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The Image of the City

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I.

THE IMAGE OF THE ENVIRONMENT

Looking at cities can give a special pleasure, however commonplace the sight may be. Like a piece of architecture, the city is a construction in space, but one of vast scale, a thing perceived only in the course of long spans of time. City design is therefore a temporal art, but it can rarely use the controlled and limited sequences of other temporal arts like music. On different occasions and for different people, the sequences are reversed, interrupted, abandoned, cut across. It is seen in all lights and all weathers.

At every instant, there is more than the eye can see, more than the ear can hear, a setting or a view waiting to be explored. Nothing is experienced by itself, but always in relation to its surroundings, the sequences of events leading up to it, the memory of past experiences. Washington Street set in a farmer's field might look like the shopping street in the heart of Boston, and yet it would seem utterly different. Every citizen has had long associations with some part of his city, and his image is soaked in memories and meanings.

Moving elements in a city, and in particular the people and their activities, are as important as the stationary physical parts. We are not simply observers of this spectacle, but are ourselves a part of it, on the stage with the other participants. Most often, our perception of the city is not sustained, but rather partial, fragmentary, mixed with other concerns. Nearly every sense is in operation, and the image is the composite of them all.

Not only is the city an object which is perceived (and perhaps enjoyed) by millions of people of widely diverse class and character, but it is the product of many builders who are constantly modifying the structure for reasons of their own. While it may be stable in general outlines for some time, it is ever changing in detail. Only partial control can be exercised over its growth and form. There is no final result, only a continuous succession of phases. No wonder, then, that the art of shaping cities for sensuous enjoyment is an art quite separate from architecture or music or literature. It may learn a great deal from these other arts, but it cannot imitate them.

A beautiful and delightful city environment is an oddity, some would say an impossibility. Not one American city larger than a village is of consistently fine quality, although a few towns have some pleasant fragments. It is hardly surprising, then, that most Americans have little idea of what it can mean to live in such an environment. They are clear enough about the ugliness of the world they live in, and they are quite vocal about the dirt, the smoke, the heat, and the congestion, the chaos and yet the monotony of it. But they are hardly aware of the potential value of harmonious surroundings, a world which they may have briefly glimpsed only as tourists or as escaped vacationers. They can have little sense of what a setting can mean in terms of daily delight, or as a continuous anchor for their lives, or as an extension of the meaningfulness and richness of the world.

Legibility

This book will consider the visual quality of the American city by studying the mental image of that city which is held by its citizens. It will concentrate especially on one particular visual quality: the apparent clarity or "legibility" of the cityscape. By this we mean the ease with which its parts can be recognized

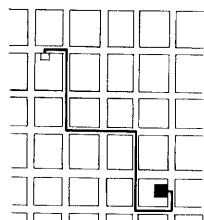
and can be organized into a coherent pattern. Just as this printed page, if it is legible, can be visually grasped as a related pattern of recognizable symbols, so a legible city would be one whose districts or landmarks or pathways are easily identifiable and are easily grouped into an over-all pattern.

This book will assert that legibility is crucial in the city setting, will analyze it in some detail, and will try to show how this concept might be used today in rebuilding our cities. As will quickly become apparent to the reader, this study is a preliminary exploration, a first word not a last word, an attempt to capture ideas and to suggest how they might be developed and tested. Its tone will be speculative and perhaps a little irresponsible: at once tentative and presumptuous. This first chapter will develop some of the basic ideas; later chapters will apply them to several American cities and discuss their consequences for urban design.

Although clarity or legibility is by no means the only important property of a beautiful city, it is of special importance when considering environments at the urban scale of size, time, and complexity. To understand this, we must consider not just the city as a thing in itself, but the city being perceived by its inhabitants.

Structuring and identifying the environment is a vital ability among all mobile animals. Many kinds of cues are used: the visual sensations of color, shape, motion, or polarization of light, as well as other senses such as smell, sound, touch, kinesthesia, sense of gravity, and perhaps of electric or magnetic fields. These techniques of orientation, from the polar flight of a tern to the path-finding of a limpet over the micro-topography of a rock, are described and their importance underscored in an extensive literature.^{10, 20, 31, 59} Psychologists have also studied this ability in man, although rather sketchily or under limited laboratory conditions.^{1, 5, 8, 12, 37, 63, 65, 76, 81} Despite a few remaining puzzles, it now seems unlikely that there is any mystic "instinct" of way-finding. Rather there is a consistent use and organization of definite sensory cues from the external environment. This organization is fundamental to the efficiency and to the very survival of free-moving life.





To become completely lost is perhaps a rather rare experience for most people in the modern city. We are supported by the presence of others and by special way-finding devices: maps, street numbers, route signs, bus placards. But let the mishap of disorientation once occur, and the sense of anxiety and even terror that accompanies it reveals to us how closely it is linked to our sense of balance and well-being. The very word "lost" in our language means much more than simple geographical uncertainty; it carries overtones of utter disaster.

In the process of way-finding, the strategic link is the environmental image, the generalized mental picture of the exterior physical world that is held by an individual. This image is the product both of immediate sensation and of the memory of past experience, and it is used to interpret information and to guide action. The need to recognize and pattern our surroundings is so crucial, and has such long roots in the past, that this image has wide practical and emotional importance to the individual.

Obviously a clear image enables one to move about easily and quickly: to find a friend's house or a policeman or a button store. But an ordered environment can do more than this; it may serve as a broad frame of reference, an organizer of activity or belief or knowledge. On the basis of a structural understanding of Manhattan, for example, one can order a substantial quantity of facts and fancies about the nature of the world we live in. Like any good framework, such a structure gives the individual a possibility of choice and a starting-point for the acquisition of further information. A clear image of the surroundings is thus a useful basis for individual growth.

A vivid and integrated physical setting, capable of producing a sharp image, plays a social role as well. It can furnish the raw material for the symbols and collective memories of group communication. A striking landscape is the skeleton upon which many primitive races erect their socially important myths. Common memories of the "home town" were often the first and easiest point of contact between lonely soldiers during the war.

A good environmental image gives its possessor an important sense of emotional security. He can establish an harmonious relationship between himself and the outside world. This is the

obverse of the fear that comes with disorientation; it means that the sweet sense of home is strongest when home is not only familiar but distinctive as well.

Indeed, a distinctive and legible environment not only offers security but also heightens the potential depth and intensity of human experience. Although life is far from impossible in the visual chaos of the modern city, the same daily action could take on new meaning if carried out in a more vivid setting. Potentially, the city is in itself the powerful symbol of a complex society. If visually well set forth, it can also have strong expressive meaning.

It may be argued against the importance of physical legibility that the human brain is marvelously adaptable, that with some experience one can learn to pick one's way through the most disordered or featureless surroundings. There are abundant examples of precise navigation over the "trackless" wastes of sea, sand, or ice, or through a tangled maze of jungle.

Yet even the sea has the sun and stars, the winds, currents, birds, and sea-colors without which unaided navigation would be impossible. The fact that only skilled professionals could navigate among the Polynesian Islands, and this only after extensive training, indicates the difficulties imposed by this particular environment. Strain and anxiety accompanied even the best-prepared expeditions.

In our own world, we might say that almost everyone can, if attentive, learn to navigate in Jersey City, but only at the cost of some effort and uncertainty. Moreover, the positive values of legible surroundings are missing: the emotional satisfaction, the framework for communication or conceptual organization, the new depths that it may bring to everyday experience. These are pleasures we lack, even if our present city environment is not so disordered as to impose an intolerable strain on those who are familiar with it.

It must be granted that there is some value in mystification, labyrinth, or surprise in the environment. Many of us enjoy the House of Mirrors, and there is a certain charm in the crooked streets of Boston. This is so, however, only under two conditions. First, there must be no danger of losing basic form or

See Appendix A

Jersey City is discussed in Chapter .



These points are further illustrated in Appendix A

orientation, of never coming out. The surprise must occur in an over-all framework; the confusions must be small regions in a visible whole. Furthermore, the labyrinth or mystery must in itself have some form that can be explored and in time be apprehended. Complete chaos without hint of connection is never pleasurable.

But these second thoughts point to an important qualification. The observer himself should play an active role in perceiving the world and have a creative part in developing his image. He should have the power to change that image to fit changing needs. An environment which is ordered in precise and final detail may inhibit new patterns of activity. A landscape whose every rock tells a story may make difficult the creation of fresh stories. Although this may not seem to be a critical issue in our present urban chaos, yet it indicates that what we seek is not a final but an open-ended order, capable of continuous further development.

Building the Image

Environmental images are the result of a two-way process between the observer and his environment. The environment suggests distinctions and relations, and the observer—with great adaptability and in the light of his own purposes—selects, organizes, and endows with meaning what he sees. The image so developed now limits and emphasizes what is seen, while the image itself is being tested against the filtered perceptual input in a constant interacting process. Thus the image of a given reality may vary significantly between different observers.

The coherence of the image may arise in several ways. There may be little in the real object that is ordered or remarkable, and yet its mental picture has gained identity and organization through long familiarity. One man may find objects easily on what seems to anyone else to be a totally disordered work table. Alternatively, an object seen for the first time may be identified and related not because it is individually familiar but because it conforms to a stereotype already constructed by the observer. An American can always spot the corner drugstore, however indistinguishable it might be to a Bushman. Again, a new object

may seem to have strong structure or identity because of striking physical features which suggest or impose their own pattern. Thus the sea or a great mountain can rivet the attention of one coming from the flat plains of the interior, even if he is so young or so parochial as to have no name for these great phenomena.

As manipulators of the physical environment, city planners are primarily interested in the external agent in the interaction which produces the environmental image. Different environments resist or facilitate the process of image-making. Any given form, a fine vase or a lump of clay, will have a high or a low probability of evoking a strong image among various observers. Presumably this probability can be stated with greater and greater precision as the observers are grouped in more and more homogeneous classes of age, sex, culture, occupation, temperament, or familiarity. Each individual creates and bears his own image, but there seems to be substantial agreement among members of the same group. It is these group images, exhibiting consensus among significant numbers, that interest city planners who aspire to model an environment that will be used by many people.

Therefore this study will tend to pass over individual differences, interesting as they might be to a psychologist. The first order of business will be what might be called the "public images," the common mental pictures carried by large numbers of a city's inhabitants: areas of agreement which might be expected to appear in the interaction of a single physical reality, a common culture, and a basic physiological nature.

The systems of orientation which have been used vary widely throughout the world, changing from culture to culture, and from landscape to landscape. Appendix A gives examples of many of them: the abstract and fixed directional systems, the moving systems, and those that are directed to the person, the home, or the sea. The world may be organized around a set of focal points, or be broken into named regions, or be linked by remembered routes. Varied as these methods are, and inexhaustible as seem to be the potential clues which a man may pick out to differentiate his world, they cast interesting side-lights on the means that we use today to locate ourselves in our own city world. For the

most part these examples seem to echo, curiously enough, the formal types of image elements into which we can conveniently divide the city image: path, landmark, edge, node, and district. These elements will be defined and discussed in Chapter 3.

Structure and Identity

An environmental image may be analyzed into three components: identity, structure, and meaning. It is useful to abstract these for analysis, if it is remembered that in reality they always appear together. A workable image requires first the identification of an object, which implies its distinction from other things, its recognition as a separable entity. This is called identity, not in the sense of equality with something else, but with the meaning of individuality or oneness. Second, the image must include the spatial or pattern relation of the object to the observer and to other objects. Finally, this object must have some meaning for the observer, whether practical or emotional. Meaning is also a relation, but quite a different one from spatial or pattern relation.

Thus an image useful for making an exit requires the recognition of a door as a distinct entity, of its spatial relation to the observer, and its meaning as a hole for getting out. These are not truly separable. The visual recognition of a door is matted together with its meaning as a door. It is possible, however, to analyze the door in terms of its identity of form and clarity of position, considered as if they were prior to its meaning.

Such an analytic feat might be pointless in the study of a door, but not in the study of the urban environment. To begin with, the question of meaning in the city is a complicated one. Group images of meaning are less likely to be consistent at this level than are the perceptions of entity and relationship. Meaning, moreover, is not so easily influenced by physical manipulation as are these other two components. If it is our purpose to build cities for the enjoyment of vast numbers of people of widely diverse background—and cities which will also be adaptable to future purposes—we may even be wise to concentrate on the physical clarity of the image and to allow meaning to develop without our direct guidance. The image of the Manhattan sky-

line may stand for vitality, power, decadence, mystery, congestion, greatness, or what you will, but in each case that sharp picture crystallizes and reinforces the meaning. So various are the individual meanings of a city, even while its form may be easily communicable, that it appears possible to separate meaning from form, at least in the early stages of analysis. This study will therefore concentrate on the identity and structure of city images.

If an image is to have value for orientation in the living space, it must have several qualities. It must be sufficient, true in a pragmatic sense, allowing the individual to operate within his environment to the extent desired. The map, whether exact or not, must be good enough to get one home. It must be sufficiently clear and well integrated to be economical of mental effort: the map must be readable. It should be safe, with a surplus of clues so that alternative actions are possible and the risk of failure is not too high. If a blinking light is the only sign for a critical turn, a power failure may cause disaster. The image should preferably be open-ended, adaptable to change, allowing the individual to continue to investigate and organize reality: there should be blank spaces where he can extend the drawing for himself. Finally, it should in some measure be communicable to other individuals. The relative importance of these criteria for a "good" image will vary with different persons in different situations; one will prize an economical and sufficient system, another an open-ended and communicable one.

Imageability

Since the emphasis here will be on the physical environment as the independent variable, this study will look for physical qualities which relate to the attributes of identity and structure in the mental image. This leads to the definition of what might be called *imageability*: that quality in a physical object which gives it a high probability of evoking a strong image in any given observer. It is that shape, color, or arrangement which facilitates the making of vividly identified, powerfully structured, highly useful mental images of the environment. It might also be called *legibility*, or perhaps *visibility* in a heightened sense,

where objects are not only able to be seen, but are presented sharply and intensely to the senses.

Half a century ago, Stern discussed this attribute of an artistic object and called it *apparency*.⁷⁴ While art is not limited to this single end, he felt that one of its two basic functions was "to create images which by clarity and harmony of form fulfill the need for vividly comprehensible appearance." In his mind, this was an essential first step toward the expression of inner meaning.

A highly imageable (apparent, legible, or visible) city in this peculiar sense would seem well formed, distinct, remarkable; it would invite the eye and the ear to greater attention and participation. The sensuous grasp upon such surroundings would not merely be simplified, but also extended and deepened. Such a city would be one that could be apprehended over time as a pattern of high continuity with many distinctive parts clearly interconnected. The perceptive and familiar observer could absorb new sensuous impacts without disruption of his basic image, and each new impact would touch upon many previous elements. He would be well oriented, and he could move easily. He would be highly aware of his environment. The city of Venice might be an example of such a highly imageable environment. In the United States, one is tempted to cite parts of Manhattan, San Francisco, Boston, or perhaps the lake front of Chicago.

These are characterizations that flow from our definitions. The concept of imageability does not necessarily connote something fixed, limited, precise, unified, or regularly ordered, although it may sometimes have these qualities. Nor does it mean apparent at a glance, obvious, patent, or plain. The total environment to be patterned is highly complex, while the obvious image is soon boring, and can point to only a few features of the living world.

The imageability of city form will be the center of the study to follow. There are other basic properties in a beautiful environment: meaning or expressiveness, sensuous delight, rhythm, stimulus, choice. Our concentration on imageability does not deny their importance. Our purpose is simply to consider the need for identity and structure in our perceptual world, and to illustrate the special relevance of this quality to the particular case of the complex, shifting urban environment.

Since image development is a two-way process between observer and observed, it is possible to strengthen the image either by symbolic devices, by the retraining of the perceiver, or by reshaping one's surroundings. You can provide the viewer with a symbolic diagram of how the world fits together: a map or a set of written instructions. As long as he can fit reality to the diagram, he has a clue to the relatedness of things. You can even install a machine for giving directions, as has recently been done in New York.⁴⁹ While such devices are extremely useful for providing condensed data on interconnections, they are also precarious, since orientation fails if the device is lost, and the device itself must constantly be referred and fitted to reality. The cases of brain injury noted in Appendix A illustrate the anxiety and effort that attend complete reliance on such means. Moreover, the complete experience of interconnection, the full depth of a vivid image, is lacking.

You may also train the observer. Brown remarks that a maze through which subjects were asked to move blindfolded seemed to them at first to be one unbroken problem. On repetition, parts of the pattern, particularly the beginning and end, became familiar and assumed the character of localities. Finally, when they could tread the maze without error, the whole system seemed to have become one locality.⁵⁰ DeSilva describes the case of a boy who seemed to have "automatic" directional orientation, but proved to have been trained from infancy (by a mother who could not distinguish right from left) to respond to "the east side of the porch" or "the south end of the dresser."⁵¹

Shipton's account of the reconnaissance for the ascent of Everest offers a dramatic case of such learning. Approaching Everest from a new direction, Shipton immediately recognized the main peaks and saddles that he knew from the north side. But the Sherpa guide accompanying him, to whom both sides were long familiar, had never realized that these were the same features, and he greeted the revelation with surprise and delight.⁵²

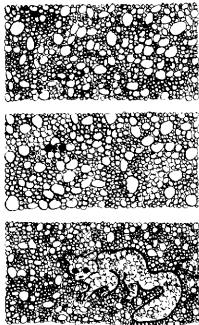
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The personal experience of most of us will testify to this persistence of an illusory image long after its inadequacy is conceptually realized. We stare into the jungle and see only the sunlight on the green leaves, but a warning noise tells us that an animal is hidden there. The observer then learns to interpret the scene by singling out "give-away" clues and by reweighting previous signals. The camouflaged animal may now be picked up by the reflection of his eyes. Finally by repeated experience the entire pattern of perception is changed, and the observer need no longer consciously search for give-aways, or add new data to an old framework. He has achieved an image which will operate successfully in the new situation, seeming natural and right. Quite suddenly the hidden animal appears among the leaves, "as plain as day."

In the same way, we must learn to see the hidden forms in the vast sprawl of our cities. We are not accustomed to organizing and imaging an artificial environment on such a large scale; yet our activities are pushing us toward that end. Curt Sachs gives an example of a failure to make connections beyond a certain level.⁶⁴ The voice and drumbeat of the North American Indian follow entirely different tempos, the two being perceived independently. Searching for a musical analogy of our own, he mentions our church services, where we do not think of coordinating the choir inside with the bells above.

In our vast metropolitan areas we do not connect the choir and the bells; like the Sherpa, we see only the sides of Everest and not the mountain. To extend and deepen our perception of the environment would be to continue a long biological and cultural development which has gone from the contact senses to the distant senses and from the distant senses to symbolic communications. Our thesis is that we are now able to develop our image of the environment by operation on the external physical shape as well as by an internal learning process. Indeed, the complexity of our environment now compels us to do so. Chapter 4 will discuss how this might be done.

Primitive man was forced to improve his environmental image by adapting his perception to the given landscape. He could effect minor changes in his environment with cairns, beacons,

or tree blazes, but substantial modifications for visual clarity or visual interconnection were confined to house sites or religious enclosures. Only powerful civilizations can begin to act on their total environment at a significant scale. The conscious remolding of the large-scale physical environment has been possible only recently, and so the problem of environmental imageability is a new one. Technically, we can now make completely new landscapes in a brief time, as in the Dutch polders. Here the designers are already at grips with the question of how to form the total scene so that it is easy for the human observer to identify its parts and to structure the whole.³⁰

We are rapidly building a new functional unit, the metropolitan region, but we have yet to grasp that this unit, too, should have its corresponding image. Suzanne Langer sets the problem in her capsule definition of architecture:

"It is the total environment made visible."⁴²

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.

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 inter-visible. 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.

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-

Figure 34

Figure 33, page 82

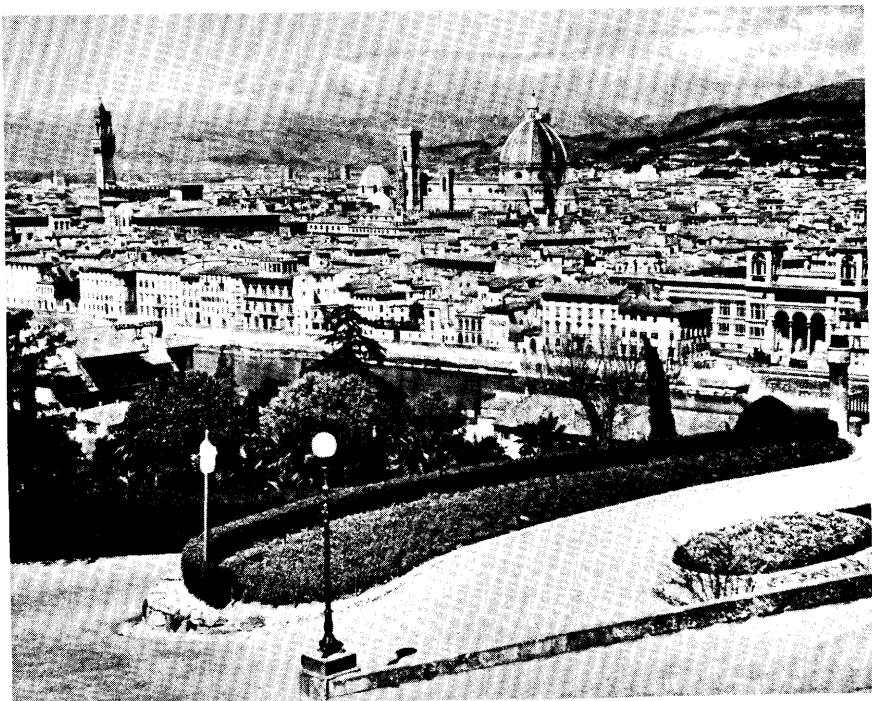


FIG. 34. *Florence from the south*

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

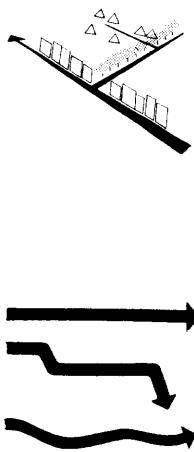
To heighten the imageability of the urban environment is to facilitate its visual identification and structuring. The elements isolated above—the paths, edges, landmarks, nodes, and regions—are the building blocks in the process of making firm, differentiated structures at the urban scale. What hints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



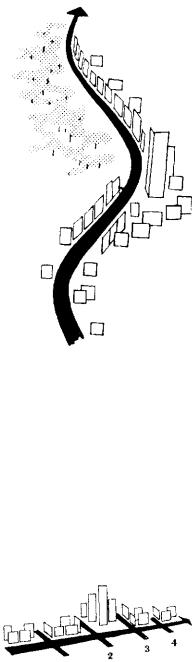
The line of motion should have clarity of direction. The human computer is disturbed by long successions of turnings, or by gradual, ambiguous curves which in the end produce major directional shifts. The continuous twistings of Venetian calli or of the streets in one of Olmsted's romantic plans, or 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 destina-

tion 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



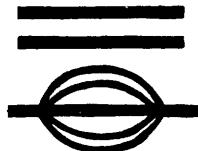
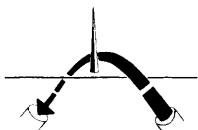


image. Tactile and inertial senses enter into this perception of motion, but vision seems to be dominant. Objects along the path can be arranged to sharpen the effect of motion parallax or perspective, or the course of the path ahead may be made visible. The dynamic shaping of the movement line will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

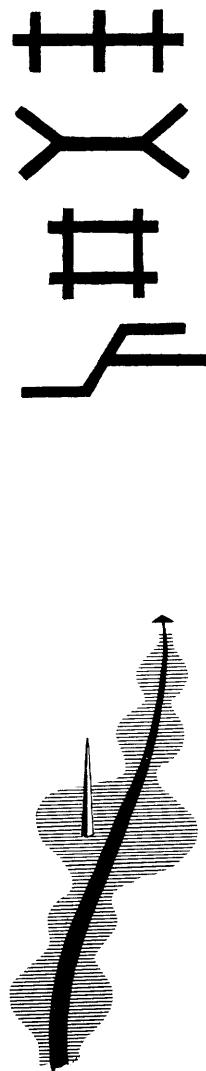
Normally, a city is structured by an organized set of paths. The strategic point in such a set is the intersection, the point of connection and decision for the man in motion. If this can be visualized clearly, if the intersection itself makes a vivid image and if the lie of the two paths with respect 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.

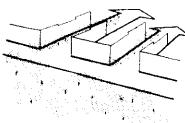
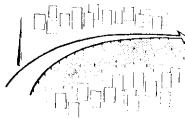
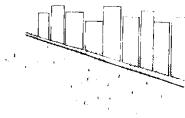
Paths may also be imaged, not as a specific pattern of certain individual elements, but rather as a network which explains the typical relations between all paths in the set without identifying any particular path. This condition implies a grid which has some consistency, whether of direction, topological 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.

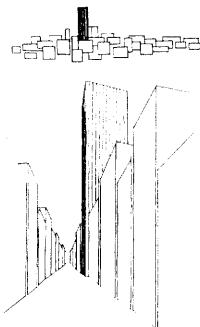
The essential characteristic of a viable landmark, on the other hand, is its singularity, its contrast with its context or

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.

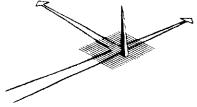
The first prerequisite for such perceptual support is the achievement of identity by the singular and continuous quality of the walls, floor, detail, lighting, vegetation, topography, or skyline of the node. The essence of this type of element is that it be a distinct, unforgettable *place*, not to be 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,



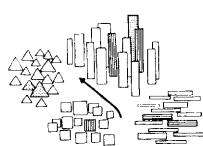
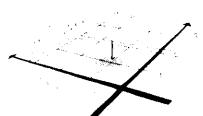
scale or façade detail, lighting, planting, or silhouette. The more these characters overlap, the stronger the impression of a unified region. It appears that a "thematic unit" of three or four such characters is particularly useful in delimiting an area. Persons interviewed usually held together in 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.

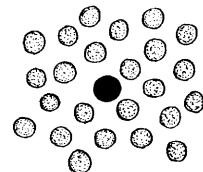
It is conceivable that we might have a region which is not simply characterized by homogeneous spatial quality, but is in fact a true spatial region, a structured continuum of spatial form. In a primitive sense, such large urban spaces as river openings are of this nature. A spatial region would be distinguished 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

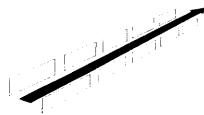
These clues for urban design can be summarized in another way, since there are common themes that run through the whole set: the repeated references to certain general physical characteristics. These are the categories of direct interest in design, since they describe qualities that a designer may operate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

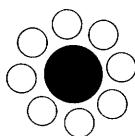
2. *Form Simplicity*: clarity and simplicity of visible form in the geometrical sense, limitation of parts (as the clarity of a grid system, a rectangle, a dome). Forms of this nature are much more easily incorporated in the image, and there is evidence that observers will distort complex facts to simple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



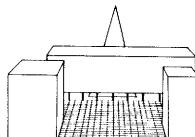
4. *Dominance*: dominance of one part over others by means of size, intensity, or interest, resulting in the reading of the whole as a principal feature with an associated cluster (as in the "Harvard Square area"). This quality, like continuity, allows the necessary simplification of the image by omission 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.

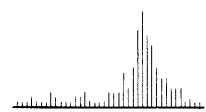


7. *Visual Scope*: qualities which increase the range and penetration of vision, either actually or symbolically. These include transparencies (as with glass or buildings on stilts); overlaps (as when structures appear behind others); vistas and panoramas which increase the depth of vision (as on axial 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,



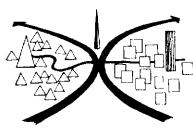
and must be consciously developed. We need fresh thought on the theory of forms which are perceived as a continuity over time, as well as on design archetypes which exhibit a melodic sequence of image elements or a formed succession of space, texture, motion, light, or silhouette.

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-

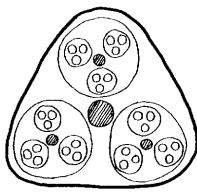
tions shift. These changes are often disturbing to the citizen emotionally, and tend to disorganize his perceptual image. The techniques of design discussed in this chapter may prove useful in maintaining a visible structure and a sense of continuity even while massive changes are occurring. Certain 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.

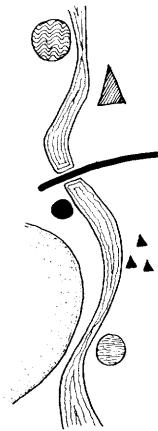
The second technique is the use of one or two very large dominant elements, to which many smaller things may be related: the siting of settlement along a sea-coast, for example; or the design of a linear town depending on a basic communication spine. A large environment might even be radially related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

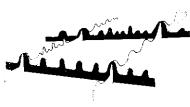
Dependence on a strong dominant element, while giving a much more immediate sense of relation and continuity, becomes more difficult as the environment increases in size, since a dominant must be found that is big enough to be in scale with its task, and has enough "surface area" so that all the minor 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.