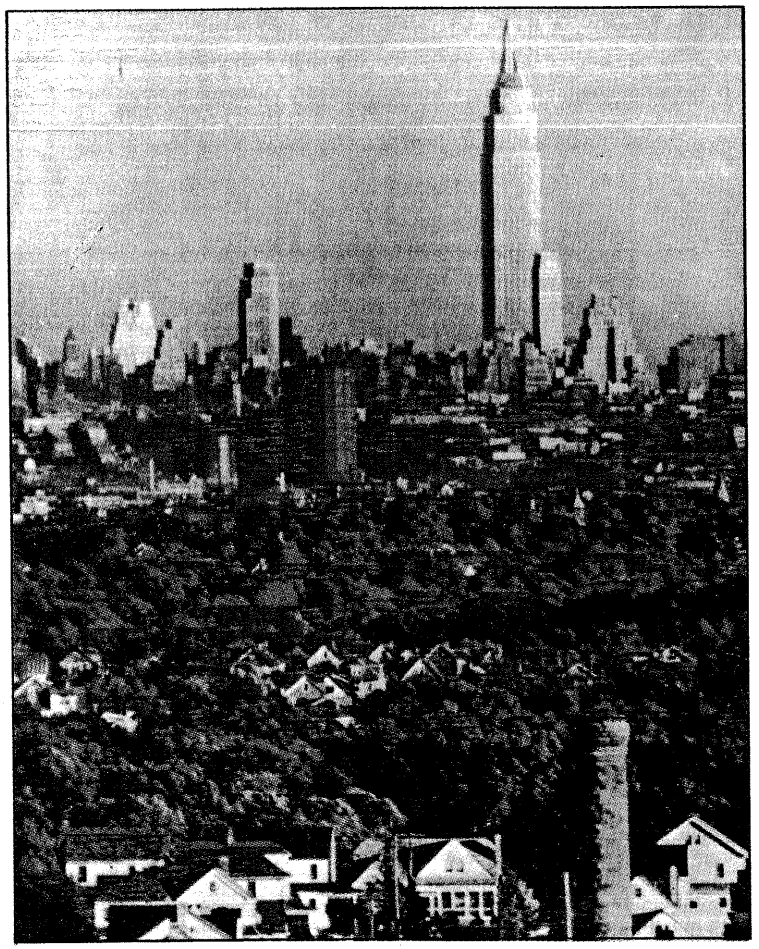
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Within each region encourage the population to distribute itself as widely as possible across the region—THE DISTRIBUTION OF TOWNS (2). . . .

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)?

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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 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

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:

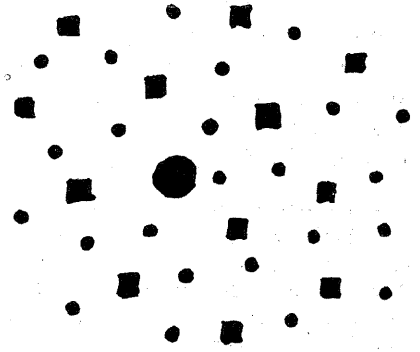
> This is because the actual urban superstructure required per inhabitant goes up radically as the size of the town increases beyond a certain point. For example, the *per capita* cost of high rise flats is much greater than that of ordinary houses; and the cost of roads and other transportation routes 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.**

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.

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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.)

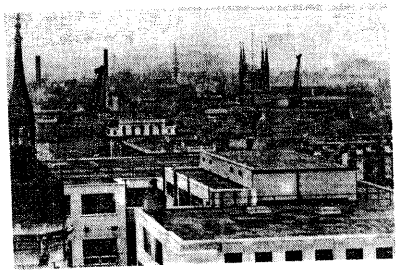
It is easy to understand why city people long for contact with

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.

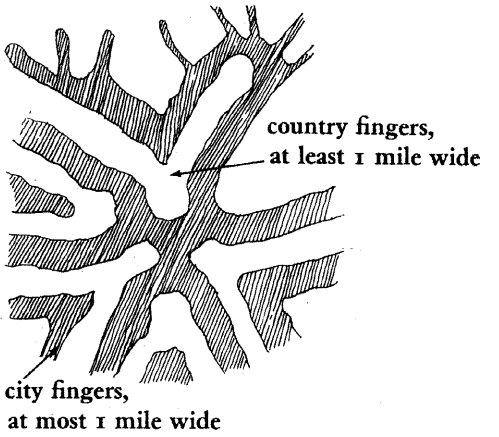
The implementation of this pattern requires new policies of three different kinds. With respect to the farmland, there must be policies encouraging the reconstruction of small farms, farms that fit the one-mile bands of country land. Second, there must be policies which contain the cities' tendency to 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.

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

Therefore:

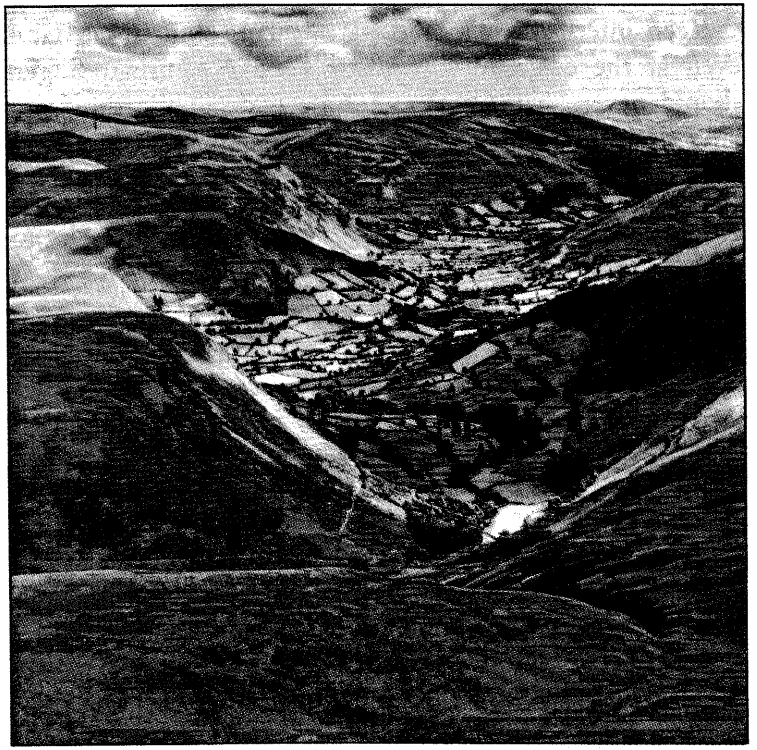
Keep interlocking fingers of farmland and urban land, even at the center of the metropolis. The urban fingers should never be more than 1 mile wide, while the farmland fingers should never be less than 1 mile wide.



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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.

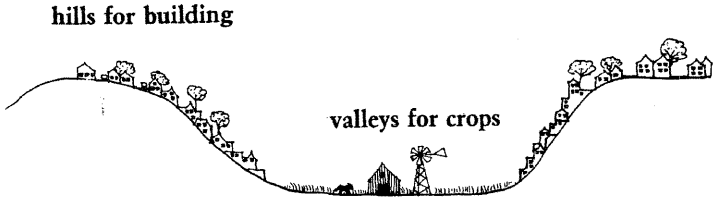
In the last few years, suburban growth has been spreading over all land, agricultural or not. It eats up this limited resource and, worse still, destroys the possibility of farming close to cities once and for all. But we know, from the arguments of CITY COUNTRY FINGERS (3), that it is important to have 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

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



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Keep town and city development along the hilltops and hillsides—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. . .

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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).

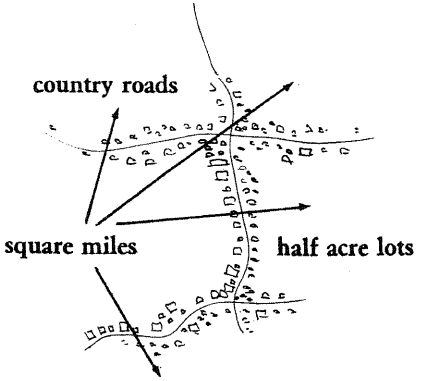
2. Roads. To protect the countryside from suburban encroachment, the roads running out into the countryside must be vastly reduced in number. A loose network of interconnected roads, at one-mile intervals with little encouragement for through-traffic to pass through them, is quite enough.

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:

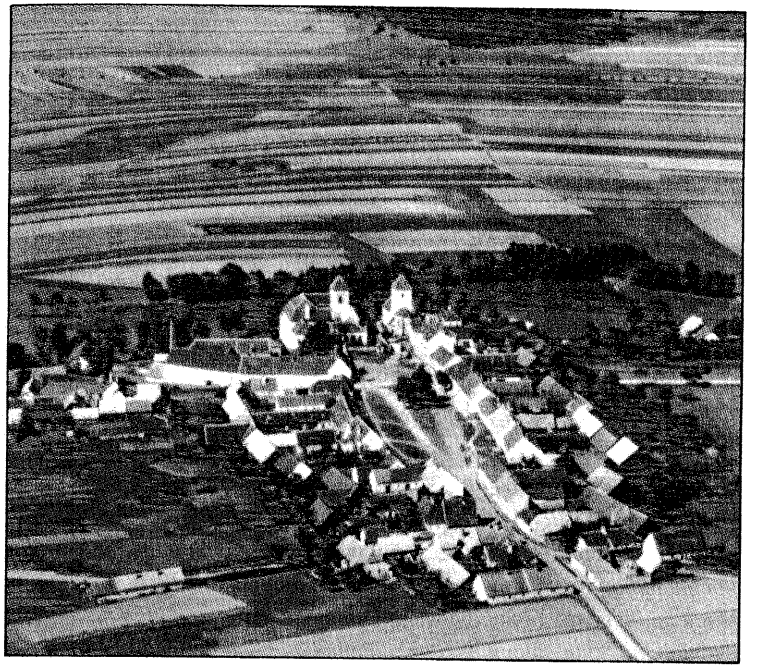
In the zone where city and country meet, place country roads at least a mile apart, so that they enclose squares of countryside and farmland at least one square mile in area. Build homesteads along these roads, one lot deep, on lots of at least half an acre, with the square mile of open countryside or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



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Make each square mile of countryside, both farm and park, open to the public—THE COUNTRYSDE (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.)

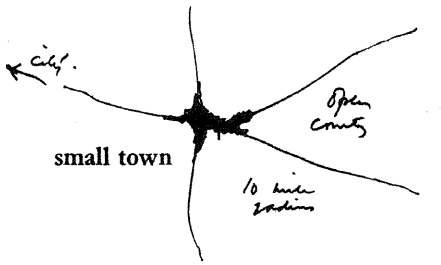
2. Zoning. Zoning policy to protect small towns and the countryside around them. Greenbelt zoning was defined by Ebenezer Howard at the turn of the century and has yet to be taken seriously by American governments.

3. Social services. There are connections between small towns

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:

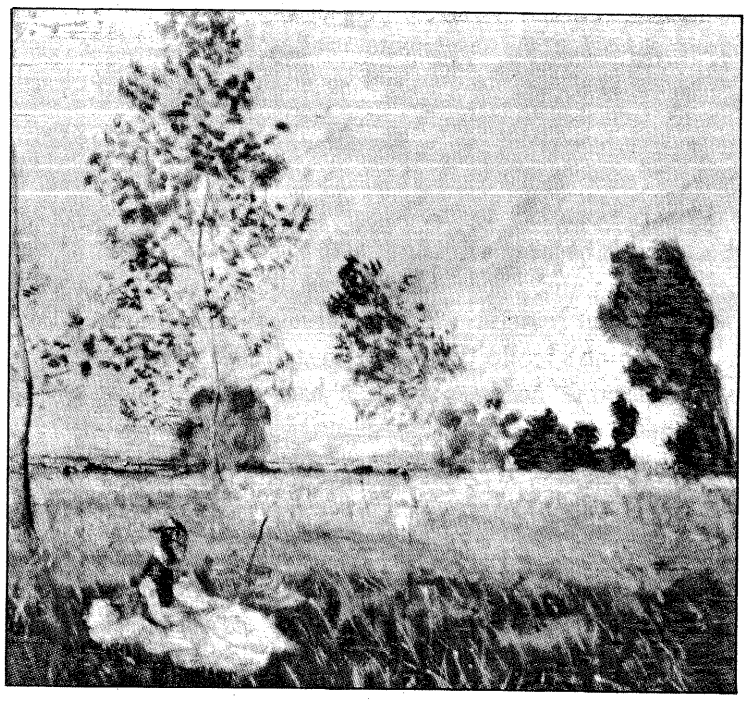
Preserve country towns where they exist; and encourage the growth of new self-contained towns, with populations between 500 and 10,000, entirely surrounded by open countryside and at least 10 miles from neighboring towns. Make it the region's collective concern to give each town the wherewithal it needs 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).

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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;

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.

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: Penguin, 1972, p. 41.)

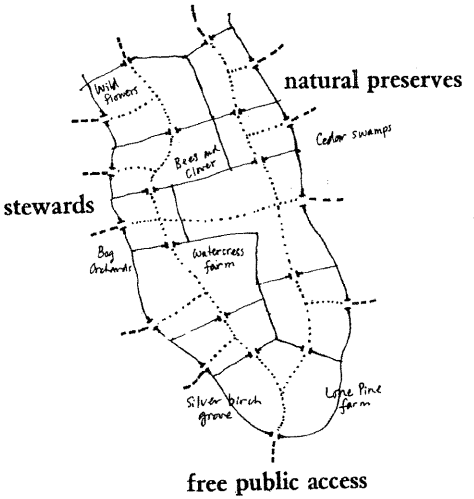
The residential forests of Japan provide another example. A village grows up along the edge of a forest; the villagers tend the forest. Thinning it properly is one of their responsibilities. The forest is available to anyone who wants to come there and partake in the process:

> 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