[Below is an attempt to extract a general statement of visibility in large urban areas. The form is one which would make it useful to designers (thus the classification by physical element). As a preliminary, it will be substantially modified by analytical studies, since it is now largely based on intuition. But it suggests the organization of the analysis, as well as the probable final form (if not content) of our conclusions (which will be developed & well illustrated with examples).]

Elements of the Cityscape which facilitate Visibility:

Introductory - 1. The classes below are grounded in physical character but to some extent depend on the ~~character~~ nature of the observer. Thus a spatial reference to one observer may be a point reference to another travelling at a greater speed; or an expressway may be a path of movement to one & a barrier to another. Observer & observed are inseparable in perception of the city.

2. All the elements noted below enhance visibility in two general sorts of ways:

a. By facilitating recognition, which may range along a continuum with three characteristic points:

① The element is generally familiar as to type & structure — we have a previously formed stereotype of it

② It is recognizable through long familiarity, and thus has a sense of home or identity.

③ It is of a form such that it has a powerful identity & character even on first sight.

b. By aiding orientation, furnishing the

relative location of self & other objects (a condition which has emotional as well as practical connotations). This may again range among:

① a sense of general direction, such as is gained from the sun, a compass, distant mountains, street grid-irons, the inland-sea system, etc.

② a sense of connectedness (x follows y, or is close to it).

③ to the ultimate (and rare) conceptual model giving distances & directions between all parts.

3. The listing below leaves out two general classes of factors:

a. Internal deadreckoning operating independently of the external environment. It takes as its references the perception of gravity & the assymmetrical axes of the organism itself, & relies upon fine tactile memory. This is obviously beyond the control of the designer. It varies to some extent between individuals, & seems to be weak & ineffective when operating independently of external reference. But it may be very useful when associated with a restriction of choices imposed externally (as in the memory of left-right turns when moving through a regular grid).

b. The reinforcement of visibility which arises from meanings & associations. This is extremely powerful over a lapse of time, & is quite difficult to separate from the factors of physical form, but is here put aside wherever possible. The analysis of these effects would be the next step after a study of visibility. Meaning, however,

is an important reinforcement for the reference power of physical elements.

The basic elements of visibility in the city may be classified as Lines; Forms; Points; Districts; and Levels. They are defined, and their characteristics discussed, below:

Lines - these are the linear reference elements, experienced & conceived as a sequence of visual events. There are two types, each quite different in character:

1. Paths - these are lines which for the observer (in reality or in conception) are lines of movement, from which he organizes the city as from a coordinate system. In the modern city, this seems to be one of the most important elements in cities. They may be important single lines, or may be a simple structure of lines, which can be retained in all its individual entirety. Alternatively a more complex set may become a network, not retained in its individuality but conceived as a general set of relations between paths.

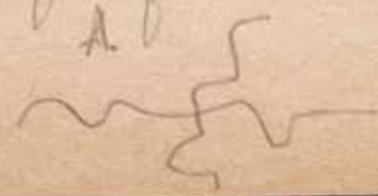
Single lines gain their sense of strength & continuity from the traffic flows channelled within them; from the intensity of use or characteristic activity; from physical continuities of space, facade, floor or detail; from rhythmic articulation; ~~and the~~ from a name itself; and from consistency of direction (but not necessarily absolute straightness). Note that very clear changes of direction may be retained without difficulty, but that a gradual turning can be quite ambiguous & confusing.

Secondly, these lines may have a sense of direction, which comes from some progressive sequence of events along the line, or from the importance of origin or destination, or from a directed character in the traffic, or from visible differences between the two sides of the channel. This quality adds greatly to the orienting power of the line.

Finally, the line may also be able to confer a sense of position along its length, as from a differentiated sequence of parts; or from modulations of direction or of actual form or use; or from continuous gradients of these qualities. Such dynamic effects also strengthen the basic unity of the line, by giving it a "melodic" form when observed in movement.

Line structures must generally be very simple to be retained. The number of lines involved must be small (3, 4, 5?), and their connections must be clear and definite. Our familiarity with the right angle can be noted here, as well as the orientation problem of intersections of small angle or of more than four entering paths. The consistency of direction & interrelation must only be simple in a topological sense, however since the perceiver readily generalizes such relations. Thus A is a more powerful reference system than B:

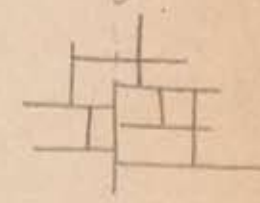
A.



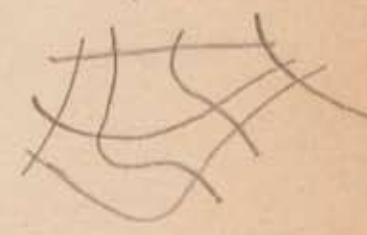
B.

Networks, or sets of retained relationships rather than individual paths, can operate over much larger & more complex areas. They have an obvious practical orientation significance, but often lack emotional power if they are divorced from more tangible reference devices. They may be useful either because they have:

directional consistency



or topological regularity



or regular interspacing,

or any combination of these (the regular grids have all three).

2. Edges - these are the linear elements not used or considered as paths by the observer, and hence taking the character of dividers or lateral references rather than coordinate axes. They may be under the control of "along" or "toward" or "this side" include walls, railroads, shore lines, mountain chains, etc. Note that an expressway, for example, may be a path for one & an edge for another, or even for the same person at different times. In their smaller & weaker forms (such as a grass strip or a use boundary), they act primarily as the features defining Districts — but when large or strong they become reference features in themselves.

Such edges are, like paths, also strengthened by continuities of physical form, as well as by sight & spatial prominence & the ability to get a broad transverse view of them. Again, a general constancy of direction is helpful, although some change is allowable. A general turning or complete enclosure, reduces the locational sense to one of inside-outside. The power of the edge is strengthened if it is difficult to cross, "impermeable", seems to be a barrier. Such an effect, of course, may increase the discontinuities in the larger pattern.

When edges become large & distant, as in the case of a mountain chain visible from within the city, they become external referents which set up an abstract, invariant system of directions.

Forms - spaces & solid objects which are not only of coherent & recognizable shape, but are also large enough and sufficiently & continuously differentiated so that there is a sense of individuality & relation to the various parts - the observer can tell where, within or without the form, he is. In a city, the most important are the:

1. Spatial Forms - Voids which have a continuous, seizable form, not only recognizable in itself, but allowing the observer to make definite locations

within the space & often to bordering positions outside as well [(due to the directional quality & space linkages of the "matter" space). Spaces are made apparent by surface patterns (~~[illegible]~~, texture, color, light gradients); by light & shadow; patterns of motion; sounds; by touch & by kinesthetic experience; by visual transparencies, overlappings & perspective. To the degree that they are articulate & have compelling form, they are powerful reference & recognition features: at least as strong as the intense line of movement.]

Often a formed urban space in the above sense is an isolated one, having visibility significance within & for a short distance without its own confines. More [more powerfully, a city may contain a linked set of such distinctive spaces, the linkage being achieved by inter-visibility, symbolic keys, or brief paths. In such case the observer is oriented from one space to another and total visibility is very high. Very rarely, the spatial form may itself embrace a whole urban district so that the observer moves continuously within one coherent, if complex, space. More often experienced in large openings such as river spaces,

visual analogues to line, form in space may be sensed dynamically by gradients or modulations of spatial form which are sensed in motion.

this is sometimes seen in the unusual form of an intimate but formed continuous sequence of spaces, as at Nanyang or Peking. Does it also exist as an area network, as well as this type of linear sequence? This is difficult to achieve but extremely strong.

2. Solid Forms - coherent forms in the same sense as above but solid & therefore sensed from without rather than from within. This class is generally unusual in our cities, but includes striking topographic features of some extent; panoramic views of whole urban masses, which is a seldom experienced but greatly satisfying sight of a city; and, quite rarely, clusters of buildings or very large & striking single structures. Here again, it is the clarity, articulation & boldness of the whole that makes them important — although the panoramic view has a power that seems to act in spite of the particular form.

Points - visual events referred to from outside, as in solid forms above, but not so large nor coherently differentiated as to indicate to the observer where he is in relation to parts of the reference element: Rather the element occupies a single point, conceptually. Perhaps the most common visibility element in our cities, along with the path. The class may include objects ranging from buildings or even smaller or more incoherent

forms, down to such details as signs or individual doors plants. Essentially, this class involves the singling out of one element from a complex of possible elements for some reason of significance.]

[Points become significant when they have a clear form and certain some aspect that can be regarded as unique & memorable in the context.] Contrast, an articulate object-background relationship (such as a bold tower against the sky, or flowers against a stone wall, or a chest among stones) seems to be fundamental to this role. [Secondly, a certain prominence of spatial location (which in itself is another form of contrast) seems to be essential. Here are the basic physical characteristics of strong point-references.]

Point-references are in general of two types:

1. Distantly visible, to which orientation is made radially.

2. Locally visible: smaller clues, which are come upon only in a particular context, and which trigger new decisions by, or simply reassure, the observer as well as giving a sense of location & identity. These again may be:

a. isolated points
b. clustered points
c. a sequence of points along a path

Such physical characteristics are, of course, very powerfully reinforced by associations, so that once a history or status attaches to a building, for example, its role as a point-reference becomes much stronger. A name, a sign, can in itself bolster the effect.

As to the classes of locally visible points, it should be noted ~~that~~ isolated points, unless long visible or compelling, are weak references, & cause the observer continuous strain as he searches for them. Thus the tiny traffic light or single street name requires concentration to find. Where they are clustered in association, however, the search is simplified by the quantity of reference; and where the association follows a pattern, as in progressive street numbering or the "signs of a gathering storm", the orientation is even clearer and the elements are better suited to the dynamic nature of perception & action in the city. To be noted here is ~~the~~ greater power to memorize details which are related, and ~~to be able~~ capability to recognize a vast quantity of points when experienced in a familiar sequence. This is of importance in traversing paths although such recognition ~~is more difficult~~ may prove impossible when running in reverse or scrambled order.

Clusters of point references may also

give a sense of location by a sort of crude triangulation process (rare?). ~~[illegible]~~ Possibly [we may be given visibility clues while in motion, not so much by particular points, or even their interrelations at any moment of time, as by the pattern of change of point constellations (their thickening, thinning, parallax, motion perspective, etc).]

[Point references are not always visual. Sounds may act as such landmarks, ~~[illegible]~~ in the direct sense of a point source which can be located, as a peanut whistle. ~~[illegible]~~ Smells, ~~[illegible]~~ though less easy for human observers to localize, can sometimes also be traced to a precise source & often occur as local events along a path; as the smell of beer from a tavern.]

As in the case of Edges, where point references become large & distant, [they act as analogs of an abstract direction system, & seem to have constant bearing. This may be true even of a mobile point, such as the sun, whose motion is sufficiently regular.]

Districts – These are recognizable areas within a city, which have individual character, and tell an observer when he is inside them, without revealing where inside. Internally, though, they are basically recognition references, while externally they may become location references, if they are visible or well retained in the mind. Thus we may go "around Beacon Hill" or "towards the North End". The pure type, then, is homogeneous, without internal structure. Certain distinct, however, have some internal structure, as from gradients of use, activity, surfaces or spaces, or simply from the overlapping of other point line or space references. In this case, of course, the observer may be able to locate himself within the district.

As in the case of spatial forms, districts may be:

1. Isolated
2. Comprising a linked structure of areas within the city
3. Comprising the entire city, or a very large section of it.

add from p. 13

The latter case is that which is referred to as the "character" of certain distinctive cities, such as central Rome or Paris, which gives a strong identity to the whole. It is questionable

however, whether this homogeneous quality can operate over an area larger than a small to medium city, or a large urban district.

The isolated district is of course the normal case in our cities, a distinctive area set in a grey & formless urban sea. Where a linked structure is achieved, however, the visibility is very high, and the entire city is easily & forcefully organized in this manner. Central Boston & central London have this quality to some extent.

add p. 12

Districts are formed physically by similarities & harmonies of plane pattern, space pattern, detail, symbols, building type, activity, shapes, vegetation, water or topography. They are also formed by external discontinuities (i.e. boundaries of all kinds), and by external contrasts (such as the unity of a village which is created by its contrast to a mountain). * (over) * See back

They are formed equally, or perhaps even more, by historical & personal associations which are beyond the scope of this study. A distinctive name very often has an important crystallizing effect. Characteristic sounds & smells also helps to weld the whole.

[* add on p. 13 not* These are not the only devices, however. A strong space or use focus may radiate its influence for some distance, so that a district is formed by association (as the Central Square district), which may be viable despite the lack of internal homogeneity or external boundary. Or a district may gain its continuity via a consistent gradient of use, etc, rather than by homogeneity.]

not [Even in default of a highly visible linkage of districts, people are prone to use them (in the form of vague, named conceptual areas) as the chief manner of organizing the large city. They may even be unable to recognize in the field the conceptual area which is basic to their organization of the city. At any event the concepts lack power & depth.

It will be important to study the means whereby such linked sets of visible districts may be constructed, and whether this can be done without overwhelming control vast homogeneities, or precise boundaries.]

Levels – Not the perception of visible coherent pieces of topography (see solid forms), but the simple orienting sense of "up" "down" or "along". This is sensed visually, kinesthetically & tactually. It refers to the sensations of moving in these various vertical gradients, to the sensation of going over or under, and also to the more static quality of certain locations being felt to be higher than others.

Usually it does not operate in highly broken terrain (except to irritate), but in rather simple

situations, as in a general downslope, a hill, a ridge, or a valley. The frequency of these words in giving directions (even where the physical fact of level difference may not exist), illustrates the power of these reference systems. Although less within the designers control, it may yet be used to reinforce other structure in the city.

Finally, it will be necessary to describe how these various elements work together in the perception of the city. And how they work over time, in place of this first necessarily static analysis. The time would be both in the sense of the moving, living observer, & also in the historical sense, of how the city, & the observer's perception of it, changes over time.

(These are bare bones, of course, without any meat, or sense of the emotional meaning of these elements. I also leave out the vital general discussion of what visibility is & means — a discussion being developed elsewhere)