THE IMAGE OF THE CITY

Kevin Lynch

What does the city's form actually mean to the people who live there? What can the city planner do to make the city's image more vivid and memorable to the city dweller? To answer these questions, Mr. Lynch, supported by studies of Los Angeles, Boston, and Jersey City, formulates a new criterion — *imageability* — and shows its potential value as a guide for the building and rebuilding of cities.

The wide scope of this study leads to an original and vital method for the evaluation of city form. The architect, the planner, and certainly the city dweller will all want to read this book.

What the reviewers have said:

". . . Kevin Lynch has come up with a readable, tautly organized, authoritative volume that may prove as important to city building as Camillo Sitte's *The Art of Building Cities.*" — *Architectural Forum*

"City planners and urban designers everywhere will be taking account of his work for years to come . . . The importance of this book in the literature of urbanism is obvious. . . . we have lacked a theory of the city's visual perception based on objective criteria. For some strange reason, in the period dating from the late 19th Century in Germany and lasting until Lynch's efforts . . . there was no experimentation in the matter of how cities are perceived. All of us can be grateful for the resumption of this line of thought. The impact of this volume should be enormous." — Leonard K. Eaton, *Progressive Architecture*

"This small and readable book makes one of the most important modern contributions to large-scale design theory . . . To understand Lynch's audacity, one must go back to 1953, the year when he began his studies in perception with a travel period in Italy. This was several years before all the 'urban design' conferences, before the coining of the phrase, and at a time when respectable planners were concerned with anything but the exploration of urban form. It took a rebellious young teacher . . . fired by the inspiration of F. L. Wright (his sometime mentor), to turn the tables on thirty years of planners' neglect." — David A. Crane, *Journal of the American Institute of Planners*

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III.

THE CITY IMAGE AND ITS ELEMENTS

There seems to be a public image of any given city which is the overlap of many individual images. Or perhaps there is a series of public images, each held by some significant number of citizens. Such group images are necessary if an individual is to operate successfully within his environment and to cooperate with his fellows. Each individual picture is unique, with some content that is rarely or never communicated, yet it approximates the public image, which, in different environments, is more or less compelling, more or less embracing.

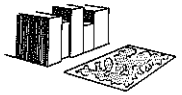
This analysis limits itself to the effects of physical, perceptible objects. There are other influences on imageability, such as the social meaning of an area, its function, its history, or even its name. These will be glossed over, since the objective here is to uncover the role of form itself. It is taken for granted that in actual design form should be used to reinforce meaning, and not to negate it.

The contents of the city images so far studied, which are referable to physical forms, can conveniently be classified into five types of elements: paths, edges, districts, nodes, and landmarks.

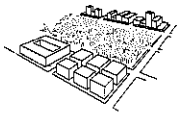
Indeed, these elements may be of more general application, since they seem to reappear in many types of environmental images, as may be seen by reference to Appendix A. These elements may be defined as follows:

1. *Paths.* Paths are the channels along which the observer customarily, occasionally, or potentially moves. They may be streets, walkways, transit lines, canals, railroads. For many people, these are the predominant elements in their image. People observe the city while moving through it, and along these paths the other environmental elements are arranged and related.

2. *Edges.* Edges are the linear elements not used or considered as paths by the observer. They are the boundaries between two phases, linear breaks in continuity: shores, railroad cuts, edges of development, walls. They are lateral references rather than coordinate axes. Such edges may be barriers, more or less penetrable, which close one region off from another; or they may be seams, lines along which two regions are related and joined together. These edge elements, although probably not as dominant as paths, are for many people important organizing features, particularly in the role of holding together generalized areas, as in the outline of a city by water or wall.



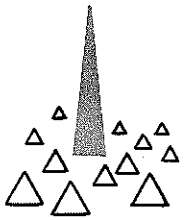
3. *Districts.* Districts are the medium-to-large sections of the city, conceived of as having two-dimensional extent, which the observer mentally enters "inside of," and which are recognizable as having some common, identifying character. Always identifiable from the inside, they are also used for exterior reference if visible from the outside. Most people structure their city to some extent in this way, with individual differences as to whether paths or districts are the dominant elements. It seems to depend not only upon the individual but also upon the given city.



4. *Nodes.* Nodes are points, the strategic spots in a city into which an observer can enter, and which are the intensive foci to and from which he is traveling. They may be primarily junctions, places of a break in transportation, a crossing or convergence of paths, moments of shift from one structure to another. Or the nodes may be simply concentrations, which gain their importance from being the condensation of some use or physical character, as a street-corner hangout or an enclosed square. Some

of these concentration nodes are the focus and epitome of a district, over which their influence radiates and of which they stand as a symbol. They may be called cores. Many nodes, of course, partake of the nature of both junctions and concentrations. The concept of node is related to the concept of path, since junctions are typically the convergence of paths, events on the journey. It is similarly related to the concept of district, since cores are typically the intensive foci of districts, their polarizing center. In any event, some nodal points are to be found in almost every image, and in certain cases they may be the dominant feature.

5. *Landmarks.* Landmarks are another type of point-reference, but in this case the observer does not enter within them, they are external. They are usually a rather simply defined physical object: building, sign, store, or mountain. Their use involves the singling out of one element from a host of possibilities. Some landmarks are distant ones, typically seen from many angles and distances, over the tops of smaller elements, and used as radial references. They may be within the city or at such a distance that for all practical purposes they symbolize a constant direction. Such are isolated towers, golden domes, great hills. Even a mobile point, like the sun, whose motion is sufficiently slow and regular, may be employed. Other landmarks are primarily local, being visible only in restricted localities and from certain approaches. These are the innumerable signs, store fronts, trees, doorknobs, and other urban detail, which fill in the image of most observers. They are frequently used clues of identity and even of structure, and seem to be increasingly relied upon as a journey becomes more and more familiar.



The image of a given physical reality may occasionally shift its type with different circumstances of viewing. Thus an expressway may be a path for the driver, and edge for the pedestrian. Or a central area may be a district when a city is organized on a medium scale, and a node when the entire metropolitan area is considered. But the categories seem to have stability for a given observer when he is operating at a given level.

None of the element types isolated above exist in isolation in the real case. Districts are structured with nodes, defined by

edges, penetrated by paths, and sprinkled with landmarks. Elements regularly overlap and pierce one another. If this analysis begins with the differentiation of the data into categories, it must end with their reintegration into the whole image. Our studies have furnished much information about the visual character of the element types. This will be discussed below. Only to a lesser extent, unfortunately, did the work make revelations about the interrelations between elements, or about image levels, image qualities, or the development of the image. These latter topics will be treated at the end of this chapter.

Paths

For most people interviewed, paths were the predominant city elements, although their importance varied according to the degree of familiarity with the city. People with least knowledge of Boston tended to think of the city in terms of topography, large regions, generalized characteristics, and broad directional relationships. Subjects who knew the city better had usually mastered part of the path structure; these people thought more in terms of specific paths and their interrelationships. A tendency also appeared for the people who knew the city best of all to rely more upon small landmarks and less upon either regions or paths.

The potential drama and identification in the highway system should not be underestimated. One Jersey City subject, who can find little worth describing in her surroundings, suddenly lit up when she described the Holland Tunnel. Another recounted her pleasure:

> You cross Baldwin Avenue, you see all of New York in front of you, you see the terrific drop of land (the Palisades) . . . and here's this open panorama of lower Jersey City in front of you and you're going down hill, and there you know: there's the tunnel, there's the Hudson River and everything. . . . I always look to the right to see if I can see the . . . Statue of Liberty. . . . Then I always look up to see the Empire State Building, see how the weather is. . . . I have a real feeling of happiness because I'm going someplace, and I love to go places.

Particular paths may become important features in a number of ways. Customary travel will of course be one of the strongest

influences, so that major access lines, such as Boylston Street, Storrow Drive, or Tremont Street in Boston, Hudson Boulevard in Jersey City, or the freeways in Los Angeles, are all key image features. Obstacles to traffic, which often complicate the structure, may in other cases clarify it by concentrating cross flow into fewer channels, which thus become conceptually dominant. Beacon Hill, acting as a giant rotary, raises the importance of Cambridge and Charles Streets; the Public Garden strengthens Beacon Street. The Charles River, by confining traffic to a few highly visible bridges, all of individual shape, undoubtedly clarifies the path structure. Quite similarly, the Palisades in Jersey City focus attention on the three streets that successfully surmount it.

Figure 30, page 77

Concentration of special use or activity along a street may give it prominence in the minds of observers. Washington Street is the outstanding Boston example: subjects consistently associated it with shopping and theatres. Some people extended these characteristics to parts of Washington Street that are quite different (e.g., near State Street); many people seemed not to know that Washington extends beyond the entertainment segment, and thought it ended near Essex or Stuart Streets. Los Angeles has many examples—Broadway, Spring Street, Skid Row, 7th Street —where the use concentrations are prominent enough to make linear districts. People seemed to be sensitive to variations in the amount of activity they encountered, and sometimes guided themselves largely by following the main stream of traffic. Los Angeles' Broadway was recognized by its crowds and its street cars; Washington Street in Boston was marked by a torrent of pedestrians. Other kinds of activity at ground level also seemed to make places memorable, such as construction work near South Station, or the bustle of the food markets.

Figure 18, page 38

Characteristic spatial qualities were able to strengthen the image of particular paths. In the simplest sense, streets that suggest extremes of either width or narrowness attracted attention. Cambridge Street, Commonwealth Avenue, and Atlantic Avenue are all well known in Boston, and all were singled out for their great width. Spatial qualities of width and narrowness derived part of their importance from the common association of main streets with width and side streets with narrowness. Looking

for, and trusting to the "main" (i.e., wide) street becomes automatic, and in Boston the real pattern usually supports this assumption. Narrow Washington Street is the exception to this rule, and here the contrast is so strong in the other direction, as narrowness is reinforced by tall buildings and large crowds, that the very reversal became the identifying mark. Some of the orientation difficulties in Boston's financial district, or the anonymity of the Los Angeles grid, may be due to this lack of spatial dominance.

Special façade characteristics were also important for path identity. Beacon Street and Commonwealth Avenue were distinctive partly because of the building façades that line them. Pavement texture seemed to be less important, except in special cases such as Olvera Street in Los Angeles. Details of planting seemed also to be relatively unimportant, but a great deal of planting, like that on Commonwealth Avenue, could reinforce a path image very effectively.

Figure 21, page 53

Proximity to special features of the city could also endow a path with increased importance. In this case the path would be acting secondarily as an edge. Atlantic Avenue derived much importance from its relation to the wharves and the harbor, Storrow Drive from its location along the Charles River. Arlington and Tremont Streets were distinctive because one side runs along a park, and Cambridge Street acquired clarity from its border relationship to Beacon Hill. Other qualities that gave importance to single paths were the visual exposure of the path itself or the visual exposure from the path of other parts of the city. The Central Artery was notable partly for its visual prominence as it sweeps through the city on an elevated course. The bridges over the Charles were also apparent for long distances. But the Los Angeles freeways at the edges of the downtown area are visually concealed by cuts or planted embankments. A number of car-oriented subjects spoke as if those freeways were not there. On the other hand, drivers indicated that their attention sharpened as a freeway came out of a cut and attained a wide view.

Figure 7, page 24

Figure 20, page 40

Occasionally, paths were important largely for structural reasons. Massachusetts Avenue was almost pure structure for most subjects, who were unable to describe it. Yet its relationship as

an intersector of many confusing streets made it a major Boston element. Most of the Jersey City paths seemed to have this purely structural character.

Where major paths lacked identity, or were easily confused one for the other, the entire city image was in difficulty. Thus Tremont Street and Shawmut Avenue might be interchangeable in Boston, or Olive, Hope, and Hill Streets in Los Angeles. Boston's Longfellow Bridge was not infrequently confused with the Charles River Dam, probably since both carry transit lines and terminate in traffic circles. This made for real difficulties in the city, both in the road and subway systems. Many of the paths in Jersey City were difficult to find, both in reality and in memory.

That the paths, once identifiable, have continuity as well, is an obvious functional necessity. People regularly depended upon this quality. The fundamental requirement is that the actual track, or bed of the pavement, go through; the continuity of other characteristics is less important. Paths which simply have a satisfactory degree of track continuity were selected as the dependable ones in an environment like Jersey City. They can be followed by the stranger, even if with difficulty. People often generalized that other kinds of characteristics along a continuous track were also continuous, despite actual changes.

But other factors of continuity had importance as well. When the channel width changed, as Cambridge Street does at Bowdoin Square, or when the spatial continuity was interrupted, as it is at Washington Street at Dock Square, people had difficulty in sensing a continuation of the same path. At the other end of Washington Street, a sudden change in the use of buildings may partly explain why people failed to extend Washington Street beyond Kneeland Street into the South End.

Examples of characteristics giving continuity to a path are the planting and façades along Commonwealth Avenue, or the building type and setback along Hudson Boulevard. Names in themselves played a role. Beacon Street is primarily in the Back Bay but relates to Beacon Hill by its name. The continuity of the name of Washington Street gave people a clue as to how to proceed through the South End, even if they were ignorant of this area. There is a pleasant feeling of relationship to be gained

FIG. 21. *Commonwealth Avenue*

simply from standing on a street which by name continues to the heart of the city, however far. A reverse example is the attention given to the nondescript beginnings of Wilshire and Sunset Boulevards in the central area of Los Angeles, because of their special character farther out. The path bordering the Boston harbor, on the other hand, was at times fragmented simply because of the changing names it bears: Causeway Street, Commercial Street, and Atlantic Avenue.

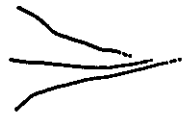
Paths may not only be identifiable and continuous, but have directional quality as well: one direction along the line can easily be distinguished from the reverse. This can be done by a gradient, a regular change in some quality which is cumulative in one direction. Most frequently sensed were the topographic gradients: in Boston, particularly on Cambridge Street, Beacon Street, and Beacon Hill. A gradient of use intensity, such as on the approach to Washington Street, was also noted, or, on a regional scale, the gradient of increasing age on approaching the center of Los Angeles on a freeway. In the relatively gray environment of Jersey City, there were two examples of gradients based on the relative state of repair of tenements.

A prolonged curve is also a gradient, a steady change in direction of movement. This was not often sensed kinesthetically: the only citations of a bodily sense of curving motion were in the Boston subway, or on portions of the Los Angeles freeways. When street curves are mentioned in the interviews, they seem to relate primarily to visual clues. The turning in Charles Street at Beacon Hill was sensed, for example, because the close building walls heightened the visual perception of curvature.

People tended to think of path destinations and origin points: they liked to know where paths came from and where they led. Paths with clear and well-known origins and destinations had stronger identities, helped tie the city together, and gave the observer a sense of his bearings whenever he crossed them. Some subjects thought of general destinations for paths, to a section of the city, for example, while others thought of specific places. One person, who made rather high demands for intelligibility upon the city environment, was troubled because he saw a set of railroad tracks, and did not know the destination of trains using them.

Cambridge Street in Boston has clear, strategic terminal points: the Charles Street rotary and Scollay Square. Other streets may have only one sharp terminal: Commonwealth Avenue at the Public Garden, or Federal Street at Post Office Square. On the other hand, the indefinite finale of Washington Street—variously thought of as going to State Street, to Dock Square, to Haymarket Square, or even to North Station (actually it formally runs to

the Charlestown bridge)—prevented it from becoming as strong a feature as it might otherwise have been. In Jersey City, the never-accomplished convergence of the three main streets crossing the Palisades, and their final nondescript subsidence, was highly confusing.



This same kind of end-from-end differentiation, which is conferred by termini, can be created by other elements which may be visible near the end, or apparent end, of a path. The Common near one end of Charles Street acted this way, as did the State House for Beacon Street. The apparent visual closure of 7th Street in Los Angeles by the Hotel Statler, and of Boston's Washington Street by the Old South Meeting House, had the same effect. Both are accomplished by a slight shift of the path direction, putting an important building on the visual axis. Elements known to be on a particular side of a path also conferred a sense of direction: Symphony Hall on Massachusetts Avenue and the Boston Common along Tremont Street were both employed in this way. In Los Angeles, even the relatively heavier concentration of pedestrians on the western side of Broadway was used to judge in which direction one was facing.

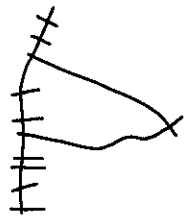
Figure 32, page 80

Figure 18, page 38

Once a path has directional quality, it may have the further attribute of being scaled: one may be able to sense one's position along the total length, to grasp the distance traversed or yet to go. Features which facilitate scaling, of course, usually confer a sense of direction as well, except for the simple technique of counting blocks, which is directionless but can be used to compute distances. Many subjects referred to this latter clue, but by no means all. It was most commonly used in the regular pattern of Los Angeles.

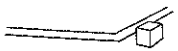
Most often, perhaps, scaling was accomplished by a sequence of known landmarks or nodes along the path. The marking of identifiable regions as a path enters and leaves them also constituted a powerful means of giving direction and scaling to a path. Charles Street entering Beacon Hill from the Common, and Summer Street entering the shoe and leather district on the way to South Station, are examples of this effect.

Given a directional quality in a path, we may next inquire if it is aligned, that is, if its direction is referable to some larger



system. In Boston, there were many examples of unaligned paths. One common cause was the subtle, misleading curve. Most people missed the curve in Massachusetts Avenue at Falmouth Street, and confused their total map of Boston as a result. They considered Massachusetts Avenue to be straight, sensed its right-angle intersections with a large number of streets, and assumed these streets to be parallel. Boylston and Tremont Streets were difficult because, by a number of small changes, they pass over from almost parallel to almost perpendicular. Atlantic Avenue was elusive because it is a compound of two long curves and a substantial straight tangent, a path which completely reverses its direction but is straight in its most characteristic section.

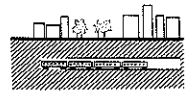
At the same time more abrupt directional shifts may enhance visual clarity by limiting the spatial corridor, and by providing prominent sites for distinctive structures. Thus the Washington Street core was defined; Hanover Street was crowned by an old church at the apparent end; and the South End cross streets gained intimacy as they shifted course to cross the major radials. Quite similarly, one was prevented from sensing the vacuum in which central Los Angeles is placed by the grid shifts which close off the outward view.



The second common cause of misalignment to the rest of the city was the sharp separation of a path from surrounding elements. Paths in the Boston Common, for example, caused much confusion: people were uncertain which walkways to use in order to arrive at particular destinations outside the Common. Their view of these outside destinations was blocked, and the paths of the Common failed to tie to outside paths. The Central Artery was a still better example, for it is more detached from its surroundings. It is elevated and does not allow a clear view of adjacent streets, but permits a kind of fast and undisturbed movement totally missing in the city. It is a special kind of automobile-land rather than a normal city street. Many subjects had great difficulty aligning the Artery to surrounding elements, although it was known to connect North and South Stations. In Los Angeles as well, the freeways were not felt to be "in" the rest of the city, and coming off an exit ramp was typically a moment of severe disorientation.

Figure 7, page 24

Recent research on the problems of erecting directional signs on the new freeways has shown that this disassociation from the surroundings causes each turning decision to be made under pressure and without adequate preparation. Even familiar drivers showed a surprising lack of knowledge of the freeway system and its connections. General orientation to the total landscape was the greatest need of these motorists.[2]



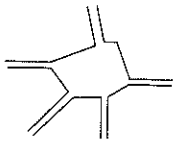
The railroad lines and the subway are other examples of detachment. The buried paths of the Boston subway could not be related to the rest of the environment except where they come up for air, as in crossing the river. The surface entrances of the stations may be strategic nodes in the city, but they are related along invisible conceptual linkages. The subway is a disconnected nether world, and it is intriguing to speculate what means might be used to mesh it into the structure of the whole.

Figure 29, page 75

The water surrounding the Boston peninsula is a basic element to which parts may be aligned. The Back Bay grid was related to the Charles River; Atlantic Avenue was linked to the harbor; Cambridge Street led clearly to the river from Scollay Square. Hudson Boulevard in Jersey City, despite its frequent twists, was aligned with the long peninsula between the Hackensack and the Hudson. The Los Angeles grid, of course, provided automatic alignment between downtown streets. It was easy to put down as a basic pattern in a sketch map, even if the individual streets were not distinguishable. Two-thirds of the subjects drew this first, before adding any other elements. However, the fact that this grid is turned through some angular distance, both from the ocean coast line and the cardinal directions, gave a number of subjects some uneasiness.

When we consider more than one path, then the path intersection becomes vital, since it is the point of decision. The simple perpendicular relationship seemed easiest to handle, especially if the shape of the intersection was reinforced by other features. The best-known intersection in Boston, according to our interviews, was that of Commonwealth Avenue and Arlington Street. It is a visually obvious tee, supported by the space, the planting, the traffic, and the importance of the elements joined. The crossing of Charles and Beacon Streets was also well known: the outlines are made visible and reinforced by the

borders of the Common and the Public Garden. Intersections of a number of streets with Massachusetts Avenue were easily understood, probably because the right-angle relationships stood out in contrast to the remainder of the central city.



Indeed, for several subjects, confused intersections with streets entering from many angles were one of their typical Boston characteristics. Crossings of more than four points almost always gave trouble. An experienced taxi dispatcher, with a near-perfect grasp of the city path structure, confessed that the five-pointed crossing at Church Green on Summer Street was one of the two things in the city that troubled him. Equally unnerving was a traffic circle with many entering paths occurring at rapid intervals around an undifferentiated curve.

But the number of entrances is not the whole story. Even a non-perpendicular, five-pointed crossing may be made clear, as has been done in Boston's Copley Square. The controlled space and the heightened character of the node serve to bring out the angled relationship between Huntington Avenue and Boylston Street. Park Square, on the other hand, is a simple perpendicular joint that in its shapelessness fails to communicate its structure. At many Boston crossings not only are the number of paths multiplied, but the continuity of the spatial corridor is completely lost when it strikes the chaotic emptiness of a square.

Nor are such chaotic crossings simply the product of past historical accident. The contemporary highway interchange is even more confusing, particularly since it must be negotiated at higher speeds. Several Jersey City subjects, for example, spoke with fear of the shape of the Tonnelle Avenue Circle.

Figure 22

A perceptual problem on a larger scale is raised where a path branches slightly to make alternate paths, both of relative importance. A case is the branching of Storrow Drive (after a name confusion with Charles Street) into two paths: the older Nashua Street, leading to Causeway-Commercial-Atlantic, and the recent Central Artery. These two paths were not infrequently confused with one another, producing major convulsions in the image. All subjects seemed unable to conceive both at once: maps showed either one or the other as an extension of Storrow Drive. Quite similarly, in the subway system, the successive

branching of main lines was a problem, since it was hard to keep distinct the images of two slightly divergent branches and hard to remember where the branch occurred.

A few important paths may be imaged together as a simple structure, despite any minor irregularities, as long as they have a consistent general relationship to one another. The Boston street system is not conducive to this kind of image, except perhaps for the basic parallelism of Washington and Tremont Streets. But the Boston subway system, whatever its involutions in true scale, seemed fairly easy to visualize as two parallel lines cut at the center by the Cambridge-Dorchester line, although the parallel lines might be confused one with the other, particularly since both go to North Station. The freeway system in Los

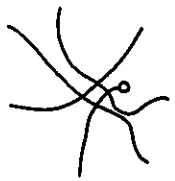


FIG. 22. *The Tonnelle Avenue Circle*

Angeles seemed to be imaged as a complete structure, as did the Jersey City system of Hudson Boulevard intersected by three paths which go down over the Palisades, or the triad of West Side, Hudson, and Bergen Boulevards, with the regular cross streets between.

Where a subject was accustomed to travel by automobile, one-way restrictions were difficult complications in the image of a path structure. The taxi dispatcher's second mental block was due to just such an irreversibility in the system. For others, Washington Street was not traceable across Dock Square because it is one-way entering on both sides.

A large number of paths may be seen as a total network, when repeating relationships are sufficiently regular and predictable.

FIG. 23. *The Back Bay*

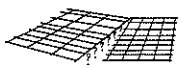
The Los Angeles grid is a good example. Almost every subject could easily put down some twenty major paths in correct relation to each other. At the same time, this very regularity made it difficult for them to distinguish one path from another.

Boston's Back Bay is an interesting path network. Its regularity is remarkable in contrast to the rest of the central city, an effect that would not occur in most American cities. But this is not a featureless regularity. The longitudinal streets were sharply differentiated from the cross streets in everyone's mind, much as they are in Manhattan. The long streets all have individual character—Beacon Street, Marlboro Street, Commonwealth Avenue, Newbury Street, each one is different—while the cross streets act as measuring devices. The relative width of the streets, the block lengths, the building frontages, the naming system, the relative length and number of the two kinds of streets, their functional importance, all tend to reinforce this differentiation. Thus a regular pattern is given form and character. The alphabet formula for naming the cross streets was frequently used as a location device, much as the numbers are used in Los Angeles.

Figure 23

The South End, on the other hand, while having the same topological form of long parallel major streets interconnected by short minor streets, and while often mentally considered as a regular grid, is much less successful in its pattern. Major and minor streets are also differentiated by width and use, and many of the minor streets have more character than those of the Back Bay. But there is a lack of differentiated character in the major streets: Columbus Avenue is hard to distinguish from Tremont Street, or from Shawmut Avenue. This interchangeability was frequent in the interviews.

The frequent reduction of the South End to a geometrical system was typical of the constant tendency of the subjects to impose regularity on their surroundings. Unless obvious evidence refuted it, they tried to organize paths into geometrical networks, disregarding curves and non-perpendicular intersections. The lower area of Jersey City was frequently drawn as a grid, even though it is one only in part. Subjects absorbed all of central Los Angeles into a repeating network, without being disturbed by the distortion at the eastern edge. Several subjects



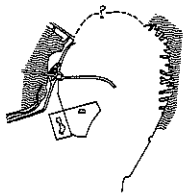
even insisted on reducing the street maze of Boston's financial district to a checkerboard! The sudden, and particularly the rather indiscernible, shift of one grid system to another grid system, or to a non-grid, was very confusing. Subjects in Los Angeles were often quite disoriented in the area north of First Street or east of San Pedro.

Edges

Edges are the linear elements not considered as paths: they are usually, but not quite always, the boundaries between two kinds of areas. They act as lateral references. They are strong in Boston and Jersey City but weaker in Los Angeles. Those edges seem strongest which are not only visually prominent, but also continuous in form and impenetrable to cross movement. The Charles River in Boston is the best example and has all of these qualities.

The importance of the peninsular definition of Boston has already been mentioned. It must have been much more important in the 18th century, when the city was a true and very striking peninsula. Since then the shore lines have been erased or changed, but the picture persists. One change, at least, has strengthened the image: the Charles River edge, once a swampy backwater, is now well defined and developed. It was frequently described, and sometimes drawn in great detail. Everyone remembered the wide open space, the curving line, the bordering highways, the boats, the Esplanade, the Shell.

Figure 4, page 20



The water edge on the other side, the harborfront, was also generally known, and remembered for its special activity. But the sense of water was less clear, since it was obscured by many structures, and since the life has gone out of the old harbor activities. Most subjects were unable to interconnect the Charles River and Boston Harbor in any concrete way. Partly this must be due to the screening of the water at the tip of the peninsula by railroad yards and buildings, partly to the chaotic aspect of the water, with its myriad bridges and docks, at the meeting of the Charles River, the Mystic River, and the sea. The lack of frequented waterside paths, as well as the drop in water level at the Dam, also breaks the continuity. Farther west, few were aware of any

water in the South Bay, nor could they imagine any stop to development in this direction. This lack of peninsular closure deprived the citizen of a satisfying sense of completion and rationality in his city.

The Central Artery is inaccessible to pedestrians, at some points impassable, and is spatially prominent. But it is only occasionally exposed to view. It was a case of what might be called a fragmentary edge: in the abstract continuous, but only visualized at discrete points. The railroad lines were another example. The Artery, in particular, was like a snake lying over the city image. Held down at the ends and at one or two internal points, it elsewhere writhed and twisted from one position to the next. The lack of relation felt while driving the Artery was mirrored in its ambiguous location for the pedestrian.

Figure 7, page 24

Storrow Drive, on the other hand, while also felt to be "outside" by the driver, was clearly located on the map, because of its alignment to the Charles River. It was the Charles River, despite its role as the basic edge in the Boston image, which was curiously isolated from the detailed structure of the adjoining Back Bay. People were at a loss as to how to move from one to the other. We can speculate that this was not true before Storrow Drive cut off pedestrian access at the foot of each cross street.

Similarly, the interrelation of the Charles River and Beacon Hill was hard to grasp. Although the position of the hill is potentially explanatory of the puzzling bend in the river, and although the hill thereby gains a commanding enfilade view of the river edge, the Charles Street rotary seemed for most people to be the only firm connection between the two. If the hill rose sharply and immediately out of the water, instead of behind a masking foreshore covered by uses which are only doubtfully associated with Beacon Hill, and if it were more closely tied to the path system along the river, then the relation would have been much clearer.

In Jersey City, the waterfront was also a strong edge, but a rather forbidding one. It was a no-man's land, a region beyond the barbed wire. Edges, whether of railroads, topography, throughways, or district boundaries, are a very typical feature of this environment and tend to fragment it. Some of the most

FIG. 24. *The lake front of Chicago*

unpleasant edges, such as the bank of the Hackensack River with its burning dump areas, seemed to be mentally erased.

The disruptive power of an edge must be reckoned with. The isolation of the North End in Boston by the Central Artery was glaring, in the eyes of residents and non-residents alike. Had it been possible, for example, to preserve the connection of Hanover Street into Scollay Square, this effect might have been minimized, The widening of Cambridge Street, in its day, must have done the same to the West End-Beacon Hill continuum. The broad gash of Boston's railroad tracks seemed to dismember the city, and to isolate the "forgotten triangle" between the Back Bay and the South End.

While continuity and visibility are crucial, strong edges are not necessarily impenetrable. Many edges are uniting seams, rather than isolating barriers, and it is interesting to see the differences in effect. Boston's Central Artery seems to divide absolutely, to isolate. Wide Cambridge Street divides two regions sharply but keeps them in some visual relation. Beacon Street, the visible boundary of Beacon Hill along the Common, acts not as a barrier but as a seam along which the two major areas are clearly joined together. Charles Street at the foot of Beacon Hill both divides and unites, leaving the lower area in uncertain relation to the hill above. Charles Street carries heavy traffic but also contains the local service stores and special activities associated with the Hill. It pulls the residents together by attracting them to itself. It acts ambiguously either as linear node, edge, or path for various people at various times.

Figure 57, page 169

Edges are often paths as well. Where this was so, and where the ordinary observer was not shut off from moving on the path (as he is on the Central Artery, for example), then the circulation image seemed to be the dominant one. The element was usually pictured as a path, reinforced by boundary characteristics.

Figueroa and Sunset Streets, and to a lesser extent Los Angeles and Olympic Streets, were usually thought of as the edges of the Los Angeles central business district. Interestingly enough, they were stronger in this respect than the Hollywood and Harbor Freeways, which also can be thought of as major boundaries, and are both much more important as paths and physically more imposing. The fact that Figueroa and the other surface streets are conceptually part of the general grid, and have been familiar for some time, as well as the relative invisibility of the depressed or landscaped freeways, all conspired to erase these freeways from the image. Many subjects had difficulty in making a mental connection between the fast highway and the remainder of the city structure, just as in the Boston case. They would, in imagination, even walk across the Hollywood Freeway as if it did not exist. A high-speed artery may not necessarily be the best way of visually delimiting a central district.

The elevated railways of Jersey City and Boston are examples of what might be called overhead edges. The elevated along

Washington Street in Boston, seen from below, identifies the path and fixes the direction to downtown. Where it leaves the street, at Broadway, the path loses direction and force. When several such edges are curving and intersecting overhead, as they do near North Station, the result may be quite confusing. Yet high overhead edges, which would not be barriers at the ground level, might in the future be very effective orientation elements in a city.

Edges may also, like paths, have directional qualities. The Charles River edge, for example, has the obvious side-from-side differentiation of water and city, and the end-from-end distinction provided by Beacon Hill. Most edges had little of this quality, however.

It is difficult to think of Chicago without picturing Lake Michigan. It would be interesting to see how many Chicagoans would begin to draw a map of their city by putting down something other than the line of the lake shore. Here is a magnificent example of a visible edge, gigantic in scale, that exposes an entire metropolis to view. Great buildings, parks, and tiny private beaches all come down to the water's edge, which throughout most of its length is accessible and visible to all. The contrast, the differentiation of events along the line, and the lateral breadth are all very strong. The effect is reinforced by the concentration of paths and activities along its extent. The scale is perhaps unrelievedly large and coarse, and too much open space is at times interposed between city and water, as at the Loop. Yet the façade of Chicago on the Lake is an unforgettable sight.

Figure 24, page 64

Districts

Districts are the relatively large city areas which the observer can mentally go inside of, and which have some common character. They can be recognized internally, and occasionally can be used as external reference as a person goes by or toward them. Many persons interviewed took care to point out that Boston, while confusing in its path pattern even to the experienced inhabitant, has, in the number and vividness of its differentiated districts, a quality that quite makes up for it. As one person put it:

> Each part of Boston is different from the other. You can tell pretty much what area you're in.

Jersey City has its districts too, but they are primarily ethnic or class districts with little physical distinction. Los Angeles is markedly lacking in strong regions, except for the Civic Center area. The best that can be found are the linear, street-front districts of Skid Row or the financial area. Many Los Angeles subjects referred with some regret to the pleasure of living in a place that has strongly characteristic areas. Said one:

> I like Transportation Row, because it's all there together. That's the main thing; all these other things are spotty . . . There's transportation right there. And all the people have the same thing in common working there. It's very nice.

Subjects, when asked which city they felt to be a well-oriented one, mentioned several, but New York (meaning Manhattan) was unanimously cited. And this city was cited not so much for its grid, which Los Angeles has as well, but because it has a number of well-defined characteristic districts, set in an ordered frame of rivers and streets. Two Los Angeles subjects even referred to Manhattan as being "small" in comparison to their central area! Concepts of size may depend in part on how well a structure can be grasped.

In some Boston interviews, the districts were the basic elements of the city image. One subject, for example, when asked to go from Faneuil Hall to Symphony Hall, replied at once by labeling the trip as going from North End to Back Bay. But even where they were not actively used for orientation, districts were still an important and satisfying part of the experience of living in the city. Recognition of distinct districts in Boston seemed to vary somewhat as acquaintance with the city increased. People most familiar with Boston tended to recognize regions but to rely more heavily for organization and orientation on smaller elements. A few people extremely familiar with Boston were unable to generalize detailed perceptions into districts: conscious of minor differences in all parts of the city, they did not form regional groups of elements.

The physical characteristics that determine districts are thematic continuities which may consist of an endless variety of components: texture, space, form, detail, symbol, building type, use, activity, inhabitants, degree of maintenance, topography. In a closely built city such as Boston, homogeneities of façade—

material, modeling, ornament, color, skyline, especially fenestration—were all basic clues in identifying major districts. Beacon Hill and Commonwealth Avenue are both examples. The clues were not only visual ones: noise was important as well. At times, indeed, confusion itself might be a clue, as it was for the woman who remarked that she knows she is in the North End as soon as she feels she is getting lost.

Figure 55, page 167

Usually, the typical features were imaged and recognized in a characteristic cluster, the thematic unit. The Beacon Hill image, for example, included steep narrow streets; old brick row houses of intimate scale; inset, highly maintained, white doorways; black trim; cobblestones and brick walks; quiet; and upper-class pedestrians. The resulting thematic unit was distinctive by contrast to the rest of the city and could be recognized immediately. In other parts of central Boston, there was some thematic confusion. It was not uncommon to group the Back Bay with the South End, despite their very different use, status, and pattern. This was probably the result of a certain architectural homogeneity, plus some similarity of historical background. Such likenesses tend to blur the city image.

A certain reinforcement of clues is needed to produce a strong image. All too often, there are a few distinctive signs, but not enough for a full thematic unit. Then the region may be recognizable to someone familiar with the city, but it lacks any visual strength or impact. Such, for example, is Little Tokyo in Los Angeles, recognizable by its population and the lettering on its signs but otherwise indistinguishable from the general matrix. Although it is a strong ethnic concentration, probably known to many people, it appeared as only a subsidiary portion of the city image.

Yet social connotations are quite significant in building regions. A series of street interviews indicated the class overtones that many people associate with different districts. Most of the Jersey City regions were class or ethnic areas, discernible only with difficulty for the outsider. Both Jersey City and Boston have shown the exaggerated attention paid to upper-class districts, and the resulting magnification of the importance of elements in those areas. District names also help to give identity to districts even

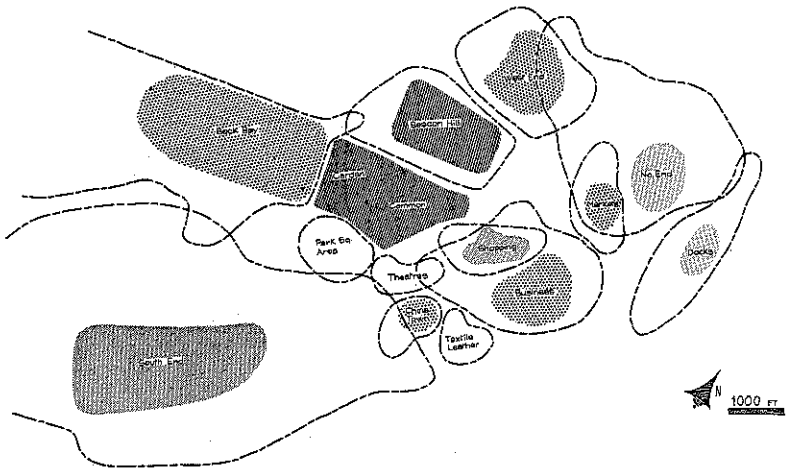
when the thematic unit does not establish a striking contrast with other parts of the city, and traditional associations can play a similar role.

When the main requirement has been satisfied, and a thematic unit that contrasts with the rest of the city has been constituted, the degree of internal homogeneity is less significant, especially if discordant elements occur in a predictable pattern. Small stores on street corners establish a rhythm on Beacon Hill that one subject perceived as part of her image. These stores in no way weakened her non-commercial image of Beacon Hill but merely added to it. Subjects could pass over a surprising amount of local disagreement with the characteristic features of a region.

Figure 57, page 169

Districts have various kinds of boundaries. Some are hard, definite, precise. Such is the boundary of the Back Bay at the Charles River or at the Public Garden. All agreed on this exact location. Other boundaries may be soft or uncertain, such as the limit between downtown shopping and the office district, to whose existence and approximate location most people would testify. Still other regions have no boundaries at all, as did the South End for many of our subjects. Figure 25 illustrates these

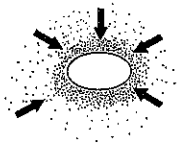
FIG. 25. *Variable boundaries of Boston districts*



differences of boundary character, in the case of Boston, by outlining both the maximum extent assigned to any district, and the hard core of common agreement.

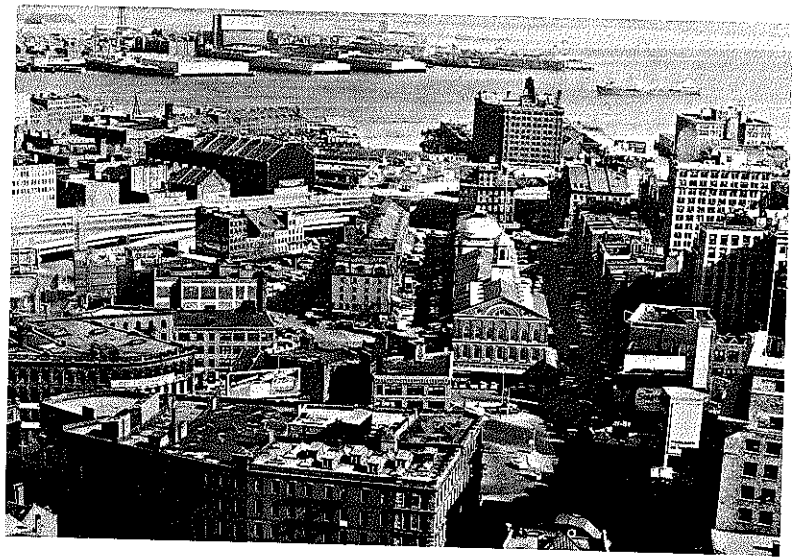
Figure 25, page 69

These edges seem to play a secondary role: they may set limits to a district, and may reinforce its identity, but they apparently have less to do with constituting it. Edges may augment the tendency of districts to fragment the city in a disorganizing way. A few people sensed disorganization as one result of the large number of identifiable districts in Boston: strong edges, by hindering transitions from one district to another, may add to the impression of disorganization.



That type of district which has a strong core, surrounded by a thematic gradient which gradually dwindles away, is not uncommon. Sometimes, indeed, a strong node may create a sort of district in a broader homogeneous zone, simply by "radiation," that is, by the sense of proximity to the nodal point. These are primarily reference areas, with little perceptual content, but they are useful organizing concepts, nevertheless.

FIG. 26. *The market area*



Some well-known Boston districts were unstructured in the public image. The West End and North End were internally undifferentiated for many people who recognized these regions. Even more often, thematically vivid districts such as the market area seemed confusingly shapeless, both externally and internally. The physical sensations of the market activity are unforgettable. Faneuil Hall and its associations reinforce them. Yet the area is shapeless and sprawling, divided by the Central Artery, and hampered by the two activity centers which vie for dominance: Faneuil Hall and Haymarket Square. Dock Square is spatially chaotic. The connections to other areas are either obscure or disrupted by the Artery. Thus the market district simply floated in most images. Instead of fulfilling its potential role as a mosaic link at the head of the Boston peninsula, as does the Common farther down, the district, while distinctive, acted only as a chaotic barrier zone. Beacon Hill, on the other hand, was very highly structured, with internal sub-regions, a node at Louisburg Square, various landmarks, and a configuration of paths.

Figure 26

See Appendix C for a detailed discussion of Beacon Hill

Again, some regions are introvert, turned in upon themselves with little reference to the city outside them, such as Boston's North End or Chinatown. Others may be extrovert, turned outward and connected to surrounding elements. The Common visibly touches neighboring regions, despite its inner path confusions. Bunker Hill in Los Angeles is an interesting example of a district of fairly strong character and historical association, on a very sharp topographical feature lying even closer to the city's heart than does Beacon Hill. Yet the city flows around this element, buries its topographic edges in office buildings, breaks off its path connections, and effectively causes it to fade or even disappear from the city image. Here is a striking opportunity for change in the urban landscape.

Figure 27, page 72

Some districts are single ones, standing alone in their zone. The Jersey City and Los Angeles regions are practically all of this kind, and the South End is a Boston example. Others may be linked together, such as Little Tokyo and the Civic Center in Los Angeles, or West End-Beacon Hill in Boston. In one part of central Boston, inclusive of the Back Bay, the Common, Beacon Hill, the downtown shopping district, and the financial and mar-

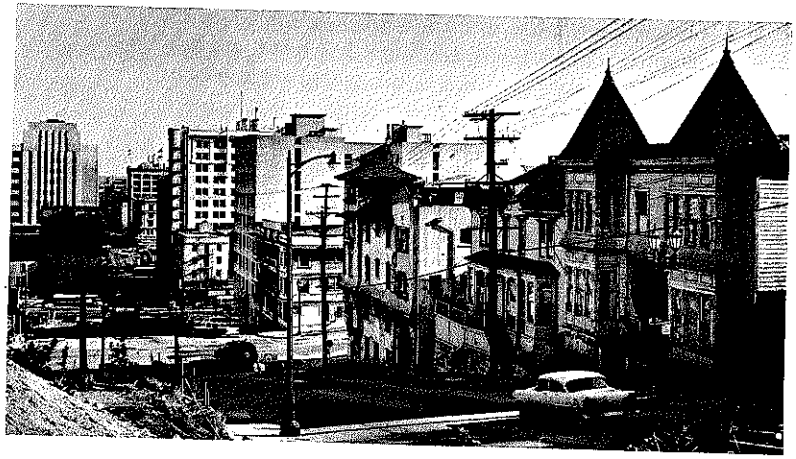


FIG. 27. *Bunker Hill*

ket areas, the regions are close enough together and sufficiently well joined to make a continuous mosaic of distinctive districts. Wherever one proceeds within these limits, one is in a recognizable area. The contrast and proximity of each area, moreover, heightens the thematic strength of each. The quality of Beacon Hill, for example, is sharpened by its nearness to Scollay Square, and to the downtown shopping district.

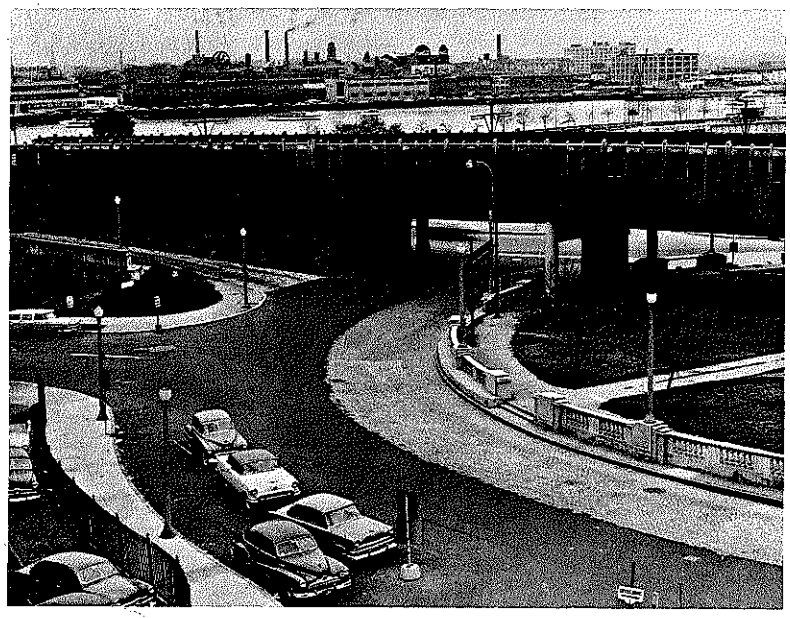
Nodes

Nodes are the strategic foci into which the observer can enter, typically either junctions of paths, or concentrations of some characteristic. But although conceptually they are small points in the city image, they may in reality be large squares, or somewhat extended linear shapes, or even entire central districts when the city is being considered at a large enough level. Indeed, when conceiving the environment at a national or international level, then the whole city itself may become a node.

The junction, or place of a break in transportation, has compelling importance for the city observer. Because decisions must be made at junctions, people heighten their attention at such

places and perceive nearby elements with more than normal clarity. This tendency was confirmed so repeatedly that elements located at junctions may automatically be assumed to derive special prominence from their location. The perceptual importance of such locations shows in another way as well. When subjects were asked where on a habitual trip they first felt a sense of arrival in downtown Boston, a large number of people singled out break-points of transportation as the key places. In a number of cases, the point was at the transition from a highway (Storrow Drive or the Central Artery) to a city street; in another case, the point was at the first railroad stop in Boston (Back Bay Station) even though the subject did not get off there. Inhabitants of Jersey City felt they had left their city when they had passed through the Tonnelle Avenue Circle. The

FIG. 28. *The Charles Street rotary*



transition from one transportation channel to another seems to mark the transition between major structural units.

Such points as Scollay Square, the Charles Street rotary, and South Station, are examples of strong junction nodes in Boston. The Charles Street rotary and Scollay Square are both important junction nodes, since both are the switch points at which one flanks the obstacle of Beacon Hill. The rotary itself is not a handsome place, but it clearly expresses the transfer between river, bridge, Storrow Drive, Charles Street, and Cambridge Street. Moreover, the open river space, the elevated station, the trains popping in and out of the hillside, the heavy traffic, all can be clearly visualized. The nodes can be important even when the physical form is shapeless and slippery, as it is in Journal Square in Jersey City.

Figure 28, page 73

Figure 11, page 28

The subway stations, strung along their invisible path systems, are strategic junction nodes. Some, like Park Street, Charles Street, Copley, and South Station, were quite important in the Boston map, and a few subjects would organize the rest of the city around them. Most of these key stations were associated with some key surface feature. Others, such as Massachusetts, were not prominent. This may be because this particular transfer was rarely used by these particular subjects, or because of unfavorable physical circumstances: the lack of visual interest, and the disassociation of the subway node from the street crossing. The stations themselves have many individual characteristics: some are easy to recognize, like Charles Street, others difficult, like Mechanics. Most of them are hard to relate structurally to the ground above them, but some are particularly confusing, such as the utter directionlessness of the upper-level station at Washington Street. A detailed analysis of the imageability of subway systems, or of transit systems in general, would be both useful and fascinating.

Figure 29

Major railroad stations are almost always important city nodes, although their importance may be declining. Boston's South Station was one of the strongest in the city, since it is functionally vital for commuter, subway rider, and intercity traveler, and is visually impressive for its bulk fronting on the open space of Dewey Square. The same might have been said for airports, had

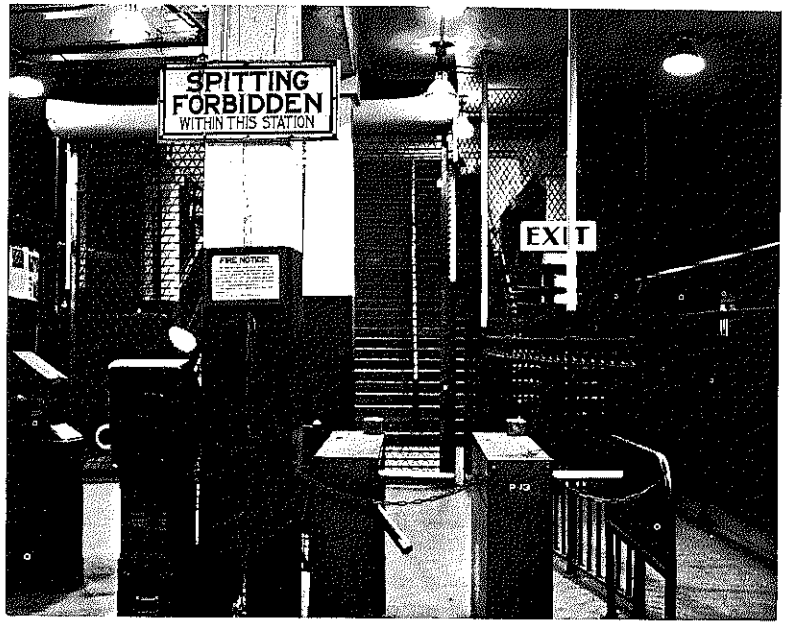
our study areas included them. In theory, even ordinary street intersections are nodes, but generally they are not of sufficient prominence to be imaged as more than the incidental crossing of paths. The image cannot carry too many nodal centers.

The other type of node, the thematic concentration, also appeared frequently. Pershing Square in Los Angeles was a strong example, being perhaps the sharpest point of the city image, characterized by highly typical space, planting, and activity. Olvera Street and its associated plaza was another case. Boston had quite a number of examples, among them the Jordan-Filene corner and Louisburg Square. The Jordan-Filene corner acts secondarily as a junction between Washington Street and Summer Street, and it is associated with a subway stop, but primarily it was recognized as being the very center of the center

Figure 17, page 36

Figure 30, page 77

FIG. 29. *The nether world of the subway*



of the city. It is the "100 per cent" commercial corner, epitomized to a degree rarely seen in a large American city, but culturally very familiar to Americans. It is a core: the focus and symbol of an important region.

Louisburg Square is another thematic concentration, a well-known quiet residential open space, redolent of the upper-class themes of the Hill, with a highly recognizable fenced park. It is a purer example of a concentration than is the Jordan-Filene corner, since it is no transfer point at all, and was only remembered as being "somewhere inside" Beacon Hill. Its importance as a node was out of all proportion to its function.

Figure 59, page 171

Nodes may be both junctions and concentrations, as is Jersey City's Journal Square, which is an important bus and automobile transfer and is also a concentration of shopping. Thematic concentrations may be the focus of a region, as is the Jordan-Filene corner, and perhaps Louisburg Square. Others are not foci but are isolated special concentrations, such as Olvera Street in Los Angeles.

A strong physical form is not absolutely essential to the recognition of a node: witness Journal Square and Scollay Square. But where the space has some form, the impact is much stronger. The node becomes memorable. If Scollay Square has a spatial shape commensurate with its functional importance, it would undoubtedly be one of the key features of Boston. In its present form, it could not be remembered in any concrete way. It got such epithets as run-down, or disreputable. Seven out of thirty subjects remembered that it had a subway station; nothing else could be agreed upon. Evidently it made no visual impression, and the connections of various paths to it, which is the basis of its functional importance, were very poorly understood.

Figures 60 and 61, pages 175 and 177

A node like Copley Square, on the contrary, which is of less functional importance and has to handle the angled intersection of Huntington Avenue, was very sharply imaged, and the connections of various paths were eminently clear. It was easily identified, principally in terms of its unique individual buildings: the Public Library, Trinity Church, the Copley Plaza Hotel, the sight of the John Hancock Building. It was less of a spatial whole than a concentration of activity and of some uniquely contrasting buildings.

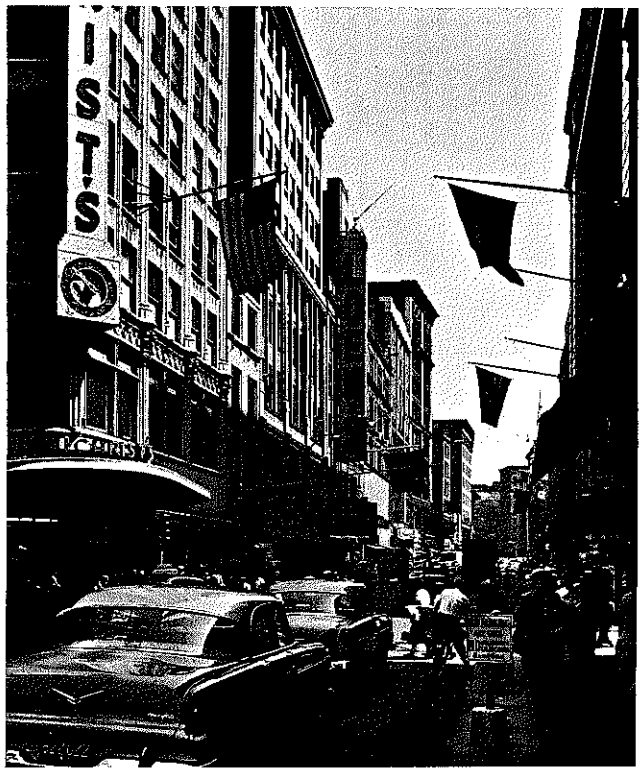


FIG. 30. *Washington and Summer Streets*

Nodes such as Copley Square, Louisburg Square, or Olvera Street, had sharp boundaries, identifiable within a few feet. Others, such as the Jordan-Filene corner, were only the highest peak of some characteristic that had no sharp beginning. In any event, the most successful node seemed both to be unique in some way and at the same time to intensify some surrounding characteristic.

Nodes, like districts, may be introvert or extrovert. Scollay Square is introverted, it gives little directional sense when one

is in it or its environs. The principal direction in its surroundings is toward or away from it; the principal locational sensation on arrival is simply "here I am." Boston's Dewey Square, on the other hand, is extroverted. General directions are explained, and connections are clear to the office district, the shopping district, and the waterfront. For one person, South Station in Dewey Square was a huge arrow pointing to the heart of downtown. Approach to such a node seems to come from a particular side. Pershing Square has a similar directional quality, primarily because of the presence of the Biltmore Hotel. In this case, however, exact location in the path grid was uncertain.

Many of these qualities may be summed up by the example of a famous Italian node: the Piazza San Marco in Venice. Highly differentiated, rich and intricate, it stands in sharp contrast to the general character of the city and to the narrow, twisting spaces of its immediate approaches. Yet it ties firmly to the major feature of the city, the Grand Canal, and has an oriented shape that clarifies the direction from which one enters. It is within itself highly differentiated and structured: into two spaces (Piazza and Piazzetta) and with many distinctive landmarks (Duomo, Palazzo Ducale, Campanile, Libreria). Inside, one feels always in clear relation to it, precisely micro-located, as it were. So distinctive is this space that many people who have never been to Venice will recognize its photograph immediately.

Figure 31

Landmarks

Landmarks, the point references considered to be external to the observer, are simple physical elements which may vary widely in scale. There seemed to be a tendency for those more familiar with a city to rely increasingly on systems of landmarks for their guides—to enjoy uniqueness and specialization, in place of the continuities used earlier.

Since the use of landmarks involves the singling out of one element from a host of possibilities, the key physical characteristic of this class is singularity, some aspect that is unique or memorable in the context. Landmarks become more easily identifiable, more likely to be chosen as significant, if they have a clear form; if they contrast with their background; and if there is some

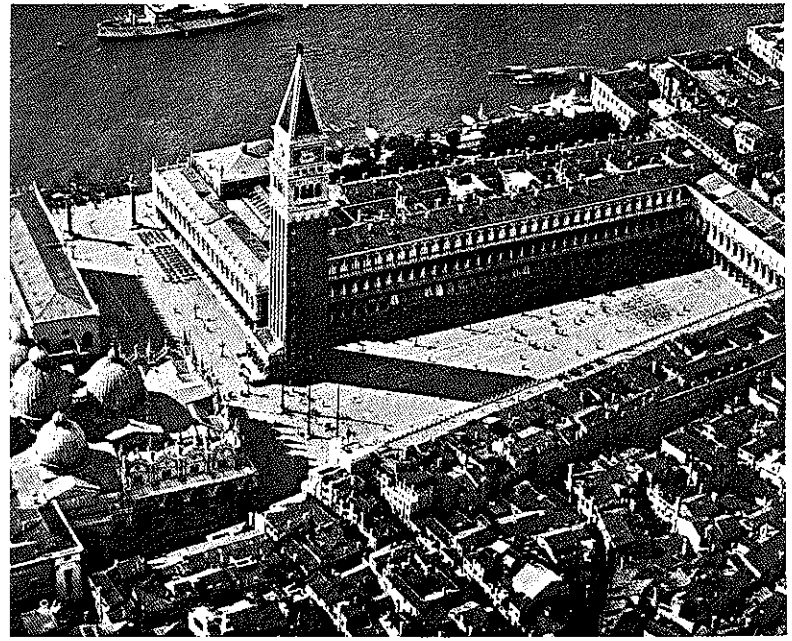


FIG. 31. *The Piazza San Marco, Venice*

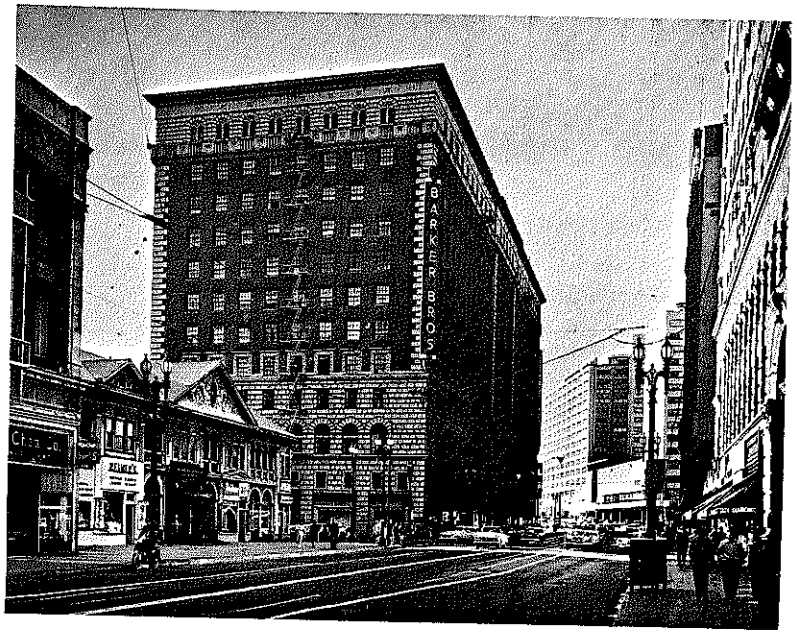
prominence of spatial location. Figure-background contrast seems to be the principal factor. The background against which an element stands out need not be limited to immediate surroundings: the grasshopper weathervane of Faneuil Hall, the gold dome of the State House, or the peak of the Los Angeles City Hall are landmarks that are unique against the background of the entire city.

In another sense, subjects might single out landmarks for their cleanliness in a dirty city (the Christian Science buildings in Boston) or for their newness in an old city (the chapel on Arch Street). The Jersey City Medical Center was as well known for its little lawn and flowers as for its great size. The old Hall of Records in the Los Angeles Civic Center is a narrow, dirty struc-

ture, set at an angle to the orientation of all the other civic buildings, and with an entirely different scale of fenestration and detail. Despite its minor functional or symbolic importance, this contrast of siting, age, and scale makes it a relatively well-identified image, sometimes pleasant, sometimes irritating. It was several times reported to be "pie-shaped," although it is perfectly rectangular. This is evidently an illusion of the angled siting.

Spatial prominence can establish elements as landmarks in either of two ways: by making the element visible from many locations (the John Hancock Building in Boston, the Richfield Oil Building in Los Angeles), or by setting up a local contrast with nearby elements, i.e., a variation in setback and height. In Los Angeles, on 7th Street at the corner of Flower Street, is an

FIG. 32. *The "little gray lady" on Seventh Street*



old, two-story gray wooden building, set back some ten feet from the building line, containing a few minor shops. This took the attention and fancy of a surprising number of people. One even anthropomorphized it as the "little gray lady." The spatial setback and the intimate scale is a very noticeable and delightful event, in contrast to the great masses that occupy the rest of the frontage. *Figure 32*

Location at a junction involving path decisions strengthens a landmark. The Telephone Building at Boston's Bowdoin Square was used, for example, to help people to stay on Cambridge Street. The activity associated with an element may also make it a landmark: an unusual case of this was the Symphony Hall in Los Angeles. This auditorium is the very antithesis of visual imageability: housed in rented quarters in a nondescript building, whose sign simply says "Baptist Temple," it is completely unrecognizable to the stranger. Its strength as a landmark seemed to derive from the contrast and irritation felt between its cultural status and its physical invisibility. Historical associations, or other meanings, are powerful reinforcements, as they are for Faneuil Hall or the State House in Boston. Once a history, a sign, or a meaning attaches to an object, its value as a landmark rises.

Distant landmarks, prominent points visible from many positions, were often well known, but only people unfamiliar with Boston seemed to use them to any great extent in organizing the city and selecting routes for trips. It is the novice who guides himself by reference to the John Hancock Building and the Custom House.

Few people had an accurate sense of where these distant landmarks were and how to make one's way to the base of either building. Most of Boston's distant landmarks, in fact, were "bottomless"; they had a peculiar floating quality. The John Hancock Building, the Custom House, and the Court House are all dominant on the general skyline, but the location and identity of their base is by no means as significant as that of their top.

The gold dome of Boston's State House seems to be one of the few exceptions to this elusiveness. Its unique shape and function, its location at the hill crest and its exposure to the Com- *Figure 58, page 170*

mon, the visibility from long distances of its bright gold dome, all make it a key sign for central Boston. It has the satisfying qualities of recognizability at many levels of reference, and of coincidence of symbolic with visual importance.

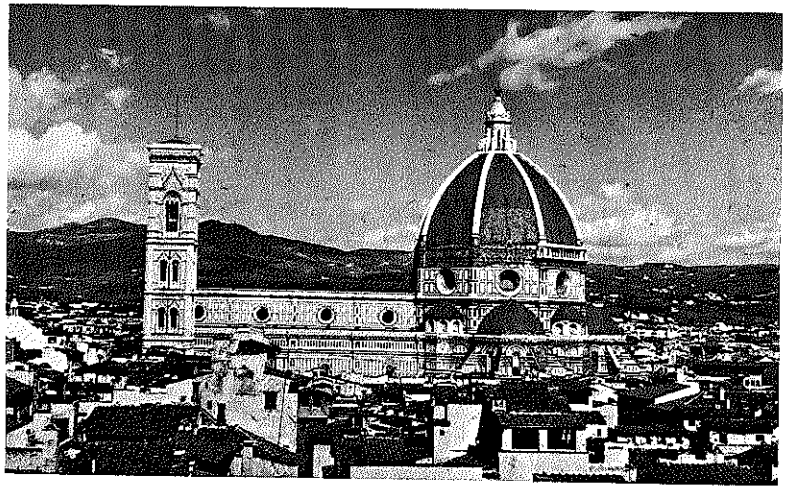
People who used distant landmarks did so only for very general directional orientation, or, more frequently, in symbolic ways. For one person, the Custom House lent unity to Atlantic Avenue because it can be seen from almost any place on that street. For another, the Custom House set up a rhythm in the financial district, for it can be seen intermittently at many places in that area.

Figure 33

The Duomo of Florence is a prime example of a distant landmark: visible from near and far, by day or night; unmistakable; dominant by size and contour; closely related to the city's traditions; coincident with the religious and transit center; paired with its campanile in such a way that the direction of view can be gauged from a distance. It is difficult to conceive of the city without having this great edifice come to mind.

But local landmarks, visible only in restricted localities, were much more frequently employed in the three cities studied. They

FIG. 33. *The Duomo, Florence*



ran the full range of objects available. The number of local elements that become landmarks appears to depend as much upon how familiar the observer is with his surroundings as upon the elements themselves. Unfamiliar subjects usually mentioned only a few landmarks in office interviews, although they managed to find many more when they went on field trips. Sounds and smells sometimes reinforced visual landmarks, although they did not seem to constitute landmarks by themselves.

Landmarks may be isolated, single events without reinforcement. Except for large or very singular marks, these are weak references, since they are easy to miss and require sustained searching. The single traffic light or street name demands concentration to find. More often, local points were remembered as clusters, in which they reinforced each other by repetition, and were recognizable partly by context.

A sequential series of landmarks, in which one detail calls up anticipation of the next and key details trigger specific moves of the observer, appeared to be a standard way in which these people traveled through the city. In such sequences, there were trigger cues whenever turning decisions must be made and reassuring cues that confirmed the observer in decisions gone by. Additional details often helped to give a sense of nearness to the final destination or to intermediate goals. For emotional security as well as functional efficiency, it is important that such sequences be fairly continuous, with no long gaps, although there may be a thickening of detail at nodes. The sequence facilitates recognition and memorization. Familiar observers can store up a vast quantity of point images in familiar sequences, although recognition may break down when the sequence is reversed or scrambled.

Element Interrelations

These elements are simply the raw material of the environmental image at the city scale. They must be patterned together to provide a satisfying form. The preceding discussions have gone as far as groups of similar elements (nets of paths, clusters of landmarks, mosaics of regions). The next logical step is to consider the interaction of pairs of unlike elements.

Such pairs may reinforce one another, resonate so that they enhance each other's power; or they may conflict and destroy

themselves. A great landmark may dwarf and throw out of scale a small region at its base. Properly located, another landmark may fix and strengthen a core; placed off center, it may only mislead, as does the John Hancock Building in relation to Boston's Copley Square. A large street, with its ambiguous character of both edge and path, may penetrate and thus expose a region to view, while at the same time disrupting it. A landmark feature may be so alien to the character of a district as to dissolve the regional continuity, or it may, on the other hand, stand in just the contrast that intensifies that continuity.

Districts in particular, which tend to be of larger size than the other elements, contain within themselves, and are thus related to, various paths, nodes, and landmarks. These other elements not only structure the region internally, they also intensify the identity of the whole by enriching and deepening its character. Beacon Hill in Boston is one example of this effect. In fact, the components of structure and identity (which are the parts of the image in which we are interested) seem to leapfrog as the observer moves up from level to level. The identity of a window may be structured into a pattern of windows, which is the cue for the identification of a building. The buildings themselves are interrelated so as to form an identifiable space, and so on.

Paths, which are dominant in many individual images, and which may be a principal resource in organization at the metropolitan scale, have intimate interrelations with other element types. Junction nodes occur automatically at major intersections and termini, and by their form should reinforce those critical moments in a journey. These nodes, in turn, are not only strengthened by the presence of landmarks (as is Copley Square) but provide a setting which almost guarantees attention for any such mark. The paths, again, are given identity and tempo not only by their own form, or by their nodal junctions, but by the regions they pass through, the edges they move along, and the landmarks distributed along their length.

All these elements operate together, in a context. It would be interesting to study the characteristics of various pairings: landmark-region, node-path, etc. Eventually, one should try to go beyond such pairings to consider total patterns.

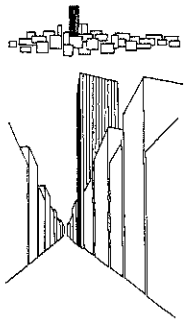
Most observers seem to group their elements into intermediate organizations, which might be called complexes. The observer senses the complex as a whole whose parts are interdependent and are relatively fixed in relation to each other. Thus many Bostonians would be able to fit most of the major elements of the Back Bay, the Common, Beacon Hill, and the central shopping, into a single complex. This whole area, in the terms used by Brown[8] in his experiments referred to in Chapter 1, has become one locality. For others, the size of their locality may be much smaller: the central shopping and the near edge of the Common alone, for example. Outside of this complex there are gaps of identity; the observer must run blind to the next whole, even if only momentarily. Although they are close together in physical reality, most people seem to feel only a vague link between Boston's office and financial district and the central shopping district on Washington Street. This peculiar remoteness was also exemplified in the puzzling gap between Scollay Square and Dock Square which are only a block apart. The psychological distance between two localities may be much greater, or more difficult to surmount, than mere physical separation seems to warrant.

Our preoccupation here with parts rather than wholes is a necessary feature of an investigation in a primitive stage. After successful differentiation and understanding of parts, a study can move on to consideration of a total system. There were indications that the image may be a continuous field, the disturbance of one element in some way affecting all others. Even the recognition of an object is as much dependent on context as on the form of the object itself. One major distortion, such as a twisting of the shape of the Common, seemed to be reflected throughout the image of Boston. The disturbance of large-scale construction affected more than its immediate environs. But such field effects have hardly been studied here.

The Shifting Image

Rather than a single comprehensive image for the entire environment, there seemed to be sets of images, which more or less overlapped and interrelated. They were typically arranged in a

series of levels, roughly by the scale of area involved, so that the observer moved as necessary from an image at street level to levels of a neighborhood, a city, or a metropolitan region.



This arrangement by levels is a necessity in a large and complex environment. Yet it imposes an extra burden of organization on the observer, especially if there is little relation between levels. If a tall building is unmistakable in the city-wide panorama yet unrecognizable from its base, then a chance has been lost to pin together the images at two different levels of organization. The State House on Beacon Hill, on the other hand, seems to pierce through several image levels. It holds a strategic place in the organization of the center.

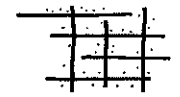
Images may differ not only by the scale of area involved, but by viewpoint, time of day, or season. The image of Faneuil Hall as seen from the markets should be related to its image from a car on the Artery. Washington-Street-by-night should have some continuity, some element of invariance, with Washington-Street-by-day. In order to accomplish this continuity in the face of sensuous confusion, many observers drained their images of visual content, using abstractions such as "restaurant" or "second street." These will operate both day and night, driving or walking, rain or shine, albeit with some effort and loss.

The observer must also adjust his image to secular shifts in the physical reality around him. Los Angeles illustrated the practical and emotional strains induced as the image is confronted with constant physical changes. It would be important to know how to maintain continuity through these changes. Just as ties are needed between level and level of organization, so are continuities required which persist through a major change. This might be facilitated by the retention of an old tree, a path trace, or some regional character.

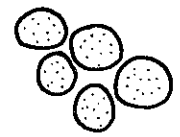
The sequence in which sketch maps were drawn seemed to indicate that the image develops, or grows, in different ways. This may perhaps have some relation to the way in which it first develops as an individual becomes familiar with his environment. Several types were apparent:

a. Quite frequently, images were developed along, and then outward from, familiar lines of movement. Thus a map might be drawn as branching out from a point of entrance, or beginning from some base line such as Massachusetts Avenue.

b. Other maps were begun by the construction of an enclosing outline, such as the Boston peninsula, which was then filled in toward the center.

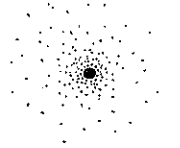


c. Still others, particularly in Los Angeles, began by laying down a basic repeating pattern (the path gridiron) and then adding detail.



d. Somewhat fewer maps started as a set of adjacent regions, which were then detailed as to connections and interiors.

e. A few Boston examples developed from a familiar kernel, a dense familiar element on which everything was ultimately hung.



The image itself was not a precise, miniaturized model of reality, reduced in scale and consistently abstracted. As a purposive simplification, it was made by reducing, eliminating, or even adding elements to reality, by fusion and distortion, by relating and structuring the parts. It was sufficient, perhaps better, for its purpose if rearranged, distorted, "illogical." It resembled that famous cartoon of the New Yorker's view of the United States.

However distorted, there was a strong element of topological invariance with respect to reality. It was as if the map were drawn on an infinitely flexible rubber sheet; directions were twisted, distances stretched or compressed, large forms so changed from their accurate scale projection as to be at first unrecognizable. But the sequence was usually correct, the map was rarely torn and sewn back together in another order. This continuity is necessary if the image is to be of any value.

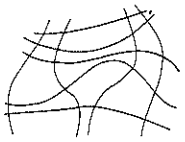


Image Quality

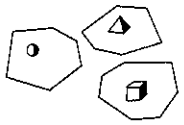
Study of various individual images among the Bostonians revealed certain other distinctions between them. For example, images of an element differed between observers in terms of their relative density, i.e., the extent to which they were packed with detail. They might be relatively dense, as a picture of Newbury Street which identifies each building along its length, or relatively

thin, when Newbury Street is characterized simply as a street bordered by old houses of mixed use.

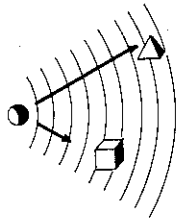
Another distinction could be made between concrete, sensuously vivid images, and those which were highly abstract, generalized, and void of sensuous content. Thus the mental picture of a building might be vivid, involving its shape, color, texture, and detail, or be relatively abstract, the structure being identified as "a restaurant" or the "third building from the corner."

Vivid does not necessarily equate with dense, nor thin with abstract. An image might be both dense and abstract, as in the case of the taxicab dispatcher's knowledge of a city street, which related house numbers to uses along block after block, yet could not describe those buildings in any concrete sense.

Images could be further distinguished according to their structural quality: the manner in which their parts were arranged and interrelated. There were four stages along a continuum of increasing structural precision:

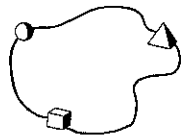


a. The various elements were free; there was no structure or interrelation between parts. We found no pure cases of this type, but several images were definitely disjointed, with vast gaps and many unrelated elements. Here rational movement was impossible without outside help, unless a systematic coverage of the entire area were to be resorted to (which meant the building up of a new structure on the spot).

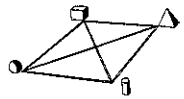


b. In others, the structure became positional; the parts were roughly related in terms of their general direction and perhaps even relative distance from each other, while still remaining disconnected. One subject in particular always related herself to a few elements, without knowing definite connections between them. Movement was accomplished by searching, by moving out in the correct general direction, while weaving back and forth to cover a band and having an estimate of distance to correct overshooting.

c. Most often, perhaps, the structure was flexible; parts were connected one to the other, but in a loose and flexible manner, as if by limp or elastic ties. The sequence of events was known, but the mental map might be quite distorted, and its distortion might shift at different moments. To quote one subject: "I like



to think of a few focal points and how to get from one to another, and the rest I don't bother to learn." With a flexible structure, movement was easier, since it proceeded along known paths, through known sequences. Motion between pairs of elements not habitually connected, or along other than habitual paths, might still be very confusing, however.



d. As connections multiplied, the structure tended to become rigid; parts were firmly interconnected in all dimensions; and any distortions became built in. The possessor of such a map can move much more freely, and can interconnect new points at will. As the density of the image builds up, it begins to take on the characteristics of a total field, in which interaction is possible in any direction and at any distance.

These characteristics of structure might apply in different ways at different levels. For example, two city regions may each possess rigid internal structures, and both connect at some seam or node. But this connection may fail to interlock with the internal structures, so that the connection itself is simply flexible. This effect seemed to occur for many Bostonians at Scollay Square, for example.

Total structure may also be distinguished in a still different way. For some, their images were organized rather instantaneously, as a series of wholes and parts descending from the general to the particular. This organization had the quality of a static map. Connection was made by moving up to the necessary bridging generality, and back down to the desired particular. To go from City Hospital to the Old North Church, for example, one might first consider that the hospital was in the South End and that the South End was in central Boston, then locate the North End in Boston and the church within the North End. This type of image might be called hierarchical.

For others, the image was put together in a more dynamic way, parts being interconnected by a sequence over time (even if the time was quite brief), and pictured as though seen by a motion picture camera. It was more closely related to the actual experience of moving through the city. This might be called a continuous organization, employing unrolling interconnections instead of static hierarchies.

One might infer from this that the images of greatest value are those which most closely approach a strong total field: dense, rigid, and vivid; which make use of all element types and form characteristics without narrow concentration; and which can be put together either hierarchically or continuously, as occasion demands. We may find, of course, that such an image is rare or impossible, that there are strong individual or cultural types which cannot transcend their basic abilities. In this case, an environment should be geared to the appropriate cultural type, or shaped in many ways so as to satisfy the varying demands of the individuals who inhabit it.

We are continuously engaged in the attempt to organize our surroundings, to structure and identify them. Various environments are more or less amenable to such treatment. When reshaping cities it should be possible to give them a form which facilitates these organizing efforts rather than frustrates them.

IV.

CITY FORM

We have the opportunity of forming our new city world into an imageable landscape: visible, coherent, and clear. It will require a new attitude on the part of the city dweller, and a physical reshaping of his domain into forms which entrance the eye, which organize themselves from level to level in time and space, which can stand as symbols for urban life. The present study yields some clues in this respect.

Most objects which we are accustomed to call beautiful, such as a painting or a tree, are single-purpose things, in which, through long development or the impress of one will, there is an intimate, visible linkage from fine detail to total structure. A city is a multi-purpose, shifting organization, a tent for many functions, raised by many hands and with relative speed. Complete specialization, final meshing, is improbable and undesirable. The form must be somewhat noncommittal, plastic to the purposes and perceptions of its citizens.

Yet there are fundamental functions of which the city forms may be expressive: circulation, major land-uses, key focal points.

The common hopes and pleasures, the sense of community may be made flesh. Above all, if the environment is visibly organized and sharply identified, then the citizen can inform it with his own meanings and connections. Then it will become a true *place,* remarkable and unmistakable.

To take a single example, Florence is a city of powerful character which has deep hold on the affection of many people. Although many foreigners will at first react to it as cold or forbidding, yet they cannot deny its special intensity. To live in this environment, whatever the economic or social problems encountered, seems to add an extra depth to experience, whether of delight or of melancholy or of belonging.

Figure 34

The city of course has an economic, cultural, and political history of staggering proportions, and the visual evidence of this past accounts for much of the strong Florentine character. But it is also a highly visible city. It lies in a bowl of hills along the Arno River, so that the hills and the city are almost always intervisible. On the south, the open country penetrates almost to the heart of the city, setting up a clear contrast, and from one of the last steep hills a terrace gives an "overhead" view of the urban core. On the north, small distinct settlements, such as Fiesole and Settignano, are perched visibly on characteristic hills. From the precise symbolic and transportation center of the city rises the huge and unmistakable dome of the Duomo, flanked by Giotto's campanile, a point of orientation visible in every section of the city and for miles outside of it. This dome is the symbol of Florence.

Figure 33, page 82

The central city has district characters of almost oppressive strength: slot-like streets, stone-paved; tall stone and stucco buildings, yellowish-gray in color, with shutters, iron grilles, and cave-like entrances, topped by the characteristic deep Florentine eaves. Within this area are many strong nodes, whose distinctive forms are reinforced by their special use or class of user. The central area is studded with landmarks, each with its own name and story. The Arno River cuts through the whole and connects it to the larger landscape.

To these clear and differentiated forms people have made strong attachments, whether of past history or of their own ex-

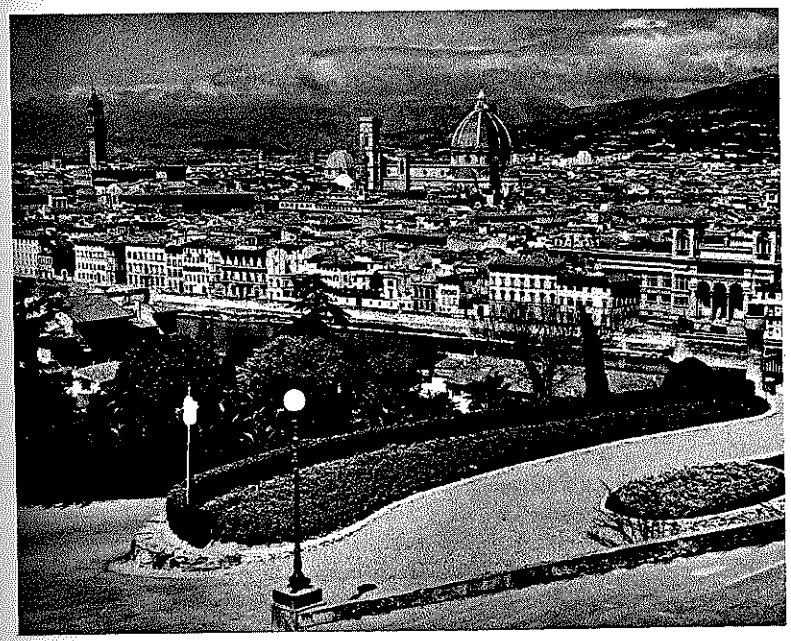


FIG. 34. *Florence from the south*

perience. Every scene is instantly recognizable, and brings to mind a flood of associations. Part fits into part. The visual environment becomes an integral piece of its inhabitants' lives. The city is by no means perfect, even in the limited sense of imageability; nor does all of the city's visual success lie in this one quality. But there seems to be a simple and automatic pleasure, a feeling of satisfaction, presence, and rightness, which arises from the mere sight of the city, or the chance to walk through its streets.

Florence is an unusual city. Indeed, even if we no longer confine ourselves to the United States, the highly visible city is still somewhat of a rarity. Imageable villages or city sections are legion, but there may be no more than twenty or thirty cities in

the world which present a consistently strong image. Even so, not one of these would encompass more than a few square miles of area. Although the metropolis is no longer a rare phenomenon, yet nowhere in the world is there a metropolitan area with any strong visual character, any evident structure. The famous cities all suffer from the same faceless sprawl at the periphery.

One may reasonably ask, then, if a consistently imageable metropolis (or even a city), is in fact possible; and whether it would be appreciated if it did exist. Given the lack of examples, it is necessary to argue largely on supposition and by the projection of past events. Men have increased the scope of their perception before, when faced with a new challenge, and there is little reason to see why it could not happen again. There are, furthermore, existing highway sequences which indicate that such a new large-scale organization might be possible.

It is also possible to cite examples of visible form at this larger scale which are not urban examples. Most people can call to mind a few favorite landscapes which have this differentiation, this structure and clear shape that we would like to produce in our living environments. The landscape south of Florence, on the road to Poggibonsi, has this character for mile after mile. The valleys, ridges, and little hills are of great variety, but lead down in a common system. The Appenines bound the horizon in the north and east. The ground, visible over long distances, is cleared and intensively cultivated for a great variety of crops—wheat, olive, grape—each clearly discernible for its own particular color and form. Each fold of the ground is mirrored in the lay of the fields, plants, and paths; each hillock is crowned by some little settlement, church, or tower, so that one could say: "Here is my town, and there is that other." Guided by the geological structure of the natural features, men have achieved a delicate and visible adjustment of their actions. The whole is one landscape, and yet each part can be distinguished from its neighbor.

Sandwich, New Hampshire, might be taken as another example, where the White Mountains sink down into the rolling headwaters of the Merrimac and the Piscataqua Rivers. The forested mountain wall is sharply contrasted with the rolling, half-

cultivated country below. To the south the Ossipee Mountains are a final isolated upthrust of hills. Several of the peaks, such as Mt. Chocorua, are of peculiar individual form. The effect is strongest in the "intervales," the flat plateaus at the very base of the mountains, which are entirely cleared and which have that strange and powerful sensation of special "place," exactly comparable to the sensation of strong locale in a city like Florence. At the time when all the lower ground was cleared for farming, the entire landscape must have had this quality.

Hawaii might be taken as another more exotic example: with its sharp mountains, highly colored rocks and great cliffs, luxuriant and highly individualized vegetation, contrast of sea and land, and dramatic transitions between one side of the island and another.

These are, of course, personal examples; the reader can substitute his own. Occasionally they are the product of powerful natural events such as on Hawaii; more often, as in Tuscany, they are the product of human modification working for consistent purposes and with common technology on the basic structure provided by a continuous geologic process. If successful, this modification is done with an awareness of the interconnectedness, and yet the individuality, of both natural resources and human purposes.

As an artificial world, the city should be so in the best sense: made by art, shaped for human purposes. It is our ancient habit to adjust to our environment, to discriminate and organize perceptually whatever is present to our senses. Survival and dominance based themselves on this sensuous adaptability, yet now we may go on to a new phase of this interaction. On home grounds, we may begin to adapt the environment itself to the perceptual pattern and symbolic process of the human being.

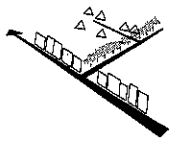
Designing the Paths

To heighten the imageability of the urban environment is to facilitate its visual identification and structuring. The elements isolated above—the paths, edges, landmarks, nodes, and regions—are the building blocks in the process of making firm, differentiated structures at the urban scale. What hints can we draw

from the preceding material as to the characteristics such elements might have in a truly imageable environment?

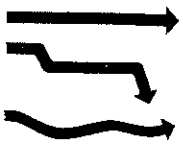
The paths, the network of habitual or potential lines of movement through the urban complex, are the most potent means by which the whole can be ordered. The key lines should have some singular quality which marks them off from the surrounding channels: a concentration of some special use or activity along their margins, a characteristic spatial quality, a special texture of floor or façade, a particular lighting pattern, a unique set of smells or sounds, a typical detail or mode of planting. Washington Street may be known by its intensive commerce and slot-like space; Commonwealth Avenue by its tree-lined center.

These characters should be so applied as to give continuity to the path. If one or more of these qualities is employed consistently along the line, then the path may be imaged as a continuous, unified element. It may be a boulevard planting of trees, a singular color or texture of pavement, or the classical continuity of bordering façades. The regularity may be a rhythmic one, a repetition of space openings, monuments, or corner drugstores. The very concentration of habitual travel along a path, as by a transit line, will reinforce this familiar, continuous image.

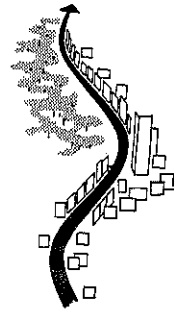


This leads to what might be called a visual hierarchy of the streets and ways, analogous to the familiar recommendation of a functional hierarchy: a sensuous singling out of the key channels, and their unification as continuous perceptual elements. This is the skeleton of the city image.

The line of motion should have clarity of direction. The human computer is disturbed by long successions of turnings, or by gradual, ambiguous curves which in the end produce major directional shifts. The continuous twistings of Venetian calli or of the streets in one of Olmsted's romantic plans, or the gradual turning of Boston's Atlantic Avenue, soon confuse all but the most highly adapted observers. A straight path has clear direction, of course, but so does one with a few well-defined turns close to 90 degrees, or another of many slight turns which yet never loses its basic direction.



Observers seem to endow a path with a sense of pointing or irreversible direction, and to identify a street with the destination toward which it goes. A street is perceived, in fact, as a thing which goes toward something. The path should support this perceptually by strong termini, and by a gradient or a directional differentiation, so that it is given a sense of progression, and the opposite directions are unlike. A common gradient is that of ground slope, and one is regularly instructed to go "up" or "down" a street, but there are many others. A progressive thickening of signs, stores, or people may mark the approach to a shopping node; there can be a gradient of color or texture of planting as well; a shortening of block length or a funneling of space may signal the nearness of the city center. Asymmetries may also be used. Perhaps one can proceed by "keeping the park on the left," or by moving "toward the golden dome." Arrows can be used, or all projecting surfaces facing one direction might have a coded color. All these means make the path an oriented element to which other things can be referred. There is no danger of making a "wrong-way" mistake.



If positions along the line can be differentiated in some measurable way, then the line is not only oriented, but scaled as well. Ordinary house numbering is such a technique. A less abstract means is the marking of an identifiable point on the line, so that other places may be thought of as "before" or "after." Several check points improve the definition. Or a quality (such as the space of the corridor) may have a modulation of gradient at a changing rate, so that the change itself has a recognizable form. Thus one could say that a certain place is "just before the street narrows down very rapidly," or "on the shoulder of the hill before the final ascent." The mover can feel not only "I am going in the right direction," but "I am almost there" as well. Where the journey contains such a series of distinct events, a reaching and passing of one sub-goal after another, the trip itself takes on meaning and becomes an experience in its own right.

Observers are impressed, even in memory, by the apparent "kinesthetic" quality of a path, the sense of motion along it: turning, rising, falling. Particularly is this true where the path is traversed at high speed. A great descending curve which approaches a city center can produce an unforgettable

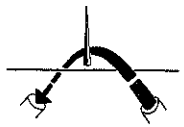


image. Tactile and inertial senses enter into this perception of motion, but vision seems to be dominant. Objects along the path can be arranged to sharpen the effect of motion parallax or perspective, or the course of the path ahead may be made visible. The dynamic shaping of the movement line will give it identity and will produce a continuous experience over time.

Any visual exposure of the path, or its goal, heightens its image. A great bridge may do this, an axial avenue, a concave profile, or the distant silhouette of the final destination. The presence of the path may be made evident by high landmarks along it, or other hints. The vital line of circulation becomes palpable before our eyes, and can become the symbol of a fundamental urban function. Conversely, the experience is heightened if the path reveals the presence of other city elements to the traveler: if it penetrates or strikes them tangentially, if it offers hints and symbols of what is passed by. A subway, for example, instead of being buried alive, might suddenly pass through the shopping zone itself, or its station might recall by its form the nature of the city above it. The path might be so shaped that the flow itself becomes sensuously evident: split lanes, ramps, and spirals would allow the traffic to indulge in self-contemplation. All these are techniques of increasing the visual scope of the traveler.

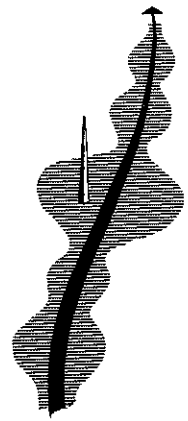
Normally, a city is structured by an organized set of paths. The strategic point in such a set is the intersection, the point of connection and decision for the man in motion. If this can be visualized clearly, if the intersection itself makes a vivid image and if the lie of the two paths with respect to each other is clearly expressed, then the observer can build a satisfactory structure. Boston's Park Square is an ambiguous joining of major surface streets; the junction of Arlington Street and Commonwealth Avenue is clear and sharp. Universally, subway stations fail to make such clear visual joints. Special care must be taken to explain the intricate intersections of modern path systems.

A joint of more than two paths is normally quite difficult to conceptualize. A structure of paths must have a certain simplicity of form to make a clear image. Simplicity in a topological rather than a geometrical sense is required, so that

an irregular but approximately right-angled crossing is preferable to a precise trisection. Examples of such simple structures are parallel sets or spindle forms; one-, two-, or three-barred crosses; rectangles; or a few axes linked together.

Paths may also be imaged, not as a specific pattern of certain individual elements, but rather as a network which explains the typical relations between all paths in the set without identifying any particular path. This condition implies a grid which has some consistency, whether of direction, topological interrelation, or interspacing. A pure gridiron combines all three, but directional or topological invariance may by themselves be quite effective. The image sharpens if all paths running in one topological sense, or compass direction, are visually differentiated from the other paths. Thus the spatial distinction between Manhattan's streets and avenues is effective. Color, planting, or detail might serve equally well. Naming and numbering, gradients of space, topography, or detail, differentiation within the net may all give the grid a progressive or even a scaled sense.

There is a final way of organizing a path or a set of paths, which will become of increasing importance in a world of great distances and high speeds. It might be called "melodic" in analogy to music. The events and characteristics along the path—landmarks, space changes, dynamic sensations—might be organized as a melodic line, perceived and imaged as a form which is experienced over a substantial time interval. Since the image would be of a total melody rather than a series of separate points, that image could presumably be more inclusive, and yet less demanding. The form might be the classical introduction-development-climax-conclusion sequence, or it might take more subtle shapes, such as those which avoid final conclusions. The approach to San Francisco across the bay hints at a type of this melodic organization. The technique offers a rich field for design development and experiment.

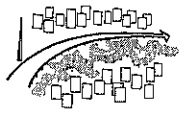


Design of Other Elements

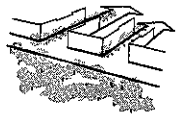
Edges as well as paths call for a certain continuity of form throughout their length. The edge of a business district, for example, may be an important concept, but be difficult to dis-

cover in the field because it has no recognizable continuity of form. The edge also gains strength if it is laterally visible for some distance, marks a sharp gradient of area character, and clearly joins the two bounded regions. Thus the abrupt cessation of a medieval city at its wall, the fronting of skyscraper apartments on Central Park, the clear transition from water to land at a sea-front, all are powerful visual impressions. When two strongly contrasting regions are set in close juxtaposition, and their meeting edge is laid open to view, then visual attention is easily concentrated.

Particularly where the regions bounded are not of contrasting nature, then it is useful to differentiate the two sides of an edge, to orient the observer in the "inside-outside" sense. It may be accomplished by contrasting materials, by a consistent concavity of line, or by planting. Or the edge may be shaped to give orientation along its length, by a gradient, by identifiable points at intervals, or by individualizing one end with respect to the other. When the edge is not continuous and self-closing, then it is important that its ends have definite termini, recognizable anchors which complete and locate the line. The image of the Boston waterfront, which is usually not mentally continuous with the Charles River line, lacks a perceptual anchor at either end, and is in consequence an indecisive and fuzzy element in the total Boston image.



An edge may be more than simply a dominant barrier if some visual or motion penetration is allowed through it—if it is, as it were, structured to some depth with the regions on either side. It then becomes a seam rather than a barrier, a line of exchange along which two areas are sewn together.



If an important edge is provided with many visual and circulation connections to the rest of the city structure, then it becomes a feature to which everything else is easily aligned. One way of increasing the visibility of an edge is by increasing its accessibility or use, as when opening a waterfront to traffic or recreation. Another might be to construct high overhead edges, visible for long distances.

The essential characteristic of a viable landmark, on the other hand, is its singularity, its contrast with its context or background. It may be a tower silhouetted over low roofs, flowers against a stone wall, a bright surface in a drab street, a church among stores, a projection in a continuous façade. Spatial prominence is particularly compelling of attention. Control of the landmark and its context may be needed: the restriction of signs to specified surfaces, height limits which apply to all but one building. The object is also more remarkable if it has a clarity of general form, as does a column or a sphere. If in addition it has some richness of detail or texture, it will surely invite the eye.

A landmark is not necessarily a large object; it may be a doorknob as well as a dome. Its location is crucial: if large or tall, the spatial setting must allow it to be seen; if small, there are certain zones that receive more perceptual attention than others: floor surfaces, or nearby façades at, or slightly below, eye-level. Any breaks in transportation—nodes, decision points—are places of intensified perception. Interviews show that ordinary buildings at route decision points are remembered clearly, while distinctive structures along a continuous route may have slipped into obscurity. A landmark is yet stronger if visible over an extended range of time or distance, more useful if the direction of view can be distinguished. If identifiable from near and far, while moving rapidly or slowly, by night or day, it then becomes a stable anchor for the perception of the complex and shifting urban world.

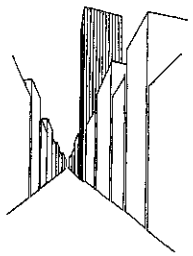
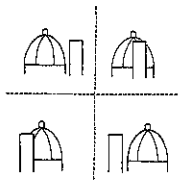


Image strength rises when the landmark coincides with a concentration of association. If the distinctive building is the scene of an historic event, or if the bright-colored door is your own, then it becomes a landmark indeed. Even the bestowal of a name has power, once that name is generally known and accepted. Indeed, if we are to make our environment meaningful, such a coincidence of association and imageability is necessary.

Single landmarks, unless they are dominant ones, are likely to be weak references by themselves. Their recognition requires sustained attention. If they are clustered, however, they reinforce each other in a more than additive way. Familiar observers develop landmark clusters out of most unpromising

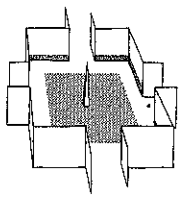


material, and depend upon an integrated set of signs, of which each member may be too weak to register. The marks may also be arranged in a continuous sequence, so that a whole journey is identified and made comfortable by a familiar succession of detail. The confusing streets of Venice become traversible after one or two experiences, since they are rich in distinctive details, which are soon sequentially organized. Less usually, landmarks may be grouped together in patterns, which in themselves have form, and may indicate by their appearance the direction from which they are viewed. The Florentine landmark pair of dome and campanile dance about each other in this way.

The nodes are the conceptual anchor points in our cities. Rarely in the United States, however, do they have a form adequate to support this attention, other than a certain concentration of activity.

The first prerequisite for such perceptual support is the achievement of identity by the singular and continuous quality of the walls, floor, detail, lighting, vegetation, topography, or skyline of the node. The essence of this type of element is that it be a distinct, unforgettable *place,* not to be confused with any other. Intensity of use strengthens this identity, of course, and sometimes the very intensity of use creates visual shapes which are distinctive, as in Times Square. But our shopping centers and transport breaks which lack this visual character are legion.

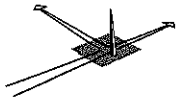
The node is more defined if it has a sharp, closed boundary, and does not trail off uncertainly on every side; more remarkable if provided with one or two objects which are foci of attention. But if it can have coherent spatial form, it will be irresistible. This is the classic concept of forming static outdoor spaces, and there are many techniques for the expression and definition of such a space: transparencies, overlappings, light modulation, perspective, surface gradients, closure, articulation, patterns of motion and sound.



If a break in transportation or a decision point on a path can be made to coincide with the node, the node will receive even more attention. The joint between path and node must be visible and expressive, as it is in the case of intersecting

paths. The traveler must see how he enters the node, where the break occurs, and how he goes outward.

These condensation points can, by radiation, organize large districts around themselves if their presence is somehow signalized in the surroundings. A gradient of use or other characteristic may lead up to the node, or its space may occasionally be visible from outside; or it may contain high landmarks. The city of Florence focuses in this manner around its Duomo and Palazzo Vecchio, both standing in major nodes. The node may emit characteristic light or sound, or its presence be hinted at by symbolic detail in the hinterland, which echoes some quality of the node itself. Sycamores in a district might reveal the proximity of a square noted for a heavy plantation of these trees, or cobblestone pavements lead up to a cobbled enclosure.



If the node has a local orientation within itself—an "up" or "down," a "left" or a "right," a "front" or a "back"—then it can be related to the larger orientation system. When recognized paths enter in a clear joint, then the tie can also be made. In either case, the observer feels the presence of the city structure around him. He knows in what direction to move outward to reach a goal, and the particularity of the place itself is enhanced by the felt contrast with the total image.

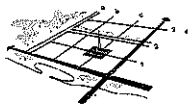
It is possible to arrange a series of nodes to form a related structure. They can be linked together by close juxtaposition or by allowing them to be intervisible, as are the Piazze S. Marco and SS. Annunziata in Florence. They may be put in some common relation to a path or edge, joined by a short linking element, or related by an echo of some characteristic from one to the other. Such linkages can structure substantial city regions.

A city district in its simplest sense is an area of homogeneous character, recognized by clues which are continuous throughout the district and discontinuous elsewhere. The homogeneity may be of spatial characteristics, like the narrow sloping streets of Beacon Hill; of building type, like the swell-front row houses of the South End; of style or of topography. It may be a typical building feature, like the white stoops of Baltimore. It may be a continuity of color, texture, or material, of floor surface,

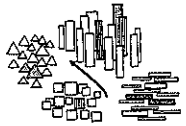
scale or façade detail, lighting, planting, or silhouette. The more these characters overlap, the stronger the impression of a unified region. It appears that a "thematic unit" of three or four such characters is particularly useful in delimiting an area. Persons interviewed usually held together in their minds a small cluster of such characters: such as the narrow sloping streets, brick pavements, small-scale row houses, and recessed doorways of Beacon Hill. Several such characters can be held fixed in a district, while other factors are varied as desired.

Where physical homogeneity coincides with use and status, the effect is unmistakable. The visual character of Beacon Hill is directly reinforced by its status as upper-class residence. The more usual American case is the reverse: use-character receives little support from visual character.

A district is further sharpened by the definiteness and closure of its boundary. A Boston housing project on Columbia Point has an island-like character which may be undesirable socially but is perceptually quite clear. Any small island, in fact, has a charming particularity for this reason. And if the region is easily visible as a whole, as by high or panoramic views, or by the convexity or concavity of its site, then its separateness is sealed.



The district may be structured within itself as well. There may be sub-districts, internally differentiated while conforming to the whole; nodes which radiate structure by gradients or other hints; patterns of internal paths. The Back Bay is structured by its network of alphabetized paths, and usually appears clearly, unmistakably, and somewhat enlarged on most sketch maps. A structured region is likely to be a more vivid image. Furthermore, it tells its inhabitants not simply "you are somewhere in X," but "you are in X, near Y."



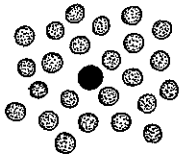
When suitably differentiated within, a district can express connections with other city features. The boundary must now be penetrable: a seam, not a barrier. District may join to district, by juxtaposition, intervisibility, relation to a line, or by some link such as a mediating node, path or small district. Beacon Hill is linked to the metropolitan core by the spatial region of the Common, and therein lies much of its attraction.

Such links heighten the character of each district, and bring together great urban areas.

It is conceivable that we might have a region which is not simply characterized by homogeneous spatial quality, but is in fact a true spatial region, a structured continuum of spatial form. In a primitive sense, such large urban spaces as river openings are of this nature. A spatial region would be distinguished from a spatial node (a square) because it could not be scanned quickly. It could only be experienced, as a patterned play of spatial changes, by a rather protracted journey through it. Perhaps the processional courts of Peking, or the canal spaces of Amsterdam, have this quality. Presumably they evoke an image of great power.

Form Qualities

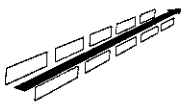
These clues for urban design can be summarized in another way, since there are common themes that run through the whole set: the repeated references to certain general physical characteristics. These are the categories of direct interest in design, since they describe qualities that a designer may operate upon. They might be summarized as follows:



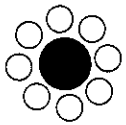
1. *Singularity* or figure-background clarity: sharpness of boundary (as an abrupt cessation of city development); closure (as an enclosed square); contrast of surface, form, intensity, complexity, size, use, spatial location (as a single tower, a rich decoration, a glaring sign). The contrast may be to the immediate visible surroundings, or to the observer's experience. These are the qualities that identify an element, make it remarkable, noticeable, vivid, recognizable. Observers, as their familiarity increases, seem to depend less and less on gross physical continuities to organize the whole, and to delight more and more in contrast and uniqueness which vivify the scene.

2. *Form Simplicity:* clarity and simplicity of visible form in the geometrical sense, limitation of parts (as the clarity of a grid system, a rectangle, a dome). Forms of this nature are much more easily incorporated in the image, and there is evidence that observers will distort complex facts to simple forms, even

at some perceptual and practical cost. When an element is not simultaneously visible as a whole, its shape may be a topological distortion of a simple form and yet be quite understandable.



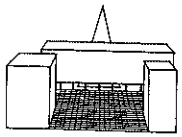
3. *Continuity:* continuance of edge or surface (as in a street channel, skyline, or setback); nearness of parts (as a cluster of buildings); repetition of rhythmic interval (as a street-corner pattern); similarity, analogy, or harmony of surface, form, or use (as in a common building material, repetitive pattern of bay windows, similarity of market activity, use of common signs). These are the qualities that facilitate the perception of a complex physical reality as one or as interrelated, the qualities which suggest the bestowing of single identity.



4. *Dominance:* dominance of one part over others by means of size, intensity, or interest, resulting in the reading of the whole as a principal feature with an associated cluster (as in the "Harvard Square area"). This quality, like continuity, allows the necessary simplification of the image by omission and subsumption. Physical characteristics, to the extent that they are over the threshold of attention at all, seem to radiate their image conceptually to some degree, spreading out from a center.

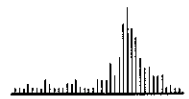
5. *Clarity of Joint:* high visibility of joints and seams (as at a major intersection, or on a sea-front); clear relation and interconnection (as of a building to its site, or of a subway station to the street above). These joints are the strategic moments of structure and should be highly perceptible.

6. *Directional Differentiation:* asymmetries, gradients, and radial references which differentiate one end from another (as on a path going uphill, away from the sea, and toward the center); or one side from another (as with buildings fronting a park); or one compass direction from another (as by the sunlight, or by the width of north-south avenues). These qualities are heavily used in structuring on the larger scale.



7. *Visual Scope:* qualities which increase the range and penetration of vision, either actually or symbolically. These include transparencies (as with glass or buildings on stilts); overlaps (as when structures appear behind others); vistas and panoramas which increase the depth of vision (as on axial streets, broad open spaces, high views); articulating elements (foci, measuring rods, penetrating objects) which visually explain a space; concavity (as of a background hill or curving street) which exposes farther objects to view; clues which speak of an element otherwise invisible (as the sight of activity which is characteristic of a region to come, or the use of characteristic detail to hint at the proximity of another element). All these related qualities facilitate the grasping of a vast and complex whole by increasing, as it were, the efficiency of vision: its range, penetration, and resolving power.

8. *Motion Awareness:* the qualities which make sensible to the observer, through both the visual and the kinesthetic senses, his own actual or potential motion. Such are the devices which improve the clarity of slopes, curves, and interpenetrations; give the experience of motion parallax and perspective; maintain the consistency of direction or direction change; or make visible the distance interval. Since a city is sensed in motion, these qualities are fundamental, and they are used to structure and even to identify, wherever they are coherent enough to make it possible (as: "go left, then right," "at the sharp bend," or "three blocks along this street"). These qualities reinforce and develop what an observer can do to interpret direction or distance, and to sense form in motion itself. With increasing speed, these techniques will need further development in the modern city.



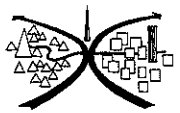
9. *Time Series:* series which are sensed over time, including both simple item-by-item linkages, where one element is simply knitted to the two elements before and behind it (as in a casual sequence of detailed landmarks), and also series which are truly structured in time and thus melodic in nature (as if the landmarks would increase in intensity of form until a climax point were reached). The former (simple sequence) is very commonly used, particularly along familiar paths. Its melodic counterpart is more rarely seen, but may be most important to develop in the large, dynamic, modern metropolis. Here what would be imaged would be the developing pattern of elements, rather than the elements themselves—just as we remember melodies, not notes. In a complex environment, it might even be possible to use contrapuntal techniques: moving patterns of opposing melodies or rhythms. These are sophisticated methods,

and must be consciously developed. We need fresh thought on the theory of forms which are perceived as a continuity over time, as well as on design archetypes which exhibit a melodic sequence of image elements or a formed succession of space, texture, motion, light, or silhouette.

10. *Names and Meanings:* non-physical characteristics which may enhance the imageability of an element. Names, for example, are important in crystallizing identity. They occasionally give locational clues (North Station). Naming systems (as in the alphabetizing of a street series), will also facilitate the structuring of elements. Meanings and associations, whether social, historical, functional, economic, or individual, constitute an entire realm lying beyond the physical qualities we deal with here. They strongly reinforce such suggestions toward identity or structure as may be latent in the physical form itself.

All of the above-mentioned qualities do not work in isolation. Where one quality is present alone (as a continuity of building material with no other common feature), or the qualities are in conflict (as in two areas of common building type but of different function), the total effect may be weak, or require effort to identify and structure. A certain amount of repetition, redundancy, and reinforcement seems to be necessary. Thus a region would be unmistakable which had a simple form, a continuity of building type and use, which was singular in the city, sharply bounded, clearly jointed to a neighboring region, and visually concave.

The Sense of the Whole

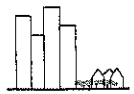


In discussing design by element types, there is a tendency to skim over the interrelation of the parts into a whole. In such a whole, paths would expose and prepare for the districts, and link together the various nodes. The nodes would joint and mark off the paths, while the edges would bound off the districts, and the landmarks would indicate their cores. It is the total orchestration of these units which would knit together a dense and vivid image, and sustain it over areas of metropolitan scale.

The five elements—path, edge, district, node, and landmark—must be considered simply as convenient empirical categories, within and around which it has been possible to group a mass of information. To the extent that they are useful, they will act as building blocks for the designer. Having mastered their characteristics, he will have the task of organizing a whole which will be sensed sequentially, whose parts will be perceived only in context. Were he to arrange a sequence of ten landmarks along a path, then one of these marks would have an utterly different image quality than if it were placed singly and prominently at the city core.

Forms should be manipulated so that there is a strand of continuity between the multiple images of a big city: day and night, winter and summer, near and far, static and moving, attentive and absent-minded. Major landmarks, regions, nodes, or paths should be recognizable under diverse conditions, and yet in a concrete, rather than an abstract way. This is not to say that the image should be the same in each case. But if Louisburg Square in the snow has a shape that matches Louisburg Square in midsummer, or if the State House dome by night shines in a way that recalls that dome seen in the day, then the contrasting quality of each image becomes even more sharply savored because of the common tie. One is now able to hold together two quite different city views, and thus to encompass the scale of the city in a way otherwise impossible: to approach the ideal of an image which is a total field.

While the complexity of the modern city calls for continuity, it also furnishes a great delight: the contrast and specialization of individual character. Our study hints at an increasing attention to detail and to uniqueness of character, as familiarity develops. Vividness of elements, and their precise tuning to functional and symbolic differences, will help to provide this character. Contrast will be heightened if sharply differentiated elements are brought into close and imageable relation. Each element then takes on an intensified character of its own.



Indeed, the function of a good visual environment may not be simply to facilitate routine trips, nor to support meanings and feelings already possessed. Quite as important may be its role

as a guide and a stimulus for new exploration. In a complex society, there are many interrelations to be mastered. In a democracy, we deplore isolation, extol individual development, hope for ever-widening communication between groups. If an environment has a strong visible framework and highly characteristic parts, then exploration of new sectors is both easier and more inviting. If strategic links in communication (such as museums or libraries or meeting places) are clearly set forth, then those who might otherwise neglect them may be tempted to enter.

The underlying topography, the pre-existing natural setting, is perhaps not quite as important a factor in imageability as it once used to be. The density, and particularly the extent and elaborate technology of the modern metropolis, all tend to obscure it. The contemporary urban area has man-made characteristics and problems that often override the specificity of site. Or rather, it would be more accurate to say that the specific character of a site is now perhaps as much the result of human action and desires as of the original geological structure. In addition, as the city expands, the significant "natural" factors become the larger, more fundamental ones, rather than the smaller accidents. The basic climate, the general flora and surface of a large region, the mountains and major river systems, take precedence over local features. Nevertheless, topography is still an important element in reinforcing the strength of urban elements: sharp hills can define regions, rivers and strands make strong edges, nodes can be confirmed by location at key points of terrain. The modern high-speed path is an excellent viewpoint from which to grasp topographic structure at an extensive scale.

The city is not built for one person, but for great numbers of people, of widely varying backgrounds, temperaments, occupations, and class. Our analyses indicate a substantial variation in the way different people organize their city, in what elements they most depend on, or in what form qualities are most congenial to them. The designer must therefore create a city which is as richly provided with paths, edges, landmarks, nodes, and districts as possible, a city which makes use of not just one or two form qualities, but of all of them. If so, different observers will all find perceptual material which is congenial to their own particular way of looking at the world. While one man may recognize a street by its brick pavement, another will remember its sweeping curve, and a third will have located the minor landmarks along its length.

There are, moreover, dangers in a highly specialized visible form; there is a need for a certain plasticity in the perceptual environment. If there is only one dominant path to a destination, a few sacred focal points, or an ironclad set of rigidly separated regions, then there is only one way to image the city without considerable strain. This one may suit neither the needs of all people, nor even the needs of one person as they vary from time to time. An unusual trip becomes awkward or dangerous; interpersonal relations may tend to compartment themselves; the scene becomes monotonous or restrictive.

We have taken as signs of good organization those parts of Boston in which the paths chosen by interviewees seemed to spread out rather freely. Here, presumably, the citizen is presented with a rich choice of routes to his destination, all of them well structured and identified. There is a similar value in an overlapping net of identifiable edges, so that regions big or small can be formed according to taste and need. Nodal organization gains its identity from the central focus and can fluctuate at the rim. Thus it has an advantage of flexibility over boundary organization, which breaks down if the shape of regions must change. It is important to maintain some great common forms: strong nodes, key paths, or widespread regional homogeneities. But within this large framework, there should be a certain plasticity, a richness of possible structures and clues, so that the individual observer can construct his own image: communicable, safe, and sufficient, but also supple and integrated with his own needs.

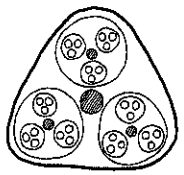
The citizen shifts his place of residence more frequently today than ever before, from area to area, from city to city. Good imageability in his environment would allow him to feel quickly at home in new surroundings. Gradual organization through long experience can less and less be relied upon. The city environment is itself changing rapidly, as techniques and func-

tions shift. These changes are often disturbing to the citizen emotionally, and tend to disorganize his perceptual image. The techniques of design discussed in this chapter may prove useful in maintaining a visible structure and a sense of continuity even while massive changes are occurring. Certain landmarks or nodes might be retained, thematic units of district character carried over into new construction, paths salvaged or temporarily conserved.

Metropolitan Form

The increasing size of our metropolitan areas and the speed with which we traverse them raise many new problems for perception. The metropolitan region is now the functional unit of our environment, and it is desirable that this functional unit should be identified and structured by its inhabitants. The new means of communication which allow us to live and work in such a large interdependent region, could also allow us to make our images commensurate with our experiences. Such jumps to new levels of attention have occurred in the past, as jumps were made in the functional organization of life.

Total imageability of an extensive area such as a metropolitan region would not mean an equal intensity of image at every point. There would be dominant figures and more extensive backgrounds, focal points, and connective tissue. But, whether intense or neutral, each part would presumably be clear, and clearly linked to the whole. We can speculate that metropolitan images could be formed of such elements as high-speed highways, transit lines or airways; large regions with coarse edges of water or open space; major shopping nodes; basic topographic features; perhaps massive, distant landmarks.



The problem is none the less difficult, however, when it comes to composing a pattern for such an entire area. There are two techniques with which we are familiar. First, the entire region may be composed as a static hierarchy. For example, it might be organized as a major district containing three sub-districts, which each contain three sub-sub-districts, and so on. Or as another example of hierarchy, any given part of the region might focus on a minor node, these minor nodes being satellite

to a major node, while all the major nodes are arranged to culminate in a single primary node for the region.

The second technique is the use of one or two very large dominant elements, to which many smaller things may be related: the siting of settlement along a sea-coast, for example; or the design of a linear town depending on a basic communication spine. A large environment might even be radially related to a very powerful landmark, such as a central hill.

Both these techniques seem somewhat inadequate to the metropolitan problem. The hierarchical system, while congenial to some of our habits of abstract thinking, would seem to be a denial of the freedom and complexity of linkages in a metropolis. Every connection must be made in a roundabout, conceptual fashion: up to a generality and back to a particular, even though the bridging generality may have little to do with the real connection. It is the unity of a library, and libraries require the constant use of a bulky cross-referencing system.

Dependence on a strong dominant element, while giving a much more immediate sense of relation and continuity, becomes more difficult as the environment increases in size, since a dominant must be found that is big enough to be in scale with its task, and has enough "surface area" so that all the minor elements can have some reasonably close relation to it. Thus one needs a big river, for example, that winds enough to allow all settlement to be fairly near its course.

Nevertheless, these are two possible methods, and it would be useful to investigate their success in unifying large environments. Air travel may simplify the problem again, since it is (in perceptual terms) a static rather than a dynamic experience, an opportunity to see a metropolitan area almost at a glance.

Considering our present way of experiencing a large urban area, however, one is drawn toward another kind of organization: that of sequence, or temporal pattern. This is a familiar idea in music, drama, literature, or dance. Therefore it is relatively easy to conceive of, and study, the form of a sequence of events along a line, such as the succession of elements that might greet a traveler on an urban highway. With some attention, and proper tools, this experience could be made meaningful and well shaped.

It is also possible to handle the question of reversibility, i.e., the fact that most paths are traversed in both directions. The series of elements must have sequential form taken in either order, which might be accomplished by symmetry about the midpoint, or in more sophisticated ways. But the city problem continues to raise difficulties. Sequences are not only reversible, but are broken in upon at many points. A carefully constructed sequence, leading from introduction, first statement, and development to climax and conclusion, may fail utterly if a driver enters it directly at the climax point. Therefore it may be necessary to look for sequences which are interruptible as well as reversible, that is, sequences which still have sufficient imageability even when broken in upon at various points, much like a magazine serial. This might lead us from the classic start-climax-finish form to others which are more like the essentially endless, and yet continuous and variegated, patterns of jazz.

These considerations refer to organization along a single line of movement. An urban region might then be organized by a network of such organized sequences, any proposed form being tested to see if each major path, in each direction and from each entry point, was possessed of a formed sequence of elements. This is conceivable when the paths have some simple pattern such as radial convergence. It becomes more difficult to image where the network is a diffuse and intersecting one, as in a gridiron. Here the sequences work in four different directions throughout the map. Although on a much more sophisticated scale, this is akin to the problem of timing a progressive traffic-light system over a network.

It is even conceivable that one might compose in counterpoint along these lines, or from one line to another. One sequence of elements, or "melody," might be played against a countersequence. Perhaps, however, such techniques would wait upon a time when there is a more attentive and critical audience.

Even this dynamic method, the organization of a network of formed sequences, does not yet seem ideal. The environment is still not being treated as a whole but rather as a collection of parts (the sequences) arranged so as not to interfere with

each other. Intuitively, one could imagine that there might be a way of creating a *whole* pattern, a pattern that would only gradually be sensed and developed by sequential experiences, reversed and interrupted as they might be. Although felt as a whole, it would not need to be a highly unified pattern with a single center or an isolating boundary. The principal quality would be sequential continuity in which each part flows from the next—a sense of interconnectedness at any level or in any direction. There would be particular zones that for any one individual might be more intensely felt or organized, but the region would be continuous, mentally traversable in any order. This possibility is a highly speculative one: no satisfactory concrete examples come to mind.

Perhaps this pattern of a whole cannot exist. In that case, the previously mentioned techniques remain as possibilities in the organization of large regions: the hierarchy, the dominant element, or the network of sequences. Hopefully, these techniques would require no more than the metropolitan planning controls now sought for other reasons, but this also remains to be seen.

The Process of Design

Any existing, functioning urban area has structure and identity, even if only in weak measure. Jersey City is a long step upward from pure chaos. If it were not, it would be uninhabitable. Almost always, a potentially powerful image is hidden in the situation itself, as in the Palisades of Jersey City, its peninsular shape, and its relation to Manhattan. A frequent problem is the sensitive reshaping of an already existing environment: discovering and preserving its strong images, solving its perceptual difficulties, and, above all, drawing out the structure and identity latent in the confusion.

At other times, the designer faces the creation of a new image, as when extensive redevelopment is underway. This problem is particularly significant in the suburban extensions of our metropolitan regions, where vast stretches of what is essentially a new landscape must be perceptually organized. The natural features are no longer a sufficient guide to structure, because of

the intensity and scale of the development being applied to them. At the present tempo of building, there is no time for the slow adjustment of form to small, individualized forces. Therefore we must depend far more than formerly on conscious design: the deliberate manipulation of the world for sensuous ends. Although possessed of a rich background of former examples of urban design, the operation must now proceed at an entirely different scale of space and time.

These shapings or reshapings should be guided by what might be called a "visual plan" for the city or metropolitan region: a set of recommendations and controls which would be concerned with visual form on the urban scale. The preparation of such a plan might begin with an analysis of the existing form and public image of the area, using the techniques rising out of this study which are detailed in Appendix B. This analysis would conclude with a series of diagrams and reports illustrating the significant public images, the basic visual problems and opportunities, and the critical image elements and element interrelations, with their detailed qualities and possibilities for change.

Using this analytical background, but not limited thereby, the designer could proceed to develop a visual plan at the city scale, whose object would be to strengthen the public image. It might prescribe the location or preservation of landmarks, the development of a visual hierarchy of paths, the establishment of thematic units for districts, or the creation or clarification of nodal points. Above all, it would deal with the interrelations of elements, with their perception in motion, and with the conception of the city as a total visible form.

Substantial physical change may not be justified on this esthetic score alone, except at strategic points. But the visual plan could influence the form of physical changes which occur for other reasons. Such a plan should be fitted into all the other aspects of planning for the region, to become a normal and integral part of the comprehensive plan. Like all the other parts of this plan, it would be in a continuous state of revision and development.

The controls employed to achieve visual form at the city scale could range from general zoning provisions, advisory review, and persuasive influence over private design, to strict controls at critical points and to the positive design of public facilities such as highways or civic buildings. Such techniques are not in principle very different from controls used in the pursuit of other planning objectives. It will probably be more difficult to gain an understanding of the problem and to develop the necessary design skill than it will be to obtain the necessary powers, once the objective is clear. There is much to be done before far-reaching controls are justified.

The final objective of such a plan is not the physical shape itself but the quality of an image in the mind. Thus it will be equally useful to improve this image by training the observer, by teaching him to *look* at his city, to observe its manifold forms and how they mesh with one another. Citizens could be taken into the street, classes could be held in the schools and universities, the city could be made an animated museum of our society and its hopes. Such education might be used, not only to develop the city image, but to reorient after some disturbing change. An art of city design will wait upon an informed and critical audience. Education and physical reform are parts of a continuous process.

Heightening the observer's attention, enriching his experience, is one of the values that the mere effort to give form can offer. To some degree, the very process of reshaping a city to improve its imageability may itself sharpen the image, regardless of how unskillful the resulting physical form may be. Thus the amateur painter begins to see the world around him; the novice decorator begins to take pride in her living room and to judge others. Although such a process can become sterile if not accompanied by increasing control and judgment, even awkward "beautification" of a city may in itself be an intensifier of civic energy and cohesion.