Meaning of the site : a holistic approach towards site analysis on behalf of the Development of a design tool based on a comparative case-study between FengShui and Kevin Lynch's system

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MEANING OF THE SITE

(A Holistic Approach towards Site Analysis on behalf of the Development of a Design Tool based on a comparative case-study between FengShui and Kevin Lynch's system)

PROEFSCHRIFT

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PROF. DR. J.H. VAN LINT
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Dit proefschrift is goedgekeurd door de promotoren:

prof. mag. arch. ing. P. Schmid
prof. A. Tzonis
dr. K. Ruitenbeek

for those who appreciate the beauty and power of the earth

Preface and Acknowledgements

Site planning requires cooperation between the professional decision-makers who are engaged in research, preparation and evaluation of the site. That there is a gap between the decision-makers of different professions is a matter of obvious concern. The problem has to do with the lack of a general theory on the holistic display of site knowledge in site analysis. In this work attention is focused on the fundamental issues in representation of site phenomena in the hope of throwing some light on the practical development of a design tool on site which overcome this problem.

A study of this sort could not but be a product of many inputs, influences and contributions. For this reason I am obliged to preface my text not only as a reference but also as an acknowledgement to those whom I am grateful.

Four years ago, as a research fellow, I joined the 2nd phase design course at Faculty of Architecture and Building Science, Eindhoven University of Technology, where I met for the first time my promoter Professor Peter Schmid whose influence on me was enormous, especially his concerns for holistic method and environmental thinking. He first supervised me on my research project, ARCHITECTURE OF SINCERITY (Sept. 1989 - Sept. 1991). I greatly benefitted from his guidance, encouragement and suggestions. His patient and encouraging attitude helped me greatly to develop my approach, and to overcome various kinds of difficulties. And without his encouragement, help and effort, this Ph.D program would not have been accomplished. It was he who suggested that Professor Alexander Tzonis become my other promoter when I started this Ph.D program in 1991. Prof. Tzonis suggested the topic of this research. He criticized and supported, warned and encouraged my difficult, complex and often confusing endeavour. He introduced me to the Architectural Knowledge System Research group (AKS) in Faculty of Architecture, Delft University of Technology and their methodological concerns and helped me develop my capacity for theoretical analysis.

The co-promoter of my study, Dr. Klaas Ruitenbeek who introduced me to

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Introduction

What

This work is about *site*, the *building site* - an indispensable subject encountered by architects, civil engineers, building contractors and other design professionals. It discusses the site "components" and shows the "relations" among them. Thus, the different kinds of site elements and structure, formed by all site attributes and units, its "form" and "function", its "genesis" and "changes", and finally the "representation" of these knowledge of a site are all the subjects of this research.

Whom

First, I hope that this work can provide answers to some questions raised by *practitioners* of sites. It is not to tell them what it ought to be, instead it is intended to provide an understanding of the essential, legitimate, and useful features of site phenomena so that they can have a fundamental and holistic picture of the topic. Second, this work is hopefully useful for the *architectural theoreticians* in the sense that it provides a mode of analysis on sites which can be further developed and applied in similar projects.

Why

Obviously, the challenge in the study of site analysis is epitomized by the word "complexity". We have to learn simple ways to catch what is really essential in phenomena which occur only in systems with large numbers of components and interactions.

We are not, however, at the starting point of a completely new subject. Since, our discussion on site is not trying to build a theory of things of which basic

features are still unknown, but rather to assault the fortress by a numbers of well defined inroads, aiming at some concrete, though modest knowledge which might provide a basis for further speculations. In other words, what the present study deals with is not a "no-man's land". Site has already been studied in various kinds of approaches, such as the following:

(1). The technical - utilitarian approach which is connected to that landscape which is visible form assumed by the earth's surface and then attempted to clarify the relationship between man and nature.

(2). The social - economic approach studies how site as a natural phenomenon influences social order and economic structure.

(3). The anthropological approach, concerned with local customs, religious tradition, spiritual beliefs and life which all reflect the influence of topographical surrounding of a site.

(4). The micro - environmental approach which deals with the climatic influence on site selection.

(5). The ecological approach is concerned with the evaluation of the biological quality of a site.

(6). The symbolic approach on the relationship between transcendental beliefs and the visual object.

Thus, site study is a field that is shared by several disciplines, domains and approaches.

However, just like "the blind men describing the elephant", each of whom describes the elephant according to what he has touched, and no one of whom gives a complete image of the elephant, each of the above mentioned disciplines or approaches gives a specific image of a site. No single discipline or approach contribute a total image of the site. As well very few works have ever focused on the investigation of the very means through which the various qualities of a site, the spatial - formal, environmental, operational and deontological, are represented. The choice of means is fundamental to the choice of a site, to the subsequent modification of that site, and to building on it.

Equally few are the studies which tried to develop a *global approach* to site analysis and evaluation, with consideration of all the above aspects in a systematic manner. This lack of a global approach leads designers, planners and

engineers to ignore the fact that no matter how mechanized and structured our environment might become, the fundamental sustenance for human existence is still the order that nature imposes on life.

The current work: *Meaning of the Site* attempts to respond to the above challenges.

How

The approach I adopted derives a great deal from holistic methods[1] which include four basic strategies: *concept analysis, concept synthesis, theory development* and *conceptual modelling*. In order to give a holistic picture of a site, we must not deal with the problem directly and concretely through a specific point of view. Instead we approach the site problem indirectly, by juxtaposing techniques, forms, ideas, and systems of site practice. This is due to that site phenomena is characterized by complexity and heterogeneity, a "specific point of view" can only give a limited part of the site image.

Following this **introduction** and **chapter 1** which defines the concept and the main issues of a site, the objects of the study and gives a brief survey of the problems (both theoretical and practical ones) that the research deals with, the study is organized into four parts.

In **Part 1** (concept analysis), the object being studied is the universe of discourse (on site), by which, the purpose is a recognition of patterns of observations and making abstractions from these patterns. On the basis of abstractions made from observations and previous knowledge, a set of concepts are constructed. Methodologically, a comparative case-study approach will be applied. Two existing systems on site practice are pursued in a parallel manner:

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[1] The term has been ascribed to a sociological approach which argues that it is useful in some instances to think of societies as constituting social systems, with implication that in studying the whole in this manner one is paying due regard to both the parts and the relationships holding between the parts. Such an approach is structural approach, and may be said to be of the essence of sociology, or in other words this describes what in fact many sociologists and especially social anthropologists do.

An early and notable example being G. W. F. Hegal, that in order to understand some phenomenon it is necessary to understand it in its entirety, i.e. one must know the whole. This follows from the belief that it is only by a contemplation of an essence that one can fully understand anything. (refer to G. D. Mitchell (ed.), 1968)

a traditional (asiatic) one and a modern (western) one. With a brief discussion on the methodology of comparative case-study approach and the selection of the cases in **chapter 2**, **chapter 3**, the Chinese *FengShui* theory which has been practised in China as well as other Asian countries since the fourth century B.C. is used as the object for two reasons: 1. *FengShui* provides both written and pictorial documentation on various kinds of site phenomena; 2. *FengShui* offers an example of how a general system theory (i.e. the *FengShui* cosmology which is a comprehensive holistic model of a site) can be translated into all sorts of site phenomena.

As a contemporary system, in **chapter 4**, Kevin Lynch's system of site analysis was selected as the case. It has remained the only comprehensive source of information and recognized system for over two decades that deals with all the principal activities and concerns of arranging the outdoor physical environment (Journal of Architectural Education, review of second edition of *Site Planning*, 1990).
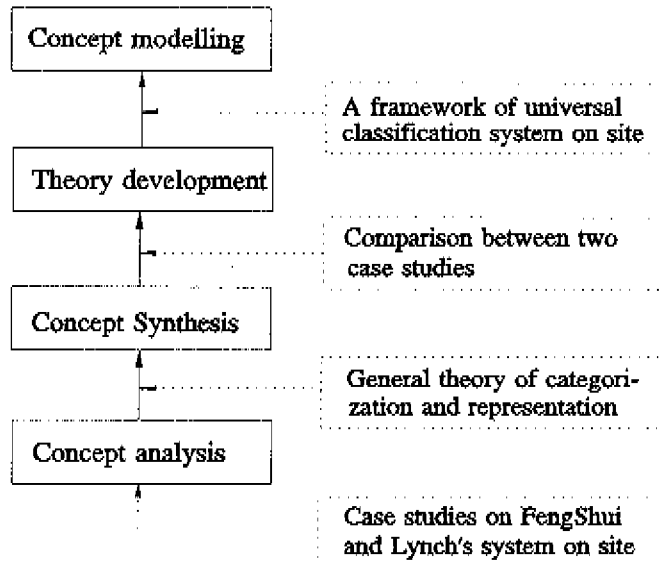
Figure 0-1 Research strategy

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In **Part 2**, the goal is to identify new concepts on the basis of results achieved in concept analysis. New concepts are searched by aggregating or generalizing groups of old concepts. **Chapter 5** outlines the general structure of a theory of categorization and representation. This forms the basis for the rules of interpretation in the concept synthesis. **Chapter 6** puts *FengShui* and Lynch's system in a comparative perspective, aiming at classifying those aspects which are 'universal' and those which are system-specified between *FengShui* and Lynch's system.

Part 3, in the theory development process, the goal is to find as good as possible a system of concepts and their relationships, a new means of representation of site phenomena (**chapter 7**). Instead of improving some single concepts, the whole system of concepts and their relationships is reorganized or created from the discovery of the comparative case studies in previous chapters, i.e. *FengShui* and Lynch.

Part 4, the stage is called conceptual modelling (of site elements) by which we will develop a holistic representational system on site (**chapter 8**). Site will be analyzed according to formal as well as to operational and deontological criteria, which considers a universal category system on site and its relationship with the general site design process.

Where and when

The question of *where* and *when* here is actually concerned with the context of the present study. With reference to the Dutch Environmental Policy Plan (1989), the present study on site analysis is carried out in terms of conditions, side-effects and consequences of both, *short* and *long* terms in *local* as well as *regional* and even *global* context.

Utilization

The result of this work, an unified and holistic representation of site phenomena - an elementary model will first of all be used as a mode of research for the subsequent studies on the similar subject.

And secondly, as a new means of representation, we hope that it may be helpful in aiding the process of planning, arranging a site, and subsequently

improving and even conserving our land. It will be considered powerful according to its capacity for offering an appropriate formal definition for every sort of structure, function and performance within the framework of landscape (in the broad sense). Finally, we expect the study will open new possibilities for designers, contractors, and engineers, rather than instructing them to specific site stereotypes.

Chapter 1

A Brief Survey of The Problem

All scientific researches start with a problem(s). A brief survey and then the identification of the problem concerning the present study on site analysis is the main purpose of this chapter. Connected with this, the clarification of the term "site", the main issues related to it, and consequently the objects of the study, the site-representation problematic, then a brief review of existing systems, disciplines and approaches on the subject constitute the main issues of the first chapter of our study.

1.1 The Problem

What is a site? What are the problems associated with it? These questions are so common that they have been taken for granted not to be answered. "A problem or a problem situation exists when one experiences a need or demand to achieve - through some kind of activity or search - from a certain existing situation, another imagined situation, a goal situation, which cannot be attained either immediately or by any automatic, habitual activity" (Nordbeck, 1971, P.12).

There is, of course, no objective criterion to determine the existence of a problem. A problem exists if a situation is thought to be undesirable and deliberate action is required to ameliorate it. In a site of a certain society, a problem situation may exist at a particular time while, in another society or at another time, the same situation may not be considered undesirable. However,

with regard to certain fundamental issues, a wide consensus on the undesirability or desirability of a large number of site situations over different space and time could be obtained. The direct cause of these undesirability or desirability lie mainly in the way practitioners of site making their decisions, and which is greatly constrained by the means of representation of site information.

1.1.1 A pilot inquiry

To clarify how means of site representation influence and constrain the site practitioners (in their decision-making process), *a pilot inquiry* was made among a list of experts (including architects, civil engineers, professors in architecture, urban planners as well as contractors) on site analysis. The following questions were asked of all the site experts:

1. What are the basic elements of site analysis in general terms? What is the nature of those elements?
2. What is the definition of a site? in what sense?
3. What is the relation between site and place, location, region, area, environment
4. What is the nature of site analysis?
5. How were the elements of site analysis identified and approached in various site theories?
6. What kinds of operation should be employed in order to analyze and to use the site in both: archaic, "metaphysical" context as well as technique-dominated site practices?
8. What elements should be considered during site interpretation, notation and representation?
9. In what phase should site be considered as part of the design process?
10. What "approach", "technique", "method" or "theory" is available in site studies?

The answers, as we expected, are different due to different professions and disciplines. That is, the same question was answered either on different levels or viewed from different angles. Nobody could give an answer which covers every-

thing. The interesting thing about this casual, fragmentary view of site phenomena is that everyone's viewpoint is individual and not surprisingly, therefore, we all perceive different images from sites.

1.1.2 The problem

This is certainly not due to the incompetence of the experts or their lack of familiarity with other professions, but rather due to the nature of site phenomena that is deemed to be full of varieties which requires proper correspondences (among various kinds of professions). Obviously, such correspondences are missing. All factors and issues of site are related to each other which means that every time a decision-maker of site activity (designer, planner, engineer or contractor) attempts to solve a particular site problem he or she must consider its potential relationship with all the other problems. To do this one must have both a comprehensive set of concepts for dealing with decision and a rich set of tools for acquiring the holistic information needed to guide decision making. We may summarize our results of the inquiry as following:

1. Site activity is comprised of various kinds of problems and issues.
2. These problems and issues tend to be highly interrelated. Consequently, the solution to one problem requires a solution to all other problems. At the same time, each solution creates additional dimensions to be incorporated in the solutions to other problems.
3. Few, if any, problem can be isolated effectively for separate treatment.
4. A holistic representation system on site analysis is highly demanding.

It is our hope that a feast of experiences from all professions of site activity could be consolidated, drawing on the perception and sensitivity of all who have touched on the subject from different back-grounds and varying artistic and technological viewpoints. To do that, the very first problem, as well as the first difficulty encountered is the term "site" itself. Investigation of the representational methods of site phenomena would be difficult without the clarification of the very content of the phenomena.

1.2 Concept and main issues of a site

"Science discusses facts in terms of concept" (R.D. Sack, 1980, P.60). It is important to our purposes to explore how the phenomena of sites are reflected through scientific concepts[1] and generalizations before we discuss the method of representation of a site. Thus, no argument on "site" should be immune from questioning on the basis of a statement by definition of the term itself. This will be done on the basis of establishments of those experts on site like Habraken, Kevin Lynch, Norberg-Schulz and others.

"Since the transition of human being from nomad to settler, there had been a radical alteration in his life style, and with the change came a profound alteration in psychological outlook. Settled life necessitated the enclosure of space, a stopping of the free flow of the spirit of the earth and the enclosed space required protection against intrusion. Instead of the whole world as his terrain, man's dominion was now confined to a small and precisely defined locality." (N. Pennick, 1979, P.12) Settlement came into being, so did the concept of "site".

In *Transformation of the Site*, Habraken has written that:"The site is space and material: Form, Place and Understanding make the site" (Habraken, 1982, P.4). An "visual or spatial variable" and a "physical variable" were employed in his statement. The first variable dictates that the site is a "spatial" and "geograph- ical" entity; the second defines the site in term of physical and material entities it involves. But the statement in itself, with its two components of site, although essential to our existence, is quite superficial and is based mainly on the explicit functions that sites have for us. The significance of a site is much deeper and richer than this. It involves a profound and complex aspect of man's experience of the world.

Taking a brief survey of existing (or possible) statements on the subject (certainly not an exhaustive survey)(referring to the collection of statements on site in the Appendix I, P.211), we may find that the obvious importance of a site, both functionally and existentially, has not yet been reflected in the examinations

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[1]According to Sack, R.(1980):"concepts are abstractions about classes of facts."(P.60)

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of either the concept of a site or the nature of experiences of it. Even architects and planners have displayed a distinct lack of interest in this (for them, building plays the dominating role), even though their responsibilities can be well understood as installing physical objects on the site, or as "the development of a system of meaningful places that give form and structure to our experiences of the world" (Norberg-Schulz, 1969, P.226).

Simply defining "site" as the product of a combination of its spatial reality and its physical entity, or "the physical context of human activities" ignores the facts that "site" in the one hand belongs to a larger family in the sense of hierarchical order of land system (macro scale); and is itself composed of a variety of elements on the other (micro scale) (figure 1-1).
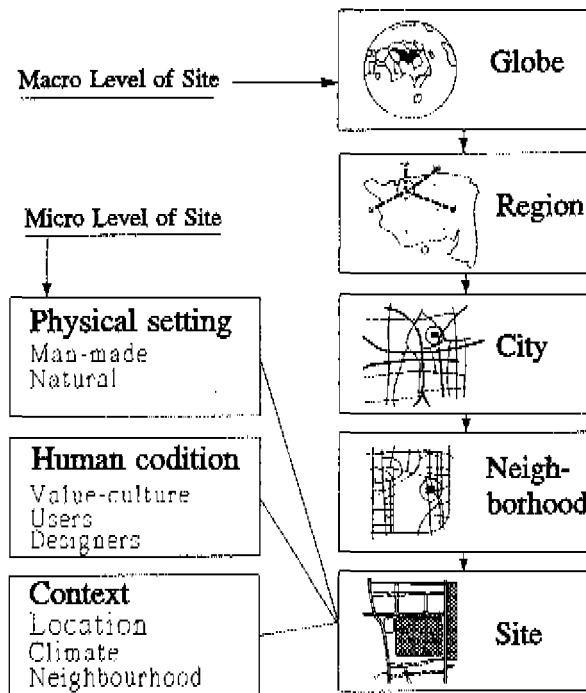
Figure 1-1 Macro, Micro readings of a site

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Considering the above situations, we can reveal at least seven major issues related to site phenomena:

1. Site as location, especially as it relates to other things and places, is absolutely fundamental. Location can be described in terms of internal characteristics and external connectivity to other locations. Thus sites have spatial extensions and an inside and an outside.

2. Site involves an integration of elements of nature and culture; each site is a special ensemble which distinguishes it from the others. In other words, every site is a unique entity.

3. Site and landscape. Site has a physical, visual form - a landscape. Certainly appearance, whether of artificial or natural features, is one of the most obvious attributes of a site. It is substantial, capable of being described. As a visual landscape, site has its clearest articulation in distinct centres or prominent features such as hilltops or the confluence of rivers. In some way, the spirit of site lies in its landscape[2].

4. Time, as a component, is involved during site process: with historical and cultural change new elements are added and old elements disappear. In other words, site has hidden potential of development even without human interference: new species crowd out the old, climates shift, geological processes continue, decay, waste, entropy... and so on[3].

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[2]Appearance is an important feature of all sites, whether site is understood and experienced as landscape in the direct and obvious sense that visual features provide tangible evidence of some concentration of human activities, or in a more subtle sense as reflecting human values and intentions. But it is hardly possible to understand all site experiences as landscape experiences.

[3]How time and site are related is an intricate problem that invites different approaches. Site is an organized world of meaning, it is essentially a static concept. However, if we see the world as process, constantly changing, we should not be able to develop any sense of site at all. In this sense, earthly sites were all temporary, at best stages on the way to the ultimate goal. Religions of transcendental hope tend to discourage the establishment of site. The message is, don't hang on to

5. Sites have meanings (in all senses: scientific, technical, economical, cultural, metaphysical): as soon as places have been chosen as sites for a certain purpose of human activity, they are characterised by the beliefs of man.

6. Site analysis is concerned with geomancy, in the sense that it (site) is the home of a "genius loci" (or local spirit) which is sacred (not to be disturbed) by the people for whom it is going to serve.

7. Site is community. One way or another, the relationship between community and site is a very powerful one in which each reinforces the identity of the other, and in which the landscape is very much an expression of communally held beliefs and values and of interpersonal involvements[4].

In short, a site is not just the "where" of something; it is the location plus everything (including space, time and mass)[5] that occupies that location seen as an integrated and meaningful phenomenon.

We must not forget, however, that when we define the concept of a site and the main issues concerning with it, an underlying assumption is that it is a "building site", not only an "original site" (pure natural). In other words, what

what you have; live in the present as if it were a camp or wayside station to the future (for more discussion on the subject, refer to John G. Gunnell, *Political Philosophy and Time* (Middletown, Conn.: Wesleyan University Press, 1968), P.55-56, 65-66). Sense of time affects sense of site. On the other hand, while it takes time to form an attachment to a site, the quality and intensity of experience matters more than simple duration.

[4]The Royal Commission of Local Government in England concluded that while attachment to 'home area' increased with length of residence in that area, such attachment is primarily "concerned with the interaction of the individual with other people - rather than with his relationship to his physical environment" (Hampton, 1970, P.115). Such an emphasis on community seems to be an overly extreme denial of the importance of physical setting in site experience, it does reveal the important involvement of community in site phenomena.

[5]Reflecting the tripartite division of time, space and things, the term 'site' can thus be also partially divided into three categories - temporal concepts (change of seasons, events, as well as such units of measure as minutes, hours, days, months, years... and so on) spatial concepts (location, points, lines and shapes) and the vast remainder of non-temporal, non-spatial ones, which we may refer to as substantial concepts (objects, masses, energy, values...etc.)

we are interested in are those pieces of land (or water) where are emerging and becoming involved with human building activities.

One problem worth mentioning is that the concept of site is still not clearly distinguished from that of "place", "region", "area" and "location". In fact, the concept of site tends to be more or less interchangeable with them. The confusion that is inherent in those terms may cause some difficulties in defining methods for the study. Since simply bundling together a whole variety of different approaches and ideas does not necessarily turn out satisfactory results.

Lynch's statement on site may partly clarify this confusion in some way, as he points out that "the site and the purpose for which it will be used - the two sources of site design - are curiously interrelated" (Kevin Lynch, *Site Planning*, 1984, P.29). That is to say, as opposed to the "place", "area", "region" and "location", site is purposely based. "Site analysis depends on purpose", and vice versa, "purpose depends on the limitations of the site" (ibid). A piece of land becomes a site because it is going to serve a certain purpose for the human being. "Site is analyzed for fitness for this purpose as well as in its own right as a living, changing community of plants and animals" (ibid). Purpose is here defined in terms of "two fundamental human needs or requirements: first, (there is) the need to anticipate future events so that behaviour can be adapted to them; second, (there is) the need to be able to control future events (the past is beyond control) so that man can become something more than a servile prisoner of natural forces" (Meenhan, 1968, P.19-20).

In further investigation with a more analytical approach, we may find that the notion "site" has been used in two distinct senses. First, it has been used to refer to a particular and specific part of space and to what may occupy that space; second, site has been used to mean "location" in the sense of exact position. Again, there is difference between the two interpretations in terms of scale: location presents an abstract, universal point on a map; site represents the concrete, individual unit in landscape. To put it in other words, a good location does not necessarily mean a good site; a good site as well has no indication of being a good location. Yet, they emerge with each other. It is due to these two interpretations that a site appears to possess some "perceptual unity" which is

given to it by our experiences with unique and real sites. And site analysis has two branches - the one oriented to our particular purpose and the other to the site itself.

Finally, we have to admit that the notion of a site is not just a formal concept awaiting precise definition, but is also a naive and variable expression of our daily experiences. Consequently clarification cannot be achieved by imposing precise but arbitrary definitions, but must be sought by examining the links between all the components (elements) of a site through the knowledge of our experiences.

1.3 The objects

After the assumed definition of the term "site" and the main issues concerning with it, the next question to be addressed would be: what are the objects (or elements) of the present study on site analysis?

To answer this question, we must first assume that the objects of site studies are complex wholes with complex sets of concepts or terms, relations and rules which are organized by a specific problematic. Thus our study will be constituted by all these aspects. Second, the objects of the present study are "discursive objects"[6] which should be distinguished from the 'known object' of the theory of knowledge, from the "real object", and from the "theoretical object of scientific practices. This is because we are not trying to build a theory on a subject, of which basic features are still unknown: our study on site analysis consists of a problematic which is shared by several established disciplines,

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[6]According to Foucault (1972), a discourse is a formation that consists of all that has been expressed, represented or meant, (that is, 'statements' which may or may not have been said or written) around an object. It exists under the positive conditions of a complex groups of relations. (P.45) A discourse can and should be analyzed without reference to a referent (ibid. P.47). Yet, a discourse analysis should not necessarily imply dropping the referent (i.e. 'object' of the subject-object couple). In other words a discourse analysis should be related with its referent theoretically: as a 'theoretical object' is related to the 'real object' - through concepts and theories, not as empirical elements confronting each other.

domains and theories. The purpose thus is an identification of the field and its conditions, out of which a theory will be formed.

With these two assumptions in mind, it is now possible to approach the "field" of the study which provides the initial material for an analysis of the objects.

Obviously, this field is one which comprises of parts of a numerous disciplines (e.g. architecture, town and regional planning, geography, geology, ecology, biology and all the variety of social sciences), numerous techniques (e.g. quantitative techniques, topology, drawing, modelling, computing, experimentation, speculation, notation), and numerous discourses (e.g. technical, popular, political, literary, religious, artistic). Thus it is not sufficient to observe the single object "site", its derivations or specifications: environment, space, time, mass, energy, man and the relationships among them should also be involved.

Regarding these "combinations" of domains and elements, a set of questions may be raised:

1. How is it possible that all these different domains, disciplines and elements can co-exist in a single study on site analysis?
2. How are different domains and disciplines distinguished within the problematic which they share?

These questions have never been posed before, simply because no interdisciplinary research on site has ever been conducted. Actually, no one in our world of specialists is sufficiently well qualified in all the relevant fields of knowledge on site to undertake this task with real authority. Of course, ours is not going to be such an impossible interdisciplinary research on site with all their respective elements either. As the status of each discipline is itself questionable and the conditions of such a cooperation can hardly be specified, in this sense, defining the objects and problems prior to the cooperation without dictating the mode of cooperation needs no excuse.

The formation of objects in the present study involves several mechanisms, processes, and stages. Yet, there may be variations in these processes in different objects. And, the objects should be seen as the locus of potential change, no object is ever finished or frozen. The following analysis is concerned with

indicating some of the complex mechanisms by which the objects of the present study are formed and maintained.

First of all, the objects of our study on site analysis are formed by adopting ordinary words or terms. Obviously, words are means by which a concept, notion, denotation, name, object etc. is given a distinct, discursive existence. Sciences work on concept, so it is necessary for scientific research to adopt and produce concepts which are derived by abstraction from the real, and not derived by ordinary generalization or designation.

The site analysis revolve around terms such as "environment", "space", "time", "energy", "man". The relationships given to these terms by non-scientific practices and discourses are also examined, as are the relationships imported from other disciplines within which they usually have a different status.

Second, the objects of site analysis are formed by reference to the same empirically given real objects. In the absence of a set of scientific concepts the present study relies on an observational "recognition" (i.e. not a theoretical cognition) of some real objects.

Third, the objects of site analysis are formed by generalizations. Instead of producing and transforming concepts, the present study relies on generalizations constructed out of empirical findings, or simply out of a set of observations. Empirical generalizations claim to describe "observable regularities of nature" and "permanent relationships between observable events" (Teymur, N., 1982, P.35).

Referring to the last section, "site" is a term which has no definite unity, specificity or autonomy (which are the minimum conditions to make it an identifiable object). It refers to some empirical objects, and seldom refers to a theoretical concept. But as a matter of fact, a "site" is conceived as a relational and systematic notion, and as a spatial and physical entity. The same term ("site") denotes both a frame of reference against which an object can (or should) be conceptualized, and that which physically surrounds an organism. The first is a notion, the other a name.

Thus, the term "site" is an *imprecise*, and for this and other reasons, an *inadequate* object. This "inadequacy", however, is not to be found between the discursive object and a presumed "real object" according to a criteria established

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prior to a discursive analysis. It is one that is inherent to the term "site". The set of physical objects cannot be adequately conceptualized by the conceptual or notional content of the term.

Hence, the objects of the present study on site analysis, in some way, are imprecise, vague, fuzzy and variational terms. They are pseudo-concepts[7] which are assumed to designate a whole range of other concepts (and/or "real" objects).

This multiplicity of the senses in which the term "site" is used defies a clear conception of *what*, exactly, to tackle in real problem situations. Thus, in the context of site study, many overlapping but distinct senses of the word "site" could be used. In short, the objects of site studies are at a immense variety and exist on at multiple terminological and semantic levels. The question of *what* is going to be studied in the present study on site analysis remains to be settled, especially considering the large number of existing disciplines.

So far, no alternative conceptions or definitions of given objects of site study have been offered. Instead, the framework of analysis was constituted by the formation, the specificity and the status of the objects. Similarly, whether objects of site study were actually real objects or theoretical ones, they will be taken as *discursive* objects, and examined as such.

1.4 The Problematic of Site-Representation

A theory does not exist in an epistemological or theoretical void. It is the product of its theoretical conditions of existence - its "problematic" (which should not be confused with the same word used to denote doubtfulness). The problematic

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[7]As we discussed in the last section, the concept is a metaphor for 'place', 'region', 'area', 'space', 'location', 'natural' and 'man-made' physical settings, 'climate','divine'... at one and the same time. As a metaphor it is not a concept, and it "cannot stand for a notion".(Lecourt, D. (1975): referring to Bachelard.) More significantly, as a metaphor, the knowledge of it can only result in its dissolution.

defines a field, a system or a theme. A problematic is a theoretical/ conceptual structure (framework)[8].

Scientific research "demands the setting up of a problematic. Its real starting-point is a problem, however ill-posed" (Bachelard, G. 1949, P.51 (translation quoted in Lecourt, D. 1975, P.80)). We need to define the problematic of the present study now before we may go further.

The problematic of the present study basically is centered around the relation-ship between a site (S) and its representation (R).

As a curtain-raiser to the analysis, a couple of cases can be introduced here. The invariant S-R structure is held together both by its binary nature (that is by "S" and "R" mutually presupposing each other, which we may call 'conceptual couples'), and by a number of relationships between them:

1). A site constrains the formation, evolution and methods (in general) of its representation. that is the process of knowledge for a certain object is based on that very object. In geology, it is known as "mapping".

S > R

2). Representation reflects, constrains even influences our knowledge of site and the way we act upon a site.

R > S   or

3). Under some situations, there is a two way relationships:

S > R
S < R

---

4). When this two-way relationship is simultaneous, it is refereed to as "interaction" or "interface".

$$S <> R$$

In this variety of schemes, we can see that they all operate within the general relation of subject - object. S and R as elements are distinct, yet related and always constituting a "conceptual couple". Moreover, they all extend this couple to other domains where the variants of the terms carry the same problematic. For example: man - nature, nature - culture, activity - space, society - space, being - knowledge, knower - known, recognition - cognition, practice - theory as well as many other conceptual couples in a large variety of fields operating on the epistemological basis of subject - object, and within the problematic of S-R. And whatever their differences on the type and locus of the couples, most of these interpretations have one thing in common: the recognition of the original unit of the world, nature, environment, etc. and the reproduction of the couple or opposition at all levels and instances.

So, the "subject" and "object" of the present study are not reducible simply to the "knowing object" and the "known object". The subject(s) of the present study should be appropriate to the object(s), and these matchings take place not only cognitively, but also physically, and metaphysically (in religious contexts).

1.5 A diversity of disciplines and approaches

After identification of the problematic, the next procedure would be to ascertain what approaches have already been attempted investigating the subject. These are sought to give a balanced summary of existing knowledge and to provide the main references on the subject, so that we may locate ourselves in the proper context. Thus, in this section, we will make a brief survey on how a site, as a combination of natural phenomena and human activity has been approached in various disciplines. Instead of giving a detailed survey of each discipline we trace the threads which run across the boundaries of the various disciplines. First, we

will look briefly at some of these disciplines to see whether there is anything in their approaches which make them more or less efficient as channels of inquiry or which color their attitude to site analysis in any way. That is to say we look for distinctive views. This done, we attempt to prepare a meeting-ground for a comparative case-study approach for the present study.

To start our discussion, we may ask first what a site means to those people who, as professionals or amateurs, encounter it in their daily lives. Who are those people? Besides architects and planners whose jobs deal almost exclusively with sites, there are a host of other categories of persons - geologists, geographers, ecologists, art historians, naturalists, poets, engineers, building contractors and many others, whose work touches marginally on some aspects of the subject. Every now and then it impinges on our conscious minds, but few of us have occasion to step in and ask serious, fundamental questions about it.

First comes the land, since all things begin with the land in a site. The shapes a site may take are remarkably varied: from the uninterrupted flatness of deserts and plains, to fantastic wind-hewn rock cliffs and jagged mountains. In analyzing and describing the land of a site, we are dealing with the nature and evolution of complex materials and structures of land and the highly varied relief of its structure, as well as the "locality" of that land on the earth. To do the job, we need geography, geology and all their related disciplines.

Geography
In the sense of *locality* and *landscape*, the theme of site analysis may seem at first sight to be concerned with the discipline of geography.

This is partly true. Both location and site characteristic are what geographers try to identify. The geographical situation of a site may vary from the Arctic to tropical, from lithosphere to hydrosphere... Accompanied with this variation, are also geology, climate, topography, flora & fauna, atmosphere, seasons... Hence, the selection of a site is greatly influenced by its geographical situation.

A geographer locates a certain site on the earth's surface with reference to the latitude and longitude grid. He will also comment on the properties of the site by referring to situation and site characteristic.

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Yet, the site data obtained by geographer is limited to the visual qualities or attributes of a place through observation, so does the means of representation employed in geography such as photography, scaled-map...and so on.

Geology

The study of a site is also a branch of geology. It describes the nature of the material aspects of the earth, the various processes by which the materials have been developed and are constantly changing. Geology is a comprehensive science that is subdivided into many fields. The various geological fields are so closely related that in description of sites and their development, many of them are involved. To mention a few, petrographic and structural geology describe the composition and structure of the rocks in which sites have been developed. Dynamic geology analyzes the forces which have created them. Historical geology studies the sequence of events recorded in different regions of the earth which have been given to the sites of the past or of the present. The representational methods employed in geology include various kinds of models (scale, mathematical, statistical, conceptual ...etc.) as well as scaled-maps and photography.

Ecology

Since a site can be defined as a *household* in which a living-support activity can happen, this by coincidence shares the same idea with ecology, as the word *ecology* comes from its Greek origin, *oikos*, a house, and means literally, the science that deals with the home conditions of living organisms. Ecologists are people who study the ways in which organisms or groups of organisms are related to the living and nonliving parts of their environment. Their aim is to provide a complete picture of how these complex relationships exist in any given area[9].

the study of site concerns all the hierarchical ordering of ecology (what ecologist call levels of organizations): 1.The "organisms" - the individual plant or animal. 2.The "population" - not only groups of people, but also groups of

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[9]More discussion refer to K. Reid, 1974, *Man, Nature and Ecology.*

individuals of any one species. 3.The "community" - all the different populations within a given area. 4.The "ecosystem" - the sum of all the communities in an area together with their nonliving environment. 5.The "biosphere" - the largest unit of all; it includes the sum total of life on earth. None of those levels can be studied in isolation, for one often merges into another. Hence a site is included in the biosphere, and may contain or belong to an "ecosystem" and a "community", it includes a "population" and all the "organisms". It also includes all the factors of the nonliving environment - nutrients, temperature, wind, relative humidity, light intensity, as well as energy - the driving force (which can be in various kinds of forms - sounds, mechanical, light, electrical and nuclear) (Lynch, 1982).

In analysis of a site, ecology helps to describe "the limits and conditions of human intervention. It implies certain values, diversity, approximate stability, conservation" (ibid P.34).

Sociology

Site analysis involves the sociosphere. The natural sciences may be able to explain elements in the site as the product of physical processes if those physical processes are known. Intervention from human beings may alter the surface of the land to such an extent state that its most conspicuous features are not natural at all but man-made. They are the product of economic processes and they may be similarly susceptible to explanation if we know what these economic processes are. Sociology and its related disciplines provide the tools for the job. For instances, economic historians study the practices of agriculture, mining or whatever it may be, the participation of whom depends on the fact that when a piece of land is used for some distinctive purpose, that use frequently alters the appearance of the land, sometimes temporarily, as when a field is ploughed, sometimes for a very longer time, like when a settlement is created, many features of the site would be of great antiquity. Not only the towns and roads, but also fields may owe their present distribution and configuration to social and economic systems.

The same holds true when a site is planned to serve a new social and economic system. In either case, any detailed study of the site (both past and

future) would necessitate an enquiry into the social organization and practices of the communities concerned, into their economic objectives and into the technological facilities at their disposal.

Again, many scholarly interpretations of particular site features along these lines tend to be restricted to elements of the site rather than to the site in its totality. And actually these visible manifestations of economic activities form only quite a small part of the field of interest of the discipline as a whole.

The same concern with functional interpretation can be attributed to architecture and architectural history.

The aesthetics of site

We have just discussed those disciplines which have concerned themselves principally with site analysis. There are also a number of generally recognized disciplines which study the "perception" of a site. The one which faces the question most directly of how and why we derive pleasure from perception is that branch of philosophy known as "aesthetics".

Traditionally the aestheticians have been concerned with finding an explanation of "beauty". Any definition or any interpretation, if it is to satisfy them, must encompass beauty wherever it is to be found, and this necessarily involves a much wider field than mere a site.

The question of beauty is so important in site selection that it sometimes plays the most important role. The literature on the subject is far too voluminous to be even summarized here (see Beardsley 1966 and Stolnitz 1960). But just as all the physical sciences which have concerned themselves with site analysis have limitations inherent in their own methodology and point of view, so is in the approach to aesthetics of site. Aestheticians are encountered by a number of constraints, such as when we ask "what is beauty in a site"? there is a presupposition that it must be the same as beauty in painting and sculpture, otherwise we should not describe it by the same word. But as soon as we re-phrase the question to "what is the source of that pleasure which we derive from the contemplation of a site"? we are perfectly free to postulate that it may be different from the source of pleasure to be derived from any other experience, for example terms like "safety", "harmony"...

Geomancy

Geomancy is concerned with site analysis. The orientation and position of a residence in nature have engaged human thought and feelings for millennia.

The ancient art of geomancy which is defined by Pennick as "the science of putting human habitats and activities into harmony with the visible and invisible world around us" (Pennick, N. 1979) has been practiced in almost every country in the world. And as a matter of fact, this remarkable correspondence between different cultures has been held to be evidence of a former world civilization. The seeking of cosmic power points on the surface of the earth has produced the worldwide concurrence of outward form and inner purpose that forms geomancy.

In geomancy, the world is conceived as a continuum in which all acts, natural and supernatural, conscious and unconscious, are linked in a subtle manner, one with the other. Through this world view, the unfavourable performance of an act, such as mis-orientating a building, was not merely doomed to fail in achieving its desired objective, but also would bring unforeseen and uncontrollable consequences. Conversely, if the correct manner was applied at the right place and time, the procedures would reflect not only what has gone before, the hidden truth of the present situation, but also what is about to happen. This philosophy underlies *FengShui*, *Tarot*, *Ley line*, *Malagsy Skidy* (refer to next page) and numerous other forms of divination involving the creation of pattern to foretell the future. The positioning of the buildings has to be done so as to reflect the state of the universe at the time they are founded, to be in harmony with the cosmic breath, and not to disrupt the finely tuned balance of nature (see more on Pennick, N., 1979)

Geomantically determined sites, have been known under different names to different cultures: the *LungMai* (or vein of Dragon) of Chinese *FengShui*; the *Fairy Roads* of Ireland; the *Royal Roads* of England, ...and so on. To give a brief survey of those systems of geomancy certainly will be helpful in choosing a case study for our own purpose in site study.

The Romans had a method of siting by surveying the land from the top of an elevation. They used a quartering device, through which the quarters of the sky were projected onto the landscape and a sacred, quartered enclosure was thus mapped out. This used to be a daily procedure of communication with the gods

to ask their blessings on important events. But it was also used for the siting of housing, towns and temples which had to have divine sanction, and the outer boundary, the walls and gates, and the axes of the enclosure were of profound cosmic significance (more information refer to Pennick, N., 1979).

Fengshui is practiced in China, Korea, Indonesia, Vietnam, HongKong, Japan.... By placing oneself favourably in the environment *FengShui* will bring good fortune. An analysis of the site of any building or grave with knowledge of the metaphysics of *FengShui* will tell the fortune of the site-owner. It is done by observing the patterns. According to the traditional Chinese natural philosophy, the universe is in flux, in continuous change, but there are patterns of change discernable to experts in *FengShui*. Understanding the natural laws which they manifest is important. Hence, siting to ancient Chinese is divination from the forms of the physical environment.

In Japan, the Chinese geomancy of *FengShui* was incorporated with a Shinto god and a god of highways who governed the directions.

A purely formal survey and analysis of African geomancy has been made by Hebert (1961). Although there are many forms, such as by making dots in sand, by throwing beads or by throwing nuts, they have in common the fact that they result in one of a standard set of abstract diagrams upon which the divination is based. The structure basically consists of: (1) a philosophy or cosmology at the heart of which is a structure of four elements, air, fire, earth and water - the same as the Greek, the Europeans and Arabic elements - linked to the four quarters of the universe; (2) Astrology based on the same twelve signs of the zodiac, which also are the same as those used by Europeans and Arabs, plus in some cases four additional signs of the earth; (3) a symbolism and (4) mathematics - geometry and a concern with symmetry and ratios and the significance of odd and even.

In western Europe, 'ley line' had been practised for centuries for divining sites of energy by means of rod. It is also called dowsing. By using a rod, dowsers can detect the underground conditions indicating waterlines, metal objects, as well as other kinds of properties or lines of energy, like the so-called 'geodetic'. On his book *The Pattern of the Past* Underwood (1969) suggested, on the basis of his dowsing fieldwork, that certain individual features of church buildings are

marked by their peculiar characteristics. For instance, north and south doors and porches were found to be set upon transverse lines, naves and chancels upon geodetic lines, and high altars were marked by spirals. Whether all those phenomena were present before the building was erected, or were modified by the presence of the building, is still a controversial subject. What is certain is that they reveal to the dowser a discernible special pattern must have been previously identified by some agency - a geomancer, a priest, a man or woman, even an animal.

In short, the aim of geomancy (of whatever culture) has been to reestablish balance, restituted cosmic order by modifying human activity according to complementary rather than to contrary deeds. The dual forces of construction and destruction have been harmonized as far as possible. This striving for harmony, which may be considered one aim of religion, perceives the world in a holistic manner, a continuum in which all acts and modes of existence are subtly linked by a system of correspondences. In this view, the performance of an act of any kind may have a perceptible effect upon the whole continuum. Obviously, the reductionistic tendencies of modern science and technology have dismissed the possibility of such ideas, and instead have concentrated upon the cost effective plunder of the planet.

1.6 Summary

A prerequisite for scientific research is the identification of the problem (either theoretical or practical). The problem concerning the present study on site has been identified (through a pilot inquiry among a series of experts on site) as: the lack of a holistic means of representation of site phenomena in site analysis, which leads to the casualness and fragment of decision-making of site activity.

To tackle the problem of site representation, we have to deal first with the very content of site phenomena and the main issues related to it. The discussion on these matters have been done with references to the establishments of those experts on site like Habraken (1982), Norberg-Schulz (1969) and Lynch (1984). The discussion on the formation of objects of the present study on site reveals

that they will be taken as discursive objects due to the complex nature of site phenomena. This chapter also gives a general review on the existing disciplines and approaches on site studies which provides us the main references on the subject.

Further on, to start our analysis, in **Part 1**, attempts will be made to the **concept analysis** through a comparative case-study approach.

PART I

Concept Analysis

Chapter 2

Introduction to the Case Studies

By last chapter, we have identified a problem in contemporary site practice (i.e. the lack of a holistic means of site representation); we also discussed the definition of the term "site" and the main issues relating to it; we argued that the objects of the present study on site should be taken as discursive objects. In this chapter, we will introduce the method of a comparative case study we are going to apply in the present study and the selection of cases to be studied.

As we mentioned in the introduction of this work, our strategy in the present study is to initiate and develop a general representational theory on site through a comparative case studies. A "general universe" is developed on the basis of the analysis of "special (or working) universes". This strategy was made on the recognition of the complexity of the subject (site) in chapter 1 that direct observation of real "object" (of site phenomena) is difficult. To place our discussion in sharper focus, I quote from the work of G. Sjoberg & R. Nett (1968)- methodologist - who distinguish between the special and general universe as follows:

"An essential step in the conceptual clarification of the selection procedure is distinguishing between the special, or working universe and the general one. The special (or working) universe is that specific, concrete system (or subsystem) from which one selects his units of study, notably his respondents. Statisticians refer to such a system as a universe or population, and usually

they are content to work within its narrow boundaries. On the other hand, any theoretically oriented social scientist envisions still another kind of universe. If he studies a particular group or social system, he entertains the notion that his findings will, in part at least, hold for other groups or systems - not just in the United States but in other parts of the world as well. For his ultimate goal is establishing generalizations that extend beyond any time-bound social setting. We therefore define the general universe as that abstract universe to which the scientist assumes, however tentatively, that his findings will apply. Put another way, every sample is a subsample of a broader type - mankind being, for purposes of generalization, the ultimate category" (P.130).

In the following sections, we will define the "special universe" in our context more specifically. We will answer questions "why" and "how" with regard to the method we are going to apply.

2.1 The Methodology[1] of a Comparative Case-Study Approach

2.1.1 The case study method

The "special universe" in our study on site is "case-study" which is a widely used research method in especially the social and behaviourial sciences, "to refer to the description and analysis of a particular entity" (Bromley, 1986). It is an "in-depth, multifaceted investigation" (Orum, Feagin and Sjoberg, 1991) which allows holistic study of complex phenomena.

Normally, the purpose of a case-study is to generate a solution to a complex phenomena by means of making analysis of one or more cases. Hence, the case-study is usually seen as "an instance of a broader phenomenon, as part of a larger set of parallel instances" (Orum *et al*, 1991), and is always carried out in a context.

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[1]The term has been used to refer to the abstract study of logical basis of discipline. In our case, the term is reserved to refer to the techniques to be used to manipulate data and acquire knowledge (of site).

There are generally two approaches in case-studies, the "idiographic approach" and the "nomothetic approach" (Bromley, 1986). With idiographic approach, attempt is made via the intensive study of individual cases in the expectation that detailed description and analysis will gradually lead to deeper understanding and to practical applications in more general areas of interests. The nomothetic approach, on the other hand, is via the extensive study of samples of subjects in the expectation that individual variations can be averaged out to reveal basic factors common to all or to certain major classes of situations. What concerns us in the present study on site is the idiographic approach, that is, we will take few cases on site analysis with in-depth analysis and descriptions, through which we could gain a deeper understanding of site phenomena and the means of its representation.

2.1.2 Why a comparative case-study approach?

The reasons that we take a comparative case-study approach as method for the present study on site phenomena are:

First of all, site has been culturally (or socially) articulated since the very beginning of the concept, that is what we are concerned with is a macrosocial phenomenon, if our goal of this research is to generate a body of theory on site analysis and concentrate the effort on making the theory more general, holistic and valid, comparative cross-cultural research would be absolutely essential.

Secondly, one case-study is not exhaustive in its description and analysis of a phenomenon or situation; it is selective in the sense that it addresses itself to some issues and ignores others (Orum *et al*, 1991). A comparative case-study is thus inevitable.

Thirdly, The challenge in the study of site is epitomized by the word "complexity". We can hardly be able to manipulate the variables directly. With the use of comparative case-study approach and through careful selection of cases, however, we can manipulate the experimental variables (on site) indirectly.

Finally, the magnitude of site problems *per se* requires comparison between different systems on the subject.

2.2 The selection of cases

The number of case studies through which the present study on a general representational theory on site is conducted and developed has been limited at two. This was based on the assumption that two is the minimum to make a comparative study and establish claims of wider validity at the same time. In addition, it is more acceptable to deal with a limited number of cases in depth and thoroughly than with a large number superficially.

The two cases selected for the present study are the *FengShui* theory and K. Lynch's theory on site planning. *FengShui* theory is an unique system of site analysis of traditional China practised over centuries, documented in numerous books. It contains a special system of representation of site attributes. Kevin Lynch's[2] *Site Planning* (1984) is a system which "has remained the only comprehensive source of information on all the principal activities and concerns of arranging the outdoor physical environment"[3] in the field of modern architectural practice.

Obviously the possible number of cases that could have been dealt with in the study is larger. The choice of the above two cases, however, was not made at random from a wide variety of sources, nor was it simply following the author's personal interests and predictions. The choice was based on a number of criteria: (1) typicality or representativeness; (2) magnitude or comprehensiveness; (3) comparability; (4) predicability of reconstruction.

First, the cases selected had to be able to demonstrate that they are representative or typical[4] (in their respective contexts) in whatever rigorous sense, so that

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[2]It should be mentioned that the system of Kevin Lynch has been used for a long period of time in the educational programme of the Faculty of Architecture, at Technical University of Eindhoven (TUE).

[3]*Journal of Architectural Education*, review on the second edition of *Site Planning*.

[4]As a matter of fact, it is the crucially important criterion in selection of cases. That is way Raoul Naroll argued in his article on Some Thoughts on Comparative Method in Cultural Anthropology that "the basic weakness of the case study method is the lack of any assurance that the case selected is really typical. Even if in fact a case is typical, confidence in its typicality can be

we are sure that what we are dealing with is not a deviant or aberrant special universe. This is important if we want to discover and develop certain patterns about a general, wider universe, with supporting hypotheses regarding these patterns through those selected cases.

Secondly, the range of issues the selected case deals with should not be too small. It should cover a decent share of all the major problems traditionally dealt with in site practice.

Thirdly, the cases selected, whether they have common or different contents, should be from either two different time periods or from different cultures. The two extremes will make them a interesting comparison.

Fourthly, the selected cases should at least hold a promise that they can be reconstructed in the light of a substantial theory . That is, there must be a base to begin with, and the consistent application of the theory should result in an illuminating reconstruction.

The forementioned systems of *FengShui* and Kevin Lynch fulfil all these requirements. *FengShui* had been practised in China, Japan as well as other south-east Asian countries for more than 1000 years, and it is still believed and practised in Hongkong, and Taiwan among other countries. And Lynch's system is the most representative system of site practice in modern western countries. The polarities of these two systems *per se* (both geographically and temporally) make them highly interesting and convincing to compare.

Still, one might wonder how *FengShui*, a theory based on the belief of a whole society and lasting over a thousand years can be comparable to a system formed by an individual at a particular time. Although the choice of both these two cases are obvious in each of their respective contexts as a dominating and representative system, why, among all the other existing systems on site analysis did we choose *FengShui* and Lynch, and not *FengShui* and African geomancy, or Lynch and English *ley line*? Obviously comparisons among all those other pairs of systems would also be fruitful. As a matter of fact, ideally, all those comparisons should be done in order to make a wider consensus on the formation of a general, holistic theory. But it is not possible to for one research to finish.

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shaken by producing a single case inconsistent with it." (R. Naroll, 1968)

What we possibly do is to pick up two extreme cases, which may have nothing in common at all. The possible result of the comparison is to bridge the gap and stimulate other comparisons.

2.3 Summary

The strategy of the present research has been determined (in previous chapters) as to initiate a "general universe" from a "special universe". This chapter defined the "special universe" as case-study which is a wide used research method in especially the social and behaviour sciences "to refer to the description and analysis of a particular entity" (Bromley, 1986). Among the two approaches in case-study: the "idiographic approach" and the "nomothetic approach", the former will be employed in the present study, that is we will take few cases on site with in-depth analysis and descriptions, through which we could gain deeper understanding of site phenomena and the means of its representation.

The chapter also introduced two cases on site analysis, i.e. *FengShui* and Lynch's system, which are selected for the study on a number of criteria. In next chapter, we will start with the case-study on *FengShui* system.

Chapter 3

Symbolic Representation of *FengShui* - A Case Study

In this chapter we will take one of *FengShui* manuals as a case study to analyze how site knowledge has been represented. The basic questions to which we are going to address are the following: (1) what are represented (objects)? (2) How FengShui system is structured? (3) how do objects, units and relations in *FengShui* diagrams correspond to the variables in landscape features? or what mechanisms are employed in *FengShui* operation? (4) How the knowledge of a site is classified in *FengShui*? are they implicitly or explicitly stated in the *FengShui* manual? The analysis of above items will be more descriptive than explanatory, as we will start the case study at the most basic stage of assuming that very little was known about *FengShui* representation. The primary aim is then mere disclosure of *FengShui* from manual - a description of the framework of a Chinese system of representation.

3.1 The Choice of *Xian Po Ji*

As we mentioned in the last chapter that the case of *FengShui* has been chosen because of the highly contrasting aspects from the point of view of goals, general conception and methodology - it offers, if set next to the contemporary techniques used in generality description, choices and interactions in site. Since the literature on the subject is so vast - not only are a lot of *FengShui* manuals, or classics available, but also the variety of data articulated by them, that it would be unrealistic to give a fully exposition of it, which is also beyond our

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primary interest about *FengShui*. Besides what we are interested in the *FengShui* manual is not looking for answers to such questions as: what is *FengShui* and its evolution, but how it works. In other words, instead of describing what is common to all *FengShui* through comparing them we will go in depth to see how *FengShui* theory was presented, organized, and represented. One *FengShui* manual will serve this purpose well enough.

The reason that we choose *Dili Canzan Xuanji Xian Po Ji* (Collected Writings of the Immortal Lady, Mysterious Devices for Use in Geomancy, compiled by Zhang Mingfeng of Fouliang, preface dated 1587. Photographic reproduction, Taipei, 1982. *Xian Po Ji* will be used in the later text for abbreviation)[1] as the case is that it belongs to one of the most popular and comprehensive *FengShui* manuals in history and had been practised for almost 300 years (according to *The Source of FengShui* by He Xiao-xin, 1990).

3.2 Description of the case

The manual which contains almost 1200 pages is generally composed of three equally divided parts, i.e. 1. *Earthly Forms*, 2. *FengShui Compass*, and 3. *Examples*. The earthly forms (*Form School*) and the compass (*Cosmology School*) are well known as two divisions in *FengShui* practice. According to the manual, cosmology school which concentrated on cosmology began with Wang Qi in the eleventh century and was once called the FuJian School since it was in north FuJian Province (south-east China) that Wang Qi practised, the Earthly Forms (or Form School) which concentrated on the forms of the landscape was began by Yang Yun-Song, of the ninth century, who was Imperial Geomancer and two of whose works still survive, *Manual of The Moving Dragon* and *Methods of Twelve Staves*. Since 1600s, the two schools were combined in the operation of *FengShui* geomancy (He, Xiao-Xin, 1990). But they did maintain that there was

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[1]The manual was recommended and provided by Dr. Klass Ruitenbeek of Rijksmuseum in Amsterdam.

still a clear demarcation between the two; the mountainous areas of the south being more susceptible to the Form School. This is partly the reason that the manual was divided between the two accordingly.

When preparing our minds for an appropriate understanding of *FengShui* representations, a preliminary excursion of the manual confronts us with the following impression: *FengShui* is a metaphysic based normative system which confront with realistic facts of landscape. It has the status of a model. *FengShui* compass is not only a measuring instrument, but also a general guide, a concrete representation of the cosmological model. Combined with *Yin* and *Yang*, the animals of the *Four Quarters, Five elements*, and all those diagrams of various landscape features, *FengShui* provides a "holographical paradigm" on site in a hierarchically ordered representation. Figure 3-1 shows how *FengShui* model was structured in such a hierarchical order.

FengShui ——— Earthly Forms
　　　　　　　　Symbolization of observation

··· correlated ··········— Dragon ——— Four Quarters
　　　　　　　　　　　　Sha ——————— Five Elements
　　　　　　　　　　　　Water ——— Nine Stars
　　　　　　　　　　　　Xue ——————— Twelve Patterns
Cosmology
　Philosophical systematization of observation

Space ——— Heaven ——— Five Elements
Time ——— Man ——— Eight Trigrams
　　　　　　Earth ——— Hexagrams
　　　　　　　　　　Sexagenary Cycles
　　　　　　　　　　Yin-Yang
　　　　　　　　　　Su (constellations)
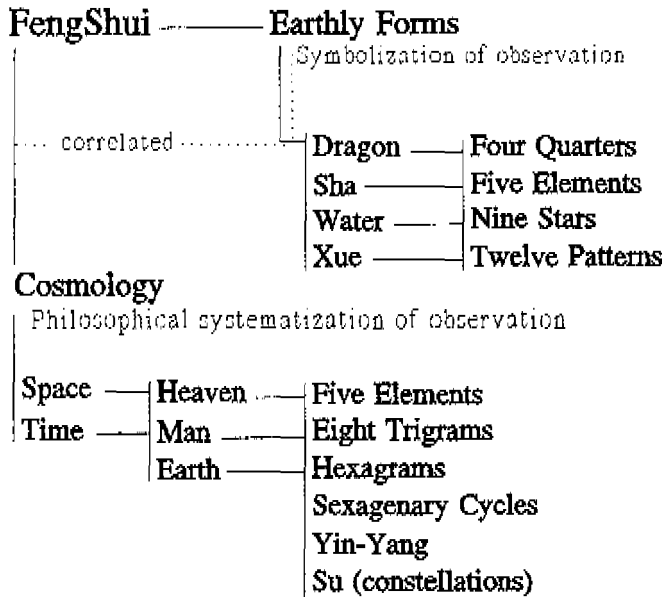
Figure 3-1 Hierarchical ordering of *FengShui* model

3.2.1 *FengShui* compass

Even though, the manual starts with the Form School, (probably due to the popularity of Form School) we will start with the description of the *FengShui* compass - the most complete and comprehensive single body of *FengShui* symbols.

The manual indeed display a veritable cosmology which can be seen as the structure and dynamics of the natural universe. It applies to a form of divination which was based on the elements of traditional Chinese natural philosophy and calendar making. The compass introduced in the manual was constituted by 28 rings, the symbols of each ring was illustrated with specific reference in the manual (refer to the illustration of the compass rings in P.50-56). If we treat the *FengShui* compass dial with its concentric rings of symbols starting with the Heaven Pool in the centre and working its way outwards through the two cosmic current into ever more complex and limited symbols, as a concrete model of the universe, the compass is a description of the basic natural universal processes and how they are manifested in the details of the physical environment. It was made explicitly in the manual that the compass is not only a measuring instrument, but also a guide, a concrete representation of a cosmological model.

3.2.2 The Earthly Form[2]

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[2]A dialogue written by a Chinese scholar to explain geomancy to Henry, B.C. (1885, P.140-141) describes a procedure which may give a scene of the earthly form school of geomantic diagnosis:

"When the professor (of geomancy) goes to the hills to search for a site, what methods does he pursue?
Having first chosen an auspicious day, he goes in a sedan chair to the hill, accompanied by the man who has ground for sale. Having carefully inspected the position on each of the four sides, and noted the shape of the hill in its depressions and elevations, he descends and makes a circuit of the hill three or four miles off, carefully looking to see if there are any breaks or landslides, observing the direction of watercourses with each bend and turn, and finally, after these preliminaries, adjusts his geomancer' compass to discover the position of the stars in relation to the spot. This is in general mode of proceeding.

How is a propitious site distinguished from its opposite?
Every auspicious site is connected with some range of hills that extended perhaps for hundreds of miles in a succession of ridges, with passes leading into level plains. At the back stands a lofty peak, called the 'rear barrier', or 'back rest', on the left and right are spurs of rock called 'the attendants',

The *FengShui* compass can be understood as the representation of the cosmological orbit, and all the categories of symbols classified in the compass are manifested in the forms. Now we are back down to the earth - the Earthly Form of *FengShui*. According to *FengShui*, on the earth, in all places are to be found forms in patterns, and the prototype of those patterns comes from the constellations in the heaven" (*Xian Po Ji*, P.652-655), or in other words, the constellations have each and all their "counterparts or representations on earth in the shape of mountains and rivers" (Eitel, *FengShui*, P.17, 1873).

It needs not to say that the cosmological symbolism on the compass (even though it takes on a rather special sense when manifest as forms) is not an alternative to form symbolism (or vice versa). With the compass and the ordering of the symbols on its dial, the cosmological symbols are so systematically structured, and by which, the geomancer's skill was to discover what the secret writing of the formations of mountain and stream meant in constellation terms; while with the form symbols, we are closer to the *FengShui* of the individual case: the object is concrete, that is a "site" is a real site.

In practicing with the Earthly Form, attention is also drawn to the aesthetic

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while the place for the grave appears like a great nest. The shape of the hill may be like an elephant, or a lion, or a phoenix, or an unicorn, each shape having some special significance. Below there should be the foot-protecting sand, and every grave where this bottom layer of sand is found indicates honour for posterity, and the lack of it presages dishonour. It is the true dragon pulse. It is said that the Dragon (not the same as the Azure Dragon of the east) follows the watercourse, and the meeting-place of waters is the meeting place of the dragons, where the virtus of hill and stream are united and the grass is ever green. Such a place being found, the conformation of the land is observed, and if there appears no outlet for the good influence in the air, it is pronounced an auspicious site.

What outside marks are sought?
In the distance there should be groups of mountains with streams of water encircling them; in front a stretch of level plain, a pond, or lake. In the wider circuit, the level space should be large enough for ten thousand horses, and the watercourse be sufficient to admit a dragon boat (as at the dragon boat festival). If the expanse be wide, children and grandchildren will multiply and be strong. If the front is toward the star of luck, some of the family will rise in office. If on the right and left rocks assume the shapes of drums and flags, it presages military power. From the top of the hill the view should extended for miles, with mountains and streams interspersed. If the hills opposite are in the shape of moth wings, it indicates that beautiful daughters-in-law and good daughters will appear."

This concern with the forms of landscape features and significance of their resemblance indicates an eminently visual approach towards site practice.

and graphic qualities of *FengShui* thinking. An examination of key words used in *Xian Po Ji* showed how suited the cosmology is to aesthetic interpretation, most obviously shown in the repeated use of the word *Mei* (beautiful) and *Xiu* (elegant) and in the whole concern with balance. To find resemblances for the shapes in a landscape is also a matter of visual appreciation and imagination.

3.3 Verbal Classifications[3] of FengShui

Since we are aimed at the disclosure of *FengShui* in terms of its classification and representation, before we start our analysis on the subject of *FengShui* representation, we need to clarify a set of preliminaries which are crucial to our analysis. First of all, we must agree that systems of classification, typology or demarcation are not the intrinsic properties of the reality, but abstract theoretical systems which are to be seen as tools for an analytical understanding of (real or theoretical) reality[4]. The notions of *Heaven, Man,* and *Earth*[5] in *FengShui* can thus be understood as imposed upon the physical world a system of classification which is presented as belonging to the site reality.

Secondly, it is necessary to understand whether the site "reality" in *FengShui* is real-concrete or concrete-in-thought (theoretical or abstract) or both of them, that is, in which level the classification is made. This is important because it is the distinction between a real object and a thought object which is fundamental

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[3]According to O'Malley (1972), classification is a "formalizing process" (O'Malley, J.B., 1972, P.58-59) which generates analytic terms or concepts. The classes which classification produces are reductive and generalized objects. The counterpart of classification at the empirical level is typification. Typologies attempt to group objects of similar properties according to a criterion that is specified by the problematic of the inquiry. A typology is one of the analytic tools that enable experimental studies to tackle specialized objects.

[4]Discussion on the subject is amplified in chapter 5 on caregorization and representation.

[5]Which are represented by *Heaven Plate, Man Plate* and *Earth Plate* respectively in the FengShui compass, and we will come back to the subject in more detail later.

to the question of specifying an object[6].

Thirdly, the criteria of distinction employed in classifying elements of landscape in *FengShui* are ideological, perceptual and epistemological. For example, "earth" is specified according to, and in terms of ideological concept-ions, perceptual limits and symbolic norms such as *Five Elements, Four Quarters, Dragons, Water, Sha* and *Xue* and others.

Similarly, "man" is specified and classified in terms of *Animals, Trigrams, Hexagrams, Stars,* and *Five Elements.* These terms implicitly carry the status of "man" while conceiving them in terms of empirical and real subject.

Giving the preliminaries of identifying the mechanisms that involved in the process of verbal classification of *FengShui,* we may now first answer the question of what are *FengShui* "verbal categories" of a site?

First of all, it is the distinction between two schools of *FengShui,* i.e. the cosmology and the forms[7]. With the cosmology, the object is abstract, ideal, transcendental, and symbolic, and is identified at the level of concrete-thought, that is, the object is a concept which is represented by a symbolic model (*FengShui* compass) with equally conceptual terms. With the forms, the object is at the level of real- concrete, a "site" is a real site which has a set of objects in space, and physical interaction. As a matter of fact, this distinction between cosmology and forms is also that between the verbal representation and iconic representation of landscape.

Further on, each of the above two objects (i.e. the conceptual and the real) of site were subdivided. The verbal categories are mainly concerned with the cosmology of *FengShui.* Thus, Let's start with the analysis on the cosmology of *FengShui.*

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[6]For a detailed examination of this point, see Teymur, N. (1978).

[7]Normally, the two schools were practised with different levels of popularity in the north and south China. we school of cosmology was more popular in the south China, while school of forms was more popular in the north. In *Xian Po Ji,* both schools were illustrated with equal importance and were supposed to be used in combination in their application to site practice.

3.3.1 The FengShui compass

From the introduction of the manual, I should like to quote a few sentences: "since Han dynasty (200 B.C.), the *Yin-Yang* experts had already set up the general structure of universe: The *Five Elements*, the *Eight Trigrams*, the *Four Quarters*, the *Four seasons*, the *Five sounds*, the *Twelve months*, the *Twelve rhythms*, the *Twenty-eight constellations*, and a complete system of colours and numbers. All of those components of the universal structure became later the philosophical background of *FengShui* theory", and resulted in the patternized understanding of *FengShui* for living space. Actually, the compass itself is a four dimensional model of universal structure of space and time.

It is thus understandable that the compass could be used for both "observing heaven - following *Qi*, making orientation" and "measuring earth" - judging the pureness of the earth, so "to determine the luck" , more over "choosing time" - the favourable timing (Explanation of the compass, 1700s).

In order to have a complete image of the compass, it will be convenient to start for the description of each set of symbols ever mentioned in the compass and what rings of symbols they include. 28 rings are listed in *Xian Po Ji*, I will describe all of them. Since there is no complete compass present in the manual, the *XiuNing* compass[8] (see Appendix II), which has a list of its rings inscribed on its face, has 19 rings will be the reference. The manual will be used as the main source of information.

1. Heaven Pool (天 池): the central circular areas of the compass which holds and is divided in half by the magnetic needle.

2. The Eight Trigrams of Former Heaven sequence (先天八卦):
   Yin, Yang were divided and arranged in the so-called former Heaven sequence.

3. The 12 positions dividing the country (十二支辰方位):
   the 24 points in 12 pairs; each pair appropriate to one

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[8]Which is the reproduction from *The Source of FengShui* by He XiaoXin (1990).

division, its astrological influence governing geographical division, this linked with the previous ring since in effect the 12 pairs are also the 12 branches.

4. *Yin* and *Yang* Dragons (陰陽龍).

5. Nine Stars (九 星):the location of which may influence the orientation.

6. The Stars of Heaven (天 星):

6 constellations are selected out as stars and given *Yin* and *Yang* significance; correlations are made with the nine Stars and 2 other constellations are named.

7. 24 Directions (二 十 四 向):

also called the earth plate (i.e. governing the inner region of the compass), reminders of the correlations made with them in explanations of previous rings, exemplary applications to water-course and dragon.

8. The *Jie Qi* (節氣), 24 fifteen-day period (二 十 四 氣):

four seasons in a year are divided further into 24 sections of the solar year which is correlated with the 24 points.

9. The seventy-two Dragons (七 十 二龍):

a sexagenary cycle of branch and stem combinations in twelve blocks of five, one block for each branch, the twelve spaces between each block corresponding to the positions of the 8 stems and 4 trigrams of the 24 points; the total 72 positions to be combined with the 72 five-day division of the year specifically for evaluating mountain formation.

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10. The Nine Officials (九官):

> of the Hidden Stem (or numbers): 72 numbers in 12 sets of 5 (the same 12 as in Ring 9) using only the numbers one to nine, indicating *Yang* and *Yin* positions and an appropriate number for time of year; numbers supposedly based on the *Luo Shu* Magic Square contained in *I Jing* (or *Book of Change*).

11. The *Su* constellations of mountains (星窩曾山):

> the 28 *Su* asterisms divided among the 12 branches in threes and twos and also correlated with the sexagenary cycle of Ring 9.

12. Mountain-penetrating Root *Gua* (穿山尌):

> allocates sections of the sexagenary combinations to the eight trigrams; these trigrams become the lower three lines for hexagrams of the *Book of Change*, usually a different hexagrams for every sexagenary combination, although, there are repetitions; involves a system of divination by which each of the lines of a hexagrams a meaning. This system is further expounded in the explanation of Ring 25 which has appended to it a table of sexagenary combinations and numerology needed to work it. A second part of the explanation of this ring continues with the matter of Ring 11, elaborating on the elements associated with the *Su*, the production and destruction orders of the elements and their mutual control - this too linked with a numerology of divination possibly to be found in the table of Ring 24.

13. The 60 Dragons in equal division (平分六十龍):

> more elaborations on the sexagenary cycle and its association with the trigrams and methods of divination

mentioned above, divides the 60 into 16 positions for filling the home with wealth and honour, 10 for producing glory, 18 half lucky and half unlucky positions, 11 of great bad luck and 5 which are good for graves.

14. 60 hexagrams of Later Heaven sequence (后天六十卦):

the characters of the 64 hexagrams of the *Book of Change*, in the Former Heaven sequence, leaving out the hexagram equivalents of the four cardinal points of the compass; the 60 arranged in a cycle to coincide with the divisions of the sexagenary cycle; comparison at each of these divisions between the hexagram equivalents in the Former and Later Heaven Sequences; the former Heaven Sequence hexagrams show the waxing and waning of *Yin* and *Yang* and hence of *Qi* and seasons, while the balance of *Yin* and *Yang* lines within each hexagram is significant only in those of the later Heaven Sequence; stems are divided into these which are lucky and those which are unlucky.

15. 60 hexagrams of Former Heaven Sequence (失天六十):

the actual diagrams of the 60 hexagrams arranged under the previous ring and marked by circles or dots to indicate misfortune and luck respectively.

16. The 120 division Fen-Jin (一百二十分金):

each of the 60 Dragons is sub-divided into two, hence 120 space, either blank, or filled with a stem character or with sexagenary characters. Spaces filled with sexagenary characters are totally lucky (presumably if the specifications for each combination are followed) the 4 *Yin* stems are lucky and the 4 *Yang* unlucky as divided in Ring 3's and mentioned in Ring 14's explanations. This ring

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contains 48 of the 60 divisions of Ring 13 as well as the essence" of Ring 9. The ring is arranged so as to give 5 divisions to each of the 24 points and is also, of course, linked up with the five elements. It is specifically for evaluating the site itself.

17. The 365 degrees (度逆攵):

    28 *Su* (constellations) are divided into 365 degrees which are used for calculating the movement of the sun as well as the lucky *Qi* of the earth.

18. The 28 *Su* divisions (二十八宿界骨豐):

    the function of this ring is the same with Ring 17.

19. The passing Palace of the sun (太陽过宫):

    recording of the sun's movement in degree.

20. The 12 official divisions (十二宫分野):

    the 12 divisions arranged through the 12 months of the year as well as the 12 hours of a day. With each division, either *Yang* waxes, *Yin* wanes or *Yin* waxes, *Yang* wanes.

21. The 24 directions *Feng-Zhen* (seam needle) (缝金十二十四间):

    the *Zeng-Zhen* (central needle)is used for the direction, and *Feng-Zhen* is used for modifications as well as watching climate and hence *Jie Qi*.

22. The seam-needle (缝金十) 120 divisions:

    the same with Ring 16. The difference lies that Ring 16 is used for the evaluation of the dragon (or mountain) in general, Ring 20 is for site; but Seam-needle *per se* as opposed to dragons are specifically for sites; so this Ring

of Seam-needle is for the investigation of the *Qi* within the site (the other Ring 16 presumably for the site's more formal aspects).

23. Earth-penetrating dragon (透 地龍):

the 60 cyclical combinations in uneven division which correspond to the degrees of the 28 *Su* asterisms; a discussion of how this set of dragons corresponds to those in other Rings; being in the heaven part of the dial these dragons are also for investigating *Qi*.

24. The Seven Original Governing Situations (七元禦属):

the seven originals are: sun, moon and the five elements apportioned throughout the 28 *Su*; governing each dragon situation is the *Su* attributed to it as dealt with in Ring 9 and correlated by means of Ring 21; basically, between the *Su* arrangements of these two rings and by an enumeration system which links them to the root hexagrams of Ring 10, the *Su* of any one position is extended by others in the first place and secondly a whole range of *Su* or other order in which all the *Su* are to be taken is indicated. Four of the seven originals are intrinsically lucky but all come into play in production and destruction orders with the elements attributed to mountains etc... by other means.

25. The Earth-penetrating Hexagrams (透地卦):

a table setting out hexagrams and sexagenary symbols and their extensions, contained also in the discussion of Ring 10.

26. The Celestial Sphere Five Elements in degrees (天度五行所属):

a table and its explanation distributing the Five Elements in 62 divisions of the 356 degrees of the celestial sphere correlated with the *Su* and the 60 cyclical combinations, the element attributed each time being chosen by various means.

27. Lucky and unlucky judgements in degrees (吉 凶):

among all 356 degrees of the ring, half are lucky, half are unlucky, 48 being the dealt-dealers of heaven's dynamic source, 58 unlucky stars causing element destruction, 74 of 5-element mutual destruction causing the appearance of bad *Qi*, the results of which are listed; the other sources of misfortune are *Yin-Yang* imbalance, and disharmony, or clashing; the explanation lists the lucky attributions of all the degrees as names of constellations and stars which cover them, including the 28 *Su*.

28. The Equatorial Extensions (宿界 限) of 28 *Su*:

which is the measurement of the *Su*; it is correlated with the sexagenary cycle in exactly the same extensions as given in Ring 24; the four quarters of the earth and their *Su* extensions; ends by pointing out that although the Su might be taken to divide a day's round of heaven they are more appropriate to a year's round, the orbits of the planets being appropriate to the day.

Thus, the conceptual object of landscape is actually composed of 28 rings (categories) in *FengShui* compass, among which, there are three fundamental categories presented as *Heaven plate, Earth plate,* and *Man plate* (in the compass, they are represented by the Correct Needle (Ring 5), the central wedle (Ring 11),

and the Seam Needle (Ring 17)[9], and each ring was further divided by a series of symbols. This is made explicit according to the Chinese division of their universe into Heaven, Man, and Earth, and man was seen as being equal with heaven and earth, not as inferior. In other words, he could influence them as they influenced him (although in practice it might seem that their influences on him are more powerful he can at least manipulate their influences and play them against each other to his benefit). As a matter of fact, *FengShui* would be difficult to understand without recognition of this basic assumption.

With the centre of the compass seen as the centre of the universe and the three divisions of the universe into Heaven, Man, and Earth in the three divisions of the compass dial, the compass is actually taken as the model of the universe. The illustration from *Xian Po Ji* shows the sequential relationships among the three divisions as well as their origin - the Great Absolute. I would like to quote the following explanations for our exposition:

"First and foremost, there is no pole (*WuJi* or nothingness). Then comes the supreme pole (*TaiJi*) which moves and produces *Yang*, rests and produces *Yin*. Motion and rest alternate, when the motion reaches its limit, rest ensues, while rest reaches its limit, there is a return to the motion, each being the root of the other. The *Yin* and *Yang* take up their appointed functions, and so the two forces are established. The *Yang* is transformed (by) reacting with *Yin* and so *Water, Fire, Wood, Metal* and *Earth* are produced. Then the five *Qi* diffuse harmoniously and the four seasons proceed on their course. The five *Elements* (if combined, would form) *Yin* and *Yang*. *Yin* and *Yang* (if combined, would form) the supreme pole, the supreme pole is essentially (identical with) that which has no pole. As soon as the *Five Elements* are formed, they have each other their specific nature. The true (principle) of that which has pole, and the essences of the two (forces)and the five (*Elements*), unite with one another in marvellous ways, and consolidations ensue. The *Tao* of heaven perfects maleness and the *Tao* of earth perfects femaleness. The two *Qi* (of maleness

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[9]Actually, the 28 rings in the compass were grouped into these three categories: Rings 1-5, Heaven plate; Rings 6-18 or 19, Earth plate; Rings 19 or 20-28, Man plate.

and femaleness), reacting with and influencing each other, change and bring the myriad things into being. Generation follows generation and there is no end to their changes and transformations." (*Xian Po Ji*, P.652-653)

3.3.2 *Yin* and *Yang*

The two cosmic forces *Yin* and *Yang* then come to stand for a great range of opposites: positive and negative, quietness and motion, femaleness and maleness, substance and spirit, low and high, mother and father, brightness and darkness, heaven and earth, day and night, black and white.... . It is to be remembered that the *Yin* and *Yang* are forces, principles, not static entities. As the explanation of the *Heaven Plate* says that "*Yin* and *Yang*, one rest, one moves, their combination produces four directions and seasons and further produces trigram" (ibid. P.703).

The trigrams of Former Heaven sequence, as it is explained for Ring 2, is to indicate the waxing and waning of *Yin* and *Yang* at the most general level, the heavenly or cosmic level. The later Heaven sequence, says the explanation for Ring 28, are for the detection of *Yin-Yang* harmony or clash at particular spots.

For an example from *Xian Po Ji* on the way in which *Yin-Yang* balance manifests itself on the ground, so to speak, we may take the explanation of Ring 3 which recommends that "a *Yang* direction, *Yin* dragon should be situated on a *Yang* mountain facing a *Yin* direction. "The recommendation could have several meanings. To start with "dragon": it may refer to lines of elevation going in directions of *Yang* or *Yin* ascendancy. It may refer to the "corner" points of the 8 compass points as indicated by Ring 2, which is called dragon trigrams, or changers, just as the lines of land formation are called dragons and change direction. "Mountain" may mean a mountain mass situated at a point of the compass to which a *Yin* or *Yang* attribute has been given by Ring 3.

3.3.3 Five Elements

With *FengShui* cosmology, the *Five Elements* should not be understood as substance or a visual formation, rather as different types of energy which inform every substance and every process of change and transformation. Although their

names are taken from observed external phenomena and the characteristics attributed to them are also based on the qualities of these phenomena, they are nevertheless primarily, a metaphysical series of concepts much as are the two cosmic forces, *Yin* and *Yang*.

The *Five Elements* are regarded as being interactive, each element capable of generating another in either productive or destructive order (see figure 3-2): burning *Wood* produces *Fire*; *Fire* leaves behind *Earth*; *Earth* is the source of *Metal*; *Metal* can be liquified into substances flowing like *Water*; While *Water* helps *Wood* to thrive.

Mutual productive   Mutual destructive
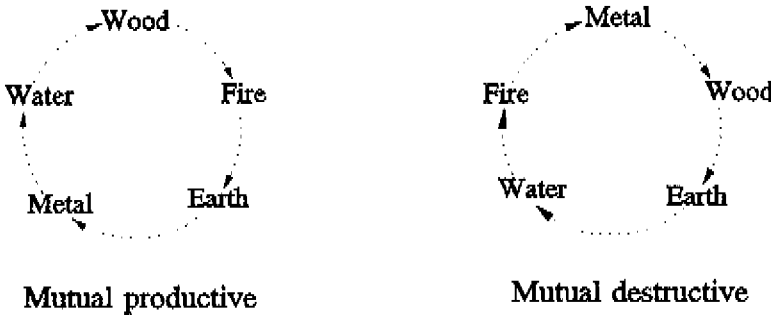
Figure 3-2 The mutual relationships among *Five Elements*

A good *FengShui* must be such a situation that all the elements stay in a mutual productive order.

One thing worth mentioning is that all the symbols, except for the tri- and hexagrams (perhaps the *Five Elements* should also be excepted) on their own are signs for observed astronomical and natural phenomena or for measurements of time and space, and only in addition to such very concrete and definite significance do they attain the rank of symbols.

Besides the cosmic forces and the *Five Elements*, the directions and positions in the compass also play very important role (as they appear in Ring 3, 5, 7, 8, 9, 11, 12, 15), there are 24 directional signs on a compass dial. They may be grouped into three's to make a simpler arrangement of 8 which is associated with

the 8 trigrams. They can also be grouped into 12 pairs, (as in Ring 3) each pair becomes a symbol for an astrological aspect governing one of the 12 divisions.

Another thing worth to mention is that as mere measures of space, 24 points are repeated 2 times on the compass, each time in the same order but shifted around 7.5 degrees according to the correct needle (Ring 7), the Seam needle (Ring 21) shifted 7.5 degrees of north to accord with the magnetic declination from the true north.

The three plates (i.e. *Heaven Plate, Man Plate,* and *Earth Plate*) are also coordinated by the 24 directional signs aligned with the magnetic needle.

The 24 directional symbols (presented by *branches, stems or trigrams*) have in themselves little meaning, are given different values. It is by means of the symbols associated with them from other series, especially the *Five Elements,* that they are given contents, and it is incidentally that the rings or series arranged on the dial of the compass are fixed and that it is therefore possible to make definite cliche associations with any one point. For instance, the two rings of 120 divisions (Ring 15 and Ring 21), which include the 24 symbols for the directions but separate with stems and sexagenery characters. Thus, only in the context of the whole complex of compass symbolism do the 24 directional signs themselves take on symbolic value.

The triple division of the compass dial may, thus be seen as the basic or fundamental categories of conceptual object of *FengShui,* other categories such as: the 120 divisions (Ring 15 and Ring 21), the Seven Originals Governing Positions (Ring 23), the 12 Sovereign Hexagrams (Ring 19), the 72 lines of Sovereign Hexagrams (Ring 8), etc. are all derivations of *Heaven, Man,* and *Earth,* and their function in the compass are giving different contextual situations of the conceptual object of "site".

The series divisions or categories of the rings are made through a set of symbols employed externally from other theoretical sources, such as: *Yin-Yang, Trigrams, Hexagrams, Five Elements, Animals, Twelve Palaces, Branches, Stems, Sexagenary Cycles...*etc. The symbols may suffuse repeatedly the symbols on the compass dial, but their positions may be different due to different contexts, and the correlations among symbols are implicitly stated in the manual. For example, the classification of animal species are also implied by the

correlation of branches and *Su*, Ring of *Su* is also called "animal stars", and the fact that the branches have the same animal emblems indicate their astronomical significance. The animals are also associated with months of a year.

Other examples like the correlation between stems and *Five Elements* or *Yin-Yang* symbols: the stems are used either from 1 to 10 or in pairs, 1 to 5 with a *Yin-Yang* significance, or, in alternates, 1 to 5 in two different ways - one of *Yin* stems and one of *Yang* stems. The second way is used to enumerate the *Five Elements*. The third way to enumerate the divisions of branch areas in the sexagenary cycles of stem-branch combination.

Of all the series of symbols on the compass, the sexagenary cycle combines time and space division and significance at their most elaborate not only is it a sub-division of the twelve branches and hence of the terrestrial circumstances. It is also a sub-division of the 24 periods of the solar year. When a bearing is taken by the *FengShui* master and a place thereby ascribed to one of the sexagenary divisions, not only can the state of *Qi* in that part of the ground be told, but also an appropriate period of the year is signified. The table which accompanies the explanation of Ring 24 makes this clear. The hexagrams and the numbers in each column are for a method of divination.

Further sub-divisions are made, when the hexagrams associated with each sexagenary division are sub-divided into their separate lines, each line has different value (either lucky or unlucky). There are 356 divisions, one for each day of a 356-day year. The sexagenary cycle is given twice, once correlated with the *Former Heaven* sequence of hexagrams, once with the *Later Heaven*[10] sequence. In its lower half, not to be correlated with the upper, are given two degree divisions of the constellations (*Su*), their elements and further cryptical glosses for each degree.

Thus Ring 15's explanation defines the process of sub-division on the compass, each stage further in sub-division being that much more practical. The 120 *Feng-Zhen* contain only 48 of the sexagenary combinations but nevertheless are an elaboration of the full 60 and always come near a ring of them. There are, therefore, three pairs, Ring 13 (60) with Ring 10 (120), Ring 14 (60) with Ring

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[10]This comes from the two magic squares: *HeTu* and *LuoShu*.

17 (120) and Ring (22) with Ring (21). The triple repetition corresponds to the triple division of the compass. Also repeated three times and attached to the above pairs are rings of hexagrams and rings of *Su*. The 120 *Feng-Zhen* are differentiated from the cycles of 60 by having specific correlation with two rings of hexagrams in the two sequences in which they are arranged, whereas the 60 have their own rings of hexagrams. We may thus set out a model presenting the classification of *FengShui* cosmology on site as figure 3-3.

Conceptual `Site'

Heaven plate   Earth plate   Man plate

Ring 1 (WuJ1)	Ring 7 (24)	Ring 21 (24)
Ring 2 (Trigrams)	Ring 8 (Ch'i)	Ring 22 (120)
Ring 3 (Yin-Yang)	Ring 9 (72)	Ring 23 (60)
Ring 4 (Elements)	Ring 11 (Su	Ring 25 (60)
Ring 5 (Trigrams)	Ring 12 (Kua)	Ring 26 (Elements)
	Ring 13 (60)	
	Ring 14 (Kua)	
	Ring 15 (Kua)	
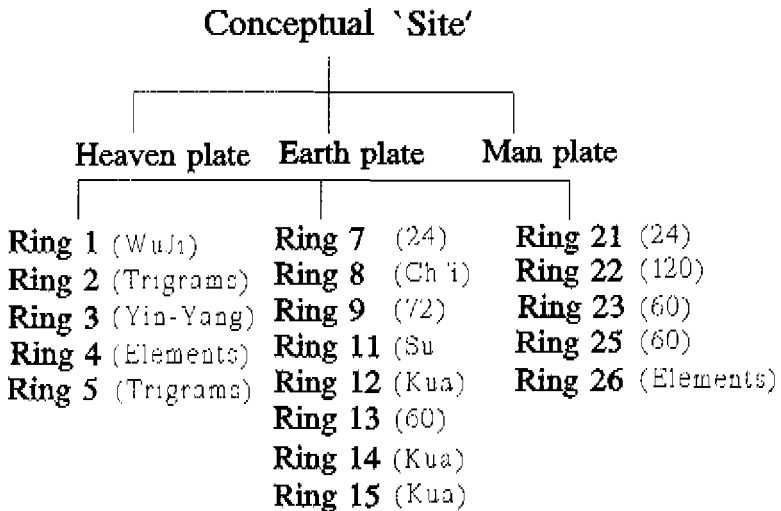
Figure 3-3 Classification of *FengShui* cosmology

If we may, the structure of the *FengShui* compass could be summarized as following:

1. First of all, the model of compass is a 4 dimensional combination of space and time: the universe is here subdivided into three basic relations, that is heaven, earth and man. They are represented by *Heaven Plate* (ring 8), *Earth Plate* (ring 9) and *Man Plate* (ring 15) respectively in the compass. The analogical and

propositional relationships among them are made through *Qi*, the time cycles; Five Elements and twelve palaces; symbols from *I Jing* (the 64 trigrams); *Yin* and *Yang*, *He Tu*, *Luo Shu*; as well as the earthly form systems. The main idea is getting a harmonized relationships among them in all kinds of situations through the standard elements provided by the above items.

2. The model is coordinated through a enumeration systems found in compass ring 7, 11 and 14. The sources of which are found to be related with the Centre of the universe and *Yin-Yang* theory of ancient Chinese philosophy, as well as with the two magic squares *Luo Shu* and *He Tu*.

Ring 15's classification of *Feng-Zheng* into 2's and 8's or 3's and 7's is basically a classification into even and odd number's and therefore into *Yin* and *Yang*. This dualism is a facet of the grander scheme by which the centre of the universe gives a dual division into *Yin* and *Yang*, which, with a centre, makes another triple division (the other one is *Heaven-Man-Earth*) and which produces and manifests itself in the myriad things. Dualism is insisted on at every stage of the evaluation subsequent to its emergence.

From the manual, the reference to the cosmological system will not, however entirely explain a set of circumstance, it can only tell whether growth or decay in a definitive way, further interpretation of so-and-so much growth and production, or so-and-so much decay and destruction relays on the Earthly form, the iconic representation of *FengShui*.

3.4 Iconic[11] representation of *FengShui*

Even a cursory examination on *FengShui* manual would suggest that *FengShui* includes and relies on such non-verbal means of expression just as much as on verbal ones. Of course, their uses differ in different context, discursive formations and practices. Their theoretical contents differ too. We have given in

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[11]We use the term 'iconic' instead of 'graphic' or 'diagrammatic', because we believe that it describes more properly the pictorial nature of FengShui's representation.

the earlier part of this chapter the general structural layout of *FengShui* representation (refer to P.45), now, we would like to discuss in more detail the nature of iconic representations and their conditions of existence in *FengShui*.

As we discussed in the last section that *FengShui* is not only a practical aid to performance in site activities, but also has its fundamental theory working as a representation system.

There is no doubt that one of the primary functions of *FengShui* representation is authoritative identification of landscape as related to its performance. That is to say, all the diagrams in *FengShui* representation have the logically prior office of identifying the attributes of a landscape, from this derives all the requisite theoretical properties of *FengShui* as a representational system. We have also explored the function as well as operation of two schools which constitutes *FengShui* representation, i.e. the compass and the landform. And we noticed that *FengShui* diagrams plays a very important role in *FengShui*'s operation.

If we do accept the fact that *FengShui* diagram is a representation, in other words, it is to represent an object[12], then it must be a symbol for it, stand for it, refer to it. On the other hand, as a representation, to quote Goodman: "no degree of resemblance is sufficient to establish the requisite relationship of reference. Nor is resemblance necessary for reference: almost anything may stand for almost anything else" (Goodman, N. 1969). It thus raises the fundamental question of how *FengShui* diagram functions as a representation? or what is the mechanism of *FengShui* iconic representation? The question follows will be how *FengShui* diagram is classified? Since we have already seen from *Xian Po Ji* that diagrams in *FengShui* are patterns of landscape. In other words, we will try to find out how *FengShui* summarizes or generalizes the unlimited varieties of landform into a typology.

One thing makes *FengShui* diagrams special is that the relation between the diagram and what it represents is actually assimilated to the relation between a

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[12]"Object" here is used indifferently for all kinds of landform a diagram represents, whether a mountain or a water course.

predicate and what it applies to[13]. A diagram in *FengShui* is not simply a iconic representation of topological aspects of landform, but carries with it information about the landform. We are certainly not really interested in the detail of what the diagram denotes, what we are interested are two links: the one between the diagram and topological shape of landscape; and the other between diagram and its denotations. Actually, it is this point which makes *FengShui* different from other iconic representations, *FengShui* diagram not only represents - like a passage that describes - an object refers to, but more importantly denotes it. Denotation is the core of *FengShui* graphical representation and is independent of resemblance.

To start our analysis on the above question, let us first look more closely at the diagrams of *Fengshui*. And first, it is helpful to list the four basic landscape categories[14], on which all the diagrams in *FengShui* are applied.

Shan   mountains, mountain ridges and formations, also known as dragon.

Shui   water, all water courses and concentrations on water.

Sha   earth or alluvial formations, the word has a sense special to *FengShui* where it means any distinguishable shape in the contours of the earth and also the banks of gullies and watercourses and perhaps boulders, etc....

Xue   literally "lair" (i.e. the dragon's lair), also means site, but indicates more than the situation of a site in a hollow or a place protected on three sides (quoted from Chinese Geomancy by Wang, F. 1974).

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[13]A FengShui master's judgements of a given landscape is derived from his projection of a certain diagram from FengShui manual to the landscape.

[14]From the manual, there is no explicit explanation about such a division of landform. It probably due to the conventional accepted procedure of FengShui practice that "reading the Dragon, watching Sha, looking for water and pointing the Xue" were the four fundamental steps in Earthly Form School of site diagnosis.

3.4.1 The diagrams of Dragon (mountain)

Dragon here also means the mountain, or mountain ridges. Looking for the dragon is the first step in *FengShui* operation (see He Xiao-Xin. 1990). The category of Dragon thus become the first group of diagrams in *FengShui* representation.

Stars

First, let's start with the most fundamental diagrams of Dragon, i.e. the stars (or the 5 Stars) and then their derivations. Stars in *FengShui* are those landforms which were morphologically identified as the projection of constellations. That is, they are landforms on the earth, but were considered as the embodiment of the planets in the heaven.

One thing puzzles me with *FengShui* diagrams is the way topological forms of landscape are projected (or transformed) into diagrams. As we see from figure 3-4, under the same category of diagrams, two apparently different techniques were employed. With diagram A, it is obviously the profile of the mountain that is projected, With diagram B, it is the plan of the mountain that is projected, in this case, the sequential relationships among the mountains become more important than the identification of single mountain.

One thing worth to mention is that all those diagrams which take plan projection also express the way that mountain ridge goes and the black (*Yin* side of the mountain) and white sides (*Yang* side) were presented not always south oriented (as usually taking for granted that south side is *Yang* (white), north side is *Yin* (black)), but also site centred when it happens that the diagram represents a landscape by which site is supposed to be at the centre of the landscape.

Hence, *FengShui* did not really try to make a faithful picture, come as close as possible to copying the landscape just as it is. A landscape is here symbolical-ly represented. And at this point, we have to admit that there is actually no such a way which can truly represent the way the world is, the problem of representa-tion is always problem of degree, otherwise it is not representation at all, rather a copy[15]. *FengShui* diagram functions more as a symbol than as faithful

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[15]See more on Goodman, N.: *Language of Art*, 1969, P.6-10.
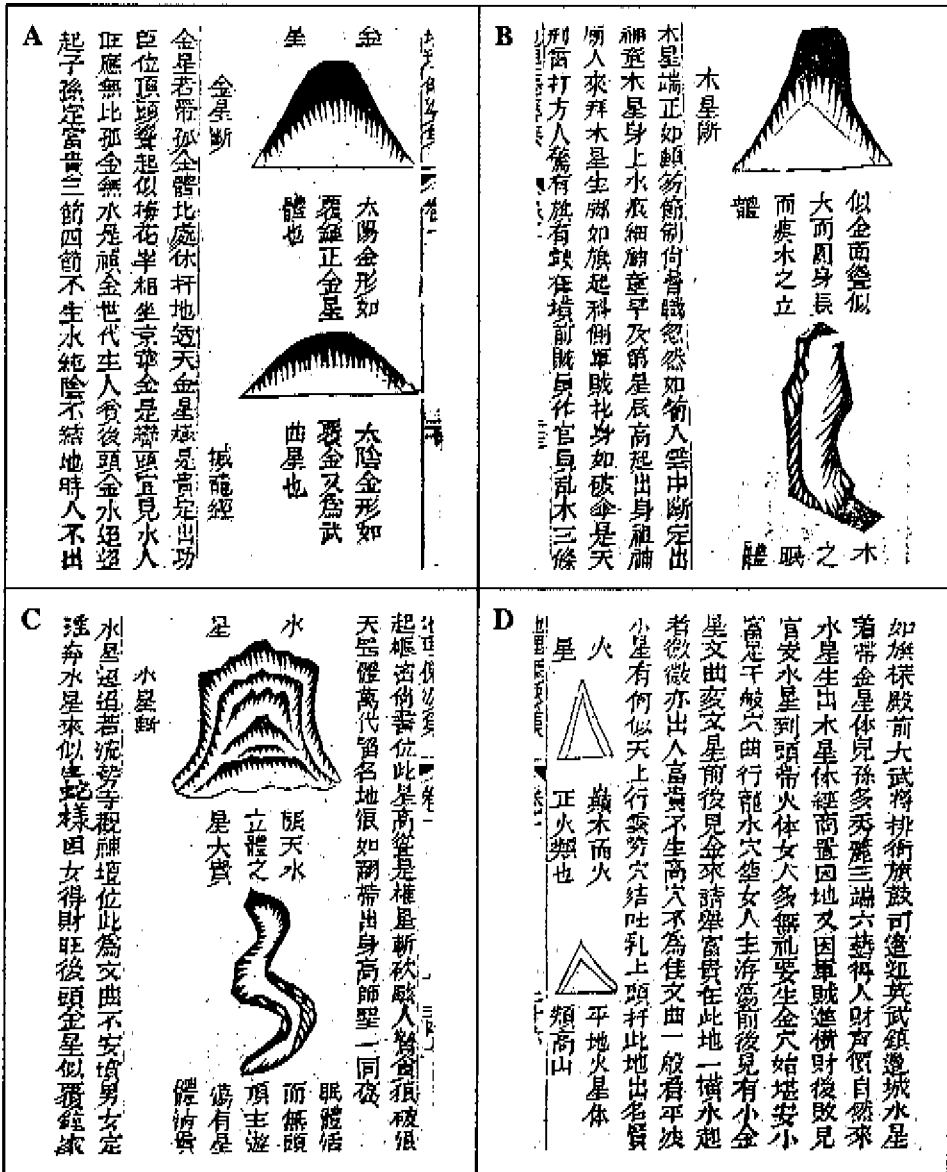
Figure 3-4a Stars, from top down and left right: *Venus, Jupiter, Mercury, Mars, Saturn* (source: *Xian Po Ji*, P.105-121) (see also next page)

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土星斷

屏風土類金
而方正土體
者非此正體

天財土腰
軟角圓土
星之坎也

土星
體格
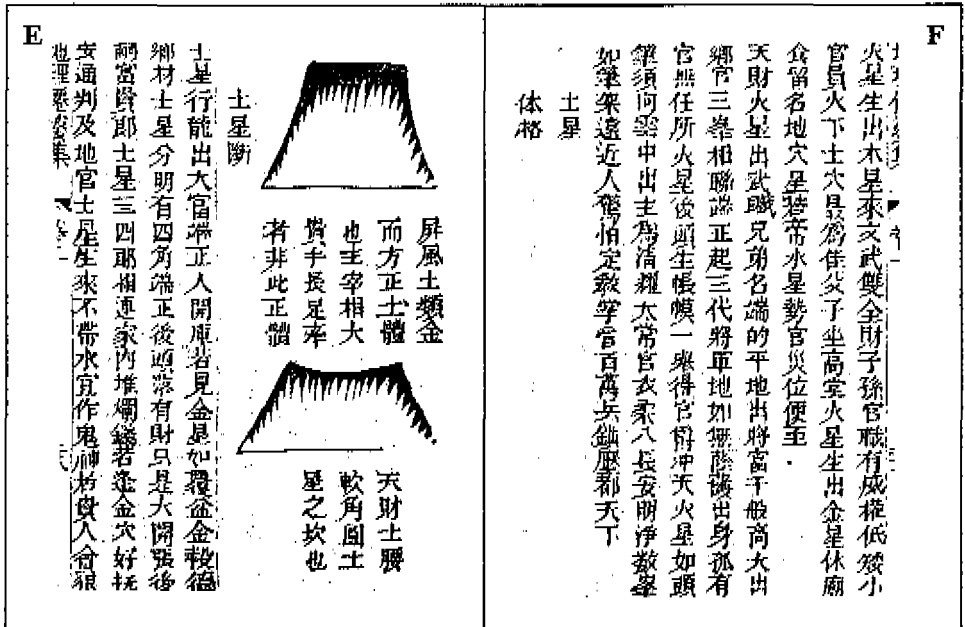
Figure 3-4b

representation of landscape. Landscape is "cognitively mapped" as such that it is categorized beforehand, to represent it means simply to map it into one of the pre-determined categories.

Derivations of Stars

So far, we have been discussing only the representations of individual landform which were classified in *FengShui* representation into 5 fundamental *Elements*, i.e. the 5 *Elements* or 5 *Stars*. But, actually a *FengShui* diagram, like a predicate, may denote the members of a given class, that is, a diagram accompanying an explanation is often such a representation, not denoting uniquely some single mountain, or mountain ridge, but collectively the class of mountains in general. This is a very unique situation of representation: a representation of a multiple object does not have a multiple denotation like it does with other pictorial representations. For example, the diagram of Mercury III (figure 3-5), the denotation of which is not the plus of each member of the mountain complex, but only one

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denotation of that mountain complex as an unseparated whole; the denotations of each member in the mountain complex were transformed into one which is based on the sequential relationship among all the members as one class.

The simple fact is that much as the single landform in *FengShui* representation are readily sorted out as *Mars, Mercury, Jupiter, Venus,* and *Saturn,* so the mountain complex are readily sorted out as the derivations of those fundamental classes of Stars: *Mercury* I, II, III…, *Jupiter* I, II… etc., those derivations are so called the Transforming Dragons of Stars (转變龍格). And each of the Stars has a series combinations. The rule of definition of a certain combination depends on the starting element, for example, all those classes which starts (from the north) with the element Mercury belong to the Mercury 'family'; those which start with Jupiter belong to Jupiter family… and so on. In the manual, 5 favourable combinations were given to each class in the category of Dragon.

There is no explanation from that why each has 5 favourable transformations and whether all the other possibilities of combination belong to the classes of the unfavourable. And those kinds of questions can be found all over the manual. The possible explanation is ritual.

The way diagrams of Dragon are thus classified into groups which is far from sharp or stable, and resist codification. bordering may shift and blur, new categories are always possible to come into prominence, and canons of the classification are less clear. But this is only to say that we may have trouble in telling whether certain landform being a *Mercury* or applying a *Jupiter*'s diagram into practice.

We won't attempt to go more deeper into the subject, as it may become engulfed in a notorious philosophical morass which is not part of our present task. All that matters here, is that *FengShui* representation are indeed classified with varying degrees of easy into diagrams of *Mercury, Jupiter, Mars, Venus, Saturn* and their derivations. And this fact is unaffected by the difficulty of framing definitions for the several classes or eliciting a general principle of classification.

So far, we have identified two functions of *FengShui* iconic representation. To say that a *FengShui* diagram represents a certain landscape as a *Mercury* II is merely to say that a certain landscape with a constitution of elements *Mercury,*

Jupiter, Mars, Saturn and *Venus* in a sequential relationship is represented as *Mercury* II, or in other words, the diagram denotes a constitution or situation of a certain landscape. This includes the description of the identification of landscape features being those Elements. Such a description can always be replaced by another like: a landscape is constituted by elements *Jupiter, Mercury, Mars, Saturn* and *Venus* in sequential relationships or simply by element *Mercury* (just because a certain shape is sorted or defined as that element). Thus, these cases raise no difficulty, all that is being said is that the diagrams represent the object so described.

Another function of the diagram is the denotation of a judgement which is connected to the topological form of the landscape. And this function is accompanied with the verbal illustration. For instance, the description and judgement of Mercury III:

"Water falls on the Wood, Wood grows in Earth and makes Fire, Fire makes Fire more vigorous. Hence, the ancestor's career must be scholar and his decedents will be flourishing. Master Chai explains: "because the ancestral element is Water, so scholar was his career[16]; the one after Water is Wood which grows through Earth, so don't make investment with money; Fire which comes after Wood and goes to another Fire means that the decedents will become prosperous" (*Xian Po Ji*, P.167, author's translation).

A diagram that represents a landscape denotes the fortune of the residents on that landscape. This involvement of humanism in landform makes *FengShui* an unique system of representation.

Besides Stars in the category of Dragon, there are also other labels of diagrams which are independent of those from the *Elements*. Figure 3-6,7 shows a selection of those from the manual. We can see that different from those standard sets of Stars and their derivations, those diagrams represent special

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[16]We have discussed in previous section that the Elements were connected not only with space, but also colour, direction, time, social ranking, family members...etc. Water is connected with scholar.
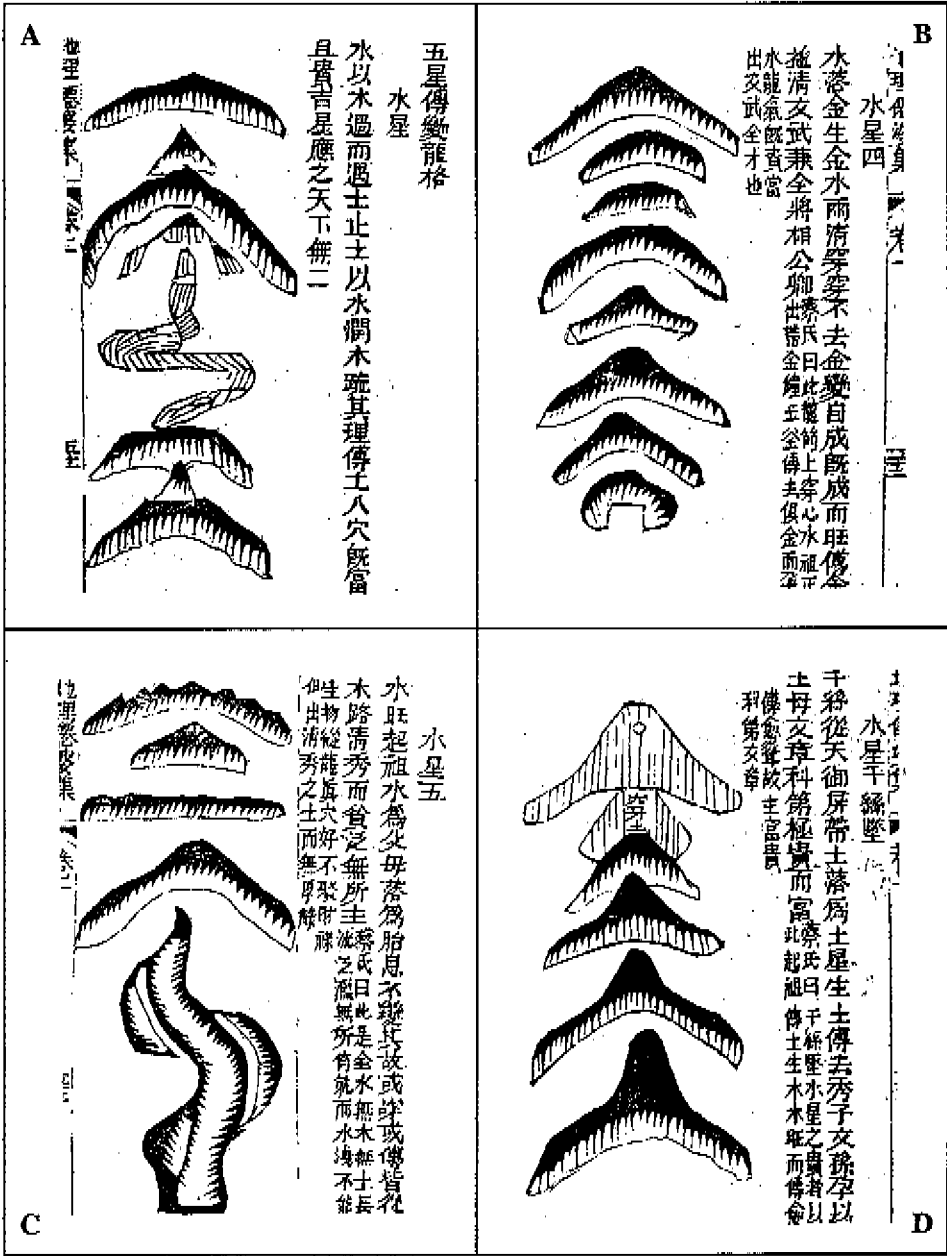
Figure 3-5 Derivations of Mercury (source: *Xian Po Ji*, P.165-169)
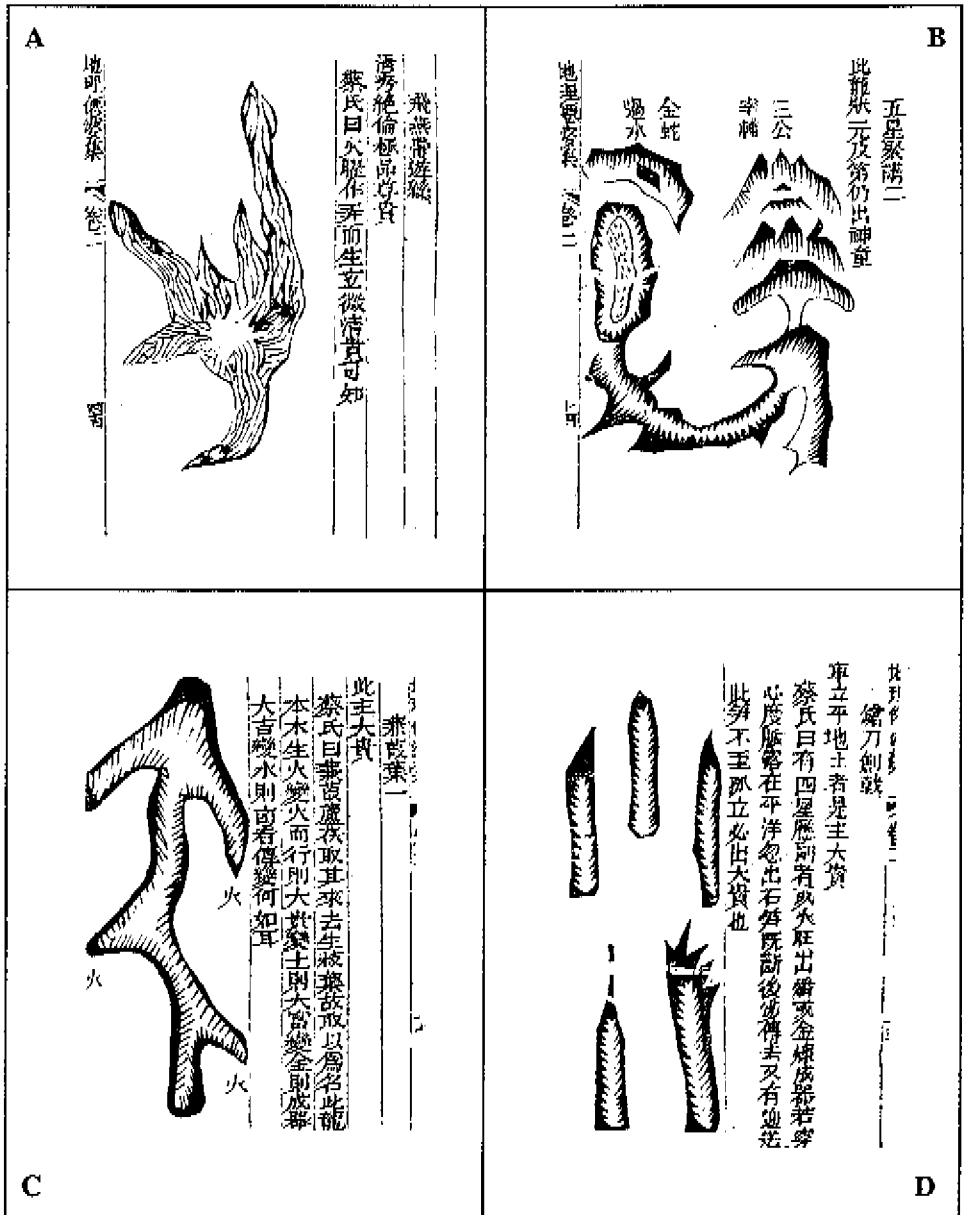
Figure 3-6 Exceptional patterns which cannot be categorized into stars.
(source: *Xian Po Ji*, P.229-236)
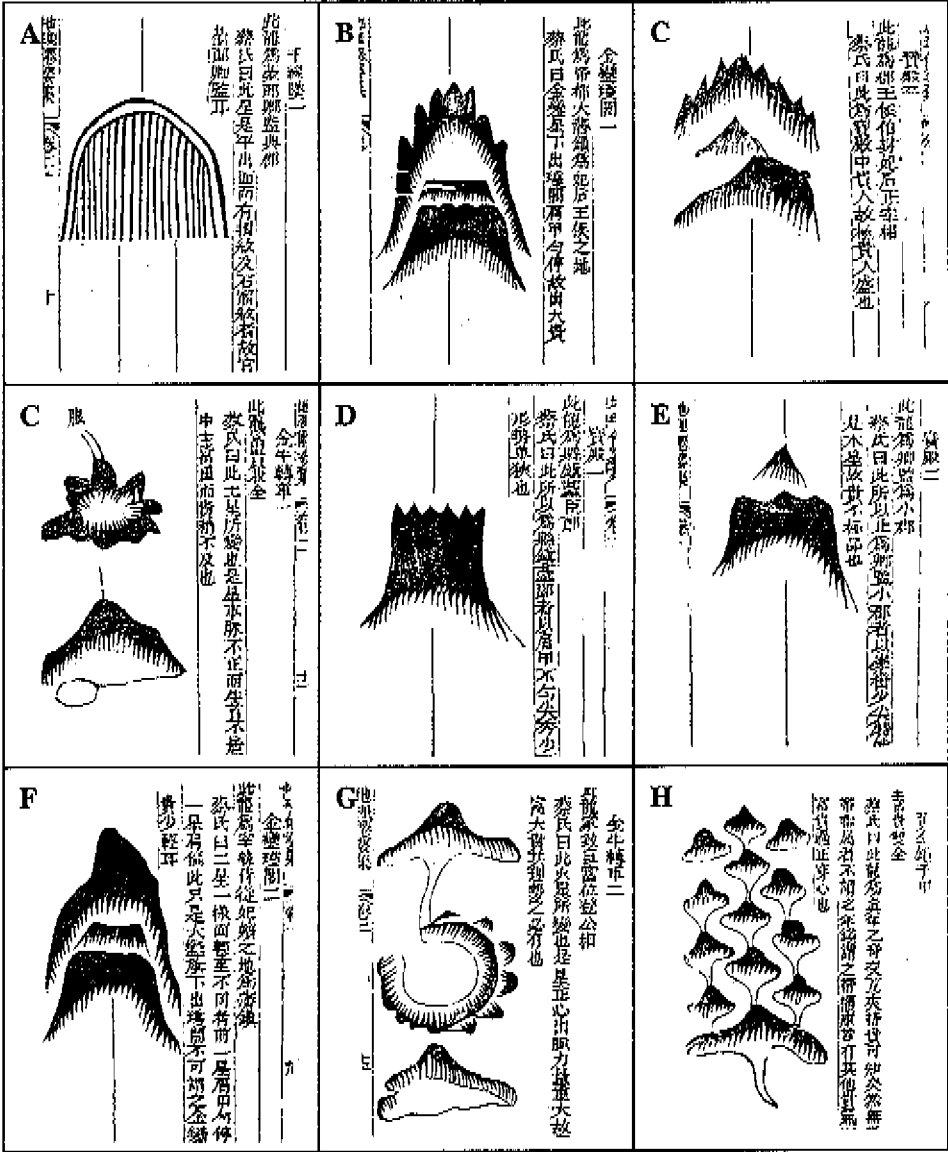
Figure 3-7 Exceptional patterns which cannot be categorized into stars.
(source: *Xian Po Ji*, P.220-228)

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cases, either shapes or constituents of landscape are unique and difficult to be categorized into Stars, hence have different systems of labelling. For instance those which are labelled under the names of buildings such as: *Jade Tower, Precious Palace, Golden Pavilion...* and so on; and those labelled under the names of objects, such as: *Car of Dragon, Carriage of Phoenix...*etc; also some are named as the postures or movements of animals such as: *Flying Phoenix, Snack Passing Water,...*etc. Again, the technique employed in the making of the diagram mixes both profile and plan of the landform in the projection. But it seems we have no difficulty in understanding those diagrams.

So far, we have been discussing about the question of how *FengShui* diagram function as a representation, or the mechanism of *FengShui* representation. And we have also explored two kinds of diagrams, i.e. the stars and those special cases We noticed that *FengShui* representation is a matter of classifying objects rather than of imitating them, of characterizing rather than of copying. It is not a matter of massive reporting. And the objects *FengShui* diagrams represent are not a docile model with its attributes neatly separated, it is landscape: one of countless objects, and may be grouped with any selection of them, and for every such grouping there is an attribute of the object. In such a sense, we should not blame *FengShui*'s lack of sharpness, or comprehensiveness. Classification do involves preferment, the object itself is not ready-made but results from a way of taking the world.

3.4.2 Xue (site)

The next category of diagram employed in *FengShui* is that of *Xue* (site), by which category, in the diagrams illustrating the *Xue*, the shadowing has been removed. obviously, the position of the site on the projection of the plan of the landscape dominates. The mountain is represented now simply with either its contour or ridges in lines. *Xue* (site) is represented with a small circle normally on the axis of the drawing which is always present at the south-north direction. We can see that the label of *Xue* associates together such objects as it applies to, and associates with other label(s) of a kind or kinds such as the one of Dragon less directly, it associates its referents with other labels and with their referents as well. For example, the prerequisite of *Dian Xue* (Positioning the site) is that

the Dragon (mountain ridge) being a favourable one, or at least not an unfavourable one, Dragon has direct impact on *Xue*. Hence, the associations here do not have equal force: one subordinates another.

If resemblance to reality in the category of Dragon is partially the criterion of the diagram, at least, we suppose that it is or has the characteristics of what it represents (even though we may sometimes get confused with the representation and the represented); with the category of *Xue*, we no longer see any trace of resemblance. It is hard to imagine or expect the object through the diagram.

With the category of *Xue*, what matters is how to position the site under certain situation of Dragon, thus what is to be represented is not an object any more, instead, the diagram now plays the function of a notational system, that is it defines a work, the performance of which is different from others, in other words, the positioning of *Xue* at one particular point will have different performance with that by another positioning. As well it is uniquely determined that under each case of landscape situation only one *Xue* can be appropriate determined.

Then our question will be how those diagrams in the category of *Xue* classify into characters, of which the images are marks. Consider, for example, figure 3-8 shows three diagrams, each represents a different site situation: the right diagram is a site positioned in the middle between south facing and north facing sides of a mountain, with a water course in front and another mountain in behind; the one in the middle shows a site nested in front of a mountain which has a encircled shape; the left one is a site positioned in one-third of a mountain, at the south facing side and with another mountain in behind. the differences between the right diagram and the middle one are: 1) water course, and 2) the mountain in behind, so caused 3) the different position of the site; the differences between the middle diagram and the right one are: 1) the mountain in behind, and 2) the different site position. one common difference among the three diagrams is the position of the site. And what is interesting is that we do have a clear cut boundaries here among the diagrams. Compare the three diagrams A, B, and C with the diagram D in figure 3-9, with situation of diagrams D there could be infinite numbers of position. And any difference in position of the circle in the diagram constitutes a difference in position of site represented. The point

is that no matter how delicate the discriminations might be, the classification provides for each diagram many characters, such that we cannot possibly determine that the diagram belongs to at least a given one of them. In other words, the syntactic differentiation is absent in the classification. But with *FengShui*'s cases in diagrams A, B, and C, this syntactic differentiation does present.

Thus, the classification in category of *Xue* relies on a relationship among symbols rather than on their relationship to denotation of the symbols. The circle in each case of diagrams represents the same meaning - site.

Now, compare the diagrams in category of *Xue* with that in the category of Dragon, the black wiggly lines of the contours of the mountain may be exactly the same, yet the first one is a diagram and the other one more a picture[17].
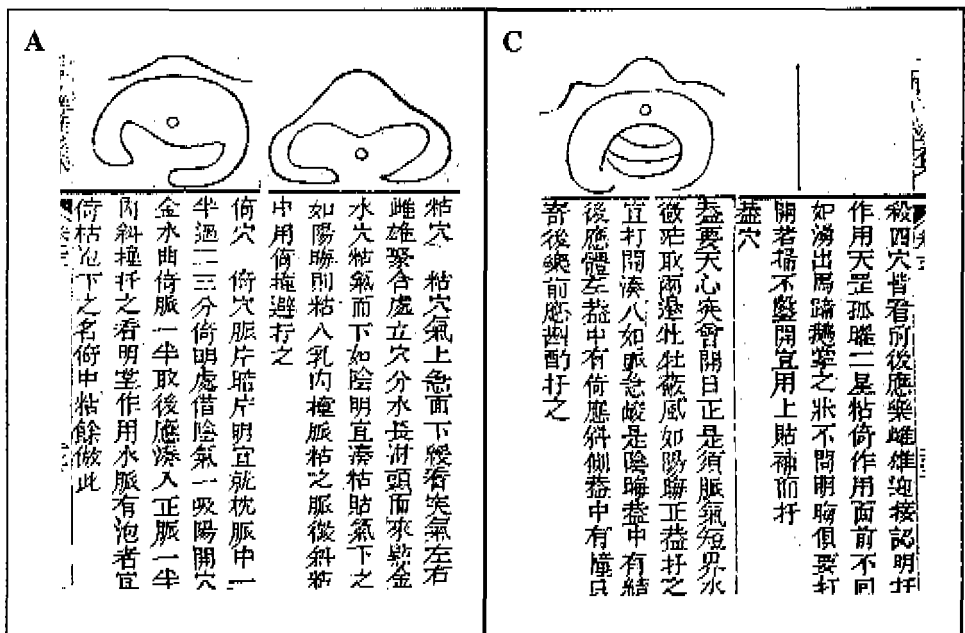
Figure 3-8 3 different site positions (source: *Xian Po Ji*, P.329)

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[17]Even though it is not really a picture, just comparatively close to picture, the differentiation between a diagram and a picture is always a problem of degree. We used the same term for all the graphical representations in FengShui, they are more diagrams than pictures any way.

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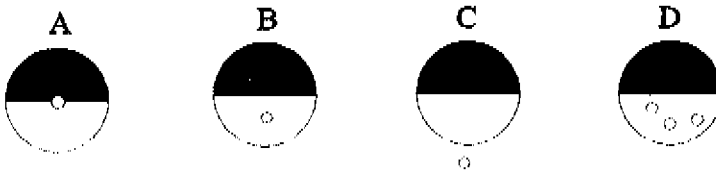
Figure 3-9 The position of circles with diagram A, B, and C present a synthetic differentiation; diagram D does not

What makes the difference? The answer does not lie in what is symbolized. The difference is syntactic: the constitutive aspects of the diagrammatic of *Xue* as compared with the pictorial character of Dragon are expressly and narrowly restricted. The only relevant features of the diagrams of *Xue* are the ordinate and abscissa of each of the site points the centre of the line passes through. The thickness of the line, its colour and intensity, and the absolute size of the diagram do not matter; This gives *FengShui* representation full relativity.

3.4.3 Sha (small hills)
The third category of *FengShui* diagrams we are going to deal with is that of *Sha* (small hill in front of the site). There are all together 6 groups of *Sha* in this category and each is further classified into favourable and unfavourable groups of *Sha*.

Besides the first group of *Sha*, the rest are again labelled under the 5 Stars. Like those in the category of *Xue*, the diagrams of *Sha* are represented simply in lines. The same technique of mixed projection of profile (or contour) and plan of the landform is applied. The difference between the two is that, *Sha* is on the south of the site and hence is viewed from the north, while the *Xue* is view from the south.

Compare the diagrams of *Sha* with those of Dragon, besides the difference in shadowing, the other difference is that with the Dragon, we can still sense the natural landscape from the diagrams, that is, if the typology of Stars and their derivations are not representations of purely natural existing landscape, they are

at least the description of supposed natural landscape; while in the category of *Sha*, especially in the first group of diagrams, we can hardly identify any trace of natural image of landscape. Figure 3-10 shows a selection of those diagrams from the manual. Obviously, they are purely artificial. And from the verbal explanation of the diagrams, we may say that they are prescriptive description of nature with social denotations. Typical example like the diagram A in figure 10: the shape of the diagram is a chinese character, literally means "peace", as the explanation of that diagram says:" The Mountain of Peace is the residence of rural family". Another example is the "mountain of army camp" (diagram C in figure 3-10).

We have no idea how the first group of *Sha* is classified. One thing for sure is that they are all exceptional shapes of Sha which cannot be categorized into Stars.

With the groups of Stars, the diagrams are simply classified into each of the Stars according to their identification with the Stars.

3.4.4 Shui (water)

The last group we are going to analyze concerning *FengShui* diagrammatic representation is that of *Shui* (water). *Shui* is so important in ideal *FengShui*, as it says: "The presence of mountain and water is great combination. Water is *Yang*, mountain is *Yin*, hence, the combination of mountain and water is like that of husband and wife" (*Xian Po Ji*, P.559). Water (or water course) is represented by two kinds of diagrams due to two kinds of circumstance of landscape: the one with mountain present (figure 3-11), the other without (figure 3-12). With the first group of diagrams, water course is represented by doted lines, the width of the line makes no sense in the denotation of the water, what counts in the denotation is only the shape of the line. Again, the 5 *Elements* (or *Stars*) so as their derivations are employed in the representations of water. The difference between diagrams of water and other categories is: what the diagram of water represents is a two dimensional object which is shaped by lines; while the diagrams of other categories (Dragon, *Xue*, and *Sha*) are representations of three dimensional object (mountain). Still, the same denotation can be found when a two dimensional object is identified as the same Element with a three dimensional
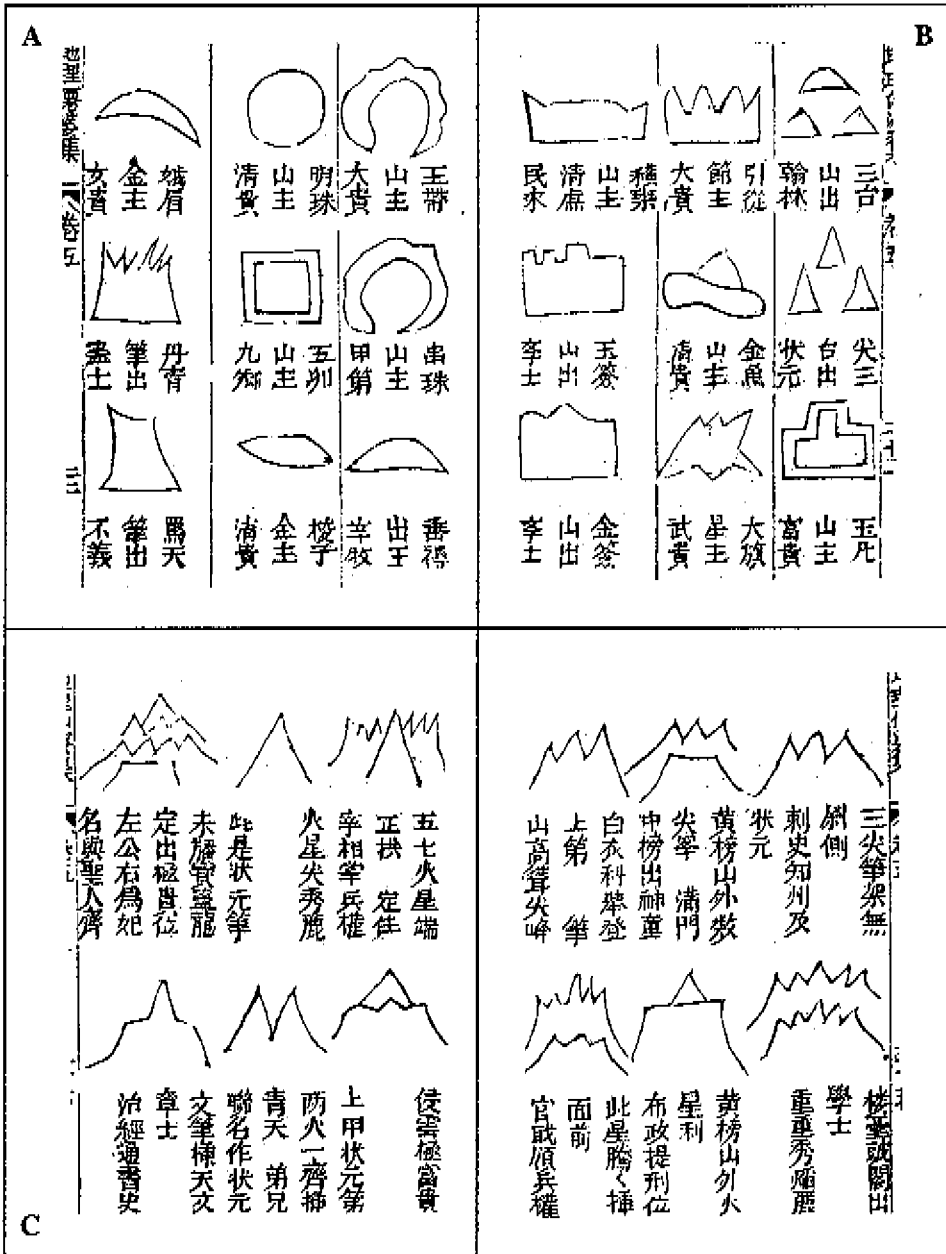
Figure 3-10 Patterns of *Sha* (source: *Xian Po Ji*, P.514-517)

object. This proves again that FengShui graphical representation is not a faithful pictorial representation of natural landscape, but a symbolic diagrammatic one, what matters is not what the landscape really is, but symbolically what it denotes.

The second situation of water is represented by white lines on a black back ground (figure 3.12). The patterns of water course in this situation (without mountain) become much more complicated than those in the first situation (with mountain). This may be due to the reason of the absence of mountain. 32 favourable patterns of water course are listed in this category under diffcrent labels which is beyond our knowledge to tell how they are classified (no unfavourable patterns are given).

Compare the two kinds of diagrams corresponding to two kinds of water situations, besides the difference we talked before, we may now identify another one: the first one (figure 3-11)is more a descriptive typology of existing water course (hence a diagnostic instrument); while the second more a prescriptive for proper layout of water course (hence a design tool).

In concluding iconic representation of *FengShui*, there is always the twofold problems of (1) identification on one hand, and (2) individuation or segmentation on the other.

As to the question of identification, *FengShui* diagrams should be regarded, not as one event or one thing, but as a collection of events or things considered as members of a class, in other words, a diagram is a type rather than a token.

As to the second question of segmentation, there are actually two sides to be considered: (a) what is one symbol and what is a complex of symbols in *FengShui* representation? (b) where does a particular symbol begin and end? The first question concerns the basic components in *FengShui* iconic representations and their combinations, with which, we identified that 5 fundamental symbols, i.e. 5 Elements or 5 Stars are employed throughout *FengShui* iconic representation, exclusively, all categories of diagram use them as the basic components. In other words, landscape was first generalized or classified into 5 basic forms (all the other attributes are ignored), any single object of landscape can be categor
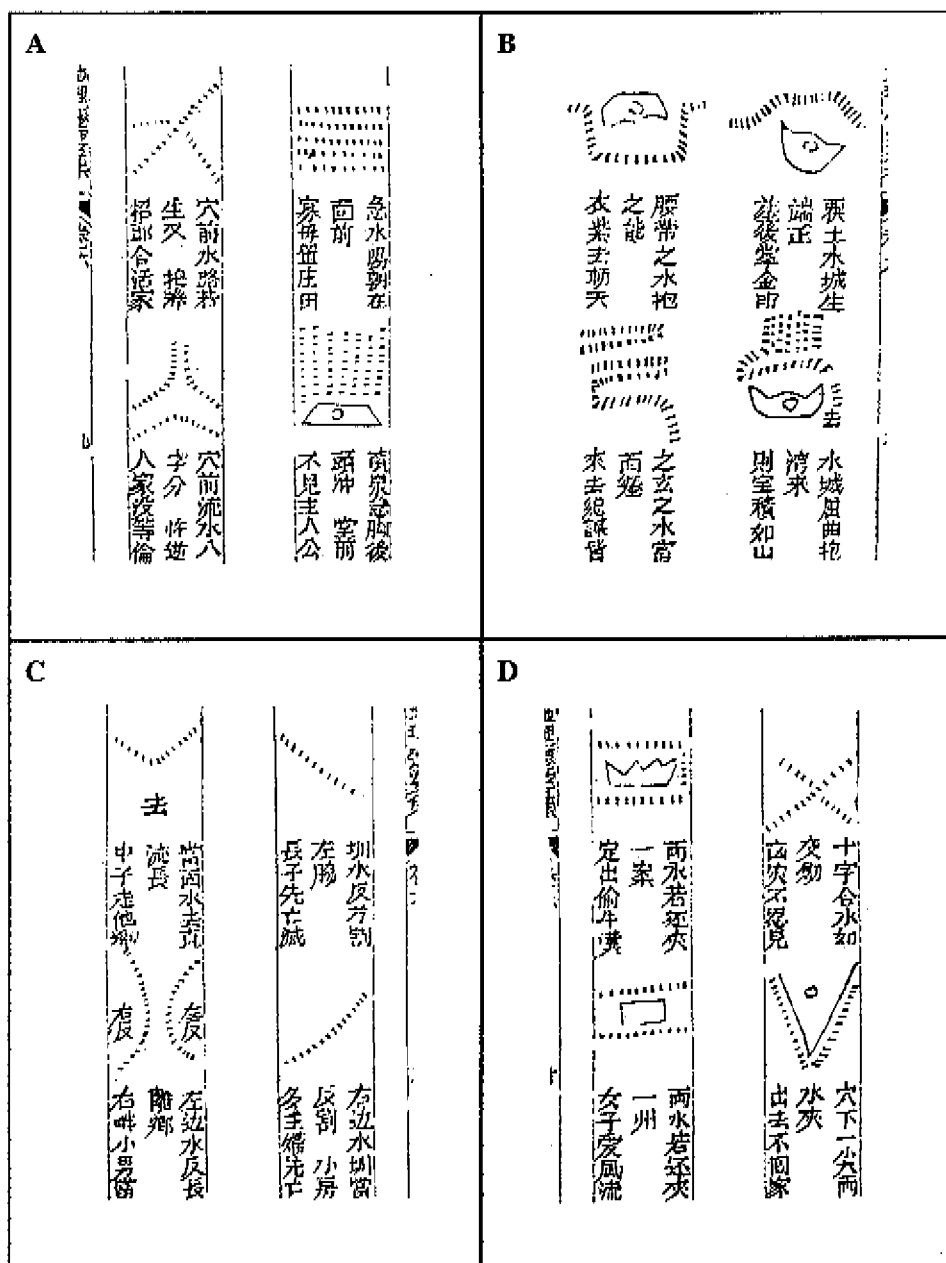
Figure 3-11 Patterns of water (reproduction from *Xian Po Ji* P.571-576).

A 麗龍戲珠式

B 金龜拜斗式

C 衆星拱辰式

D 春水浮花式
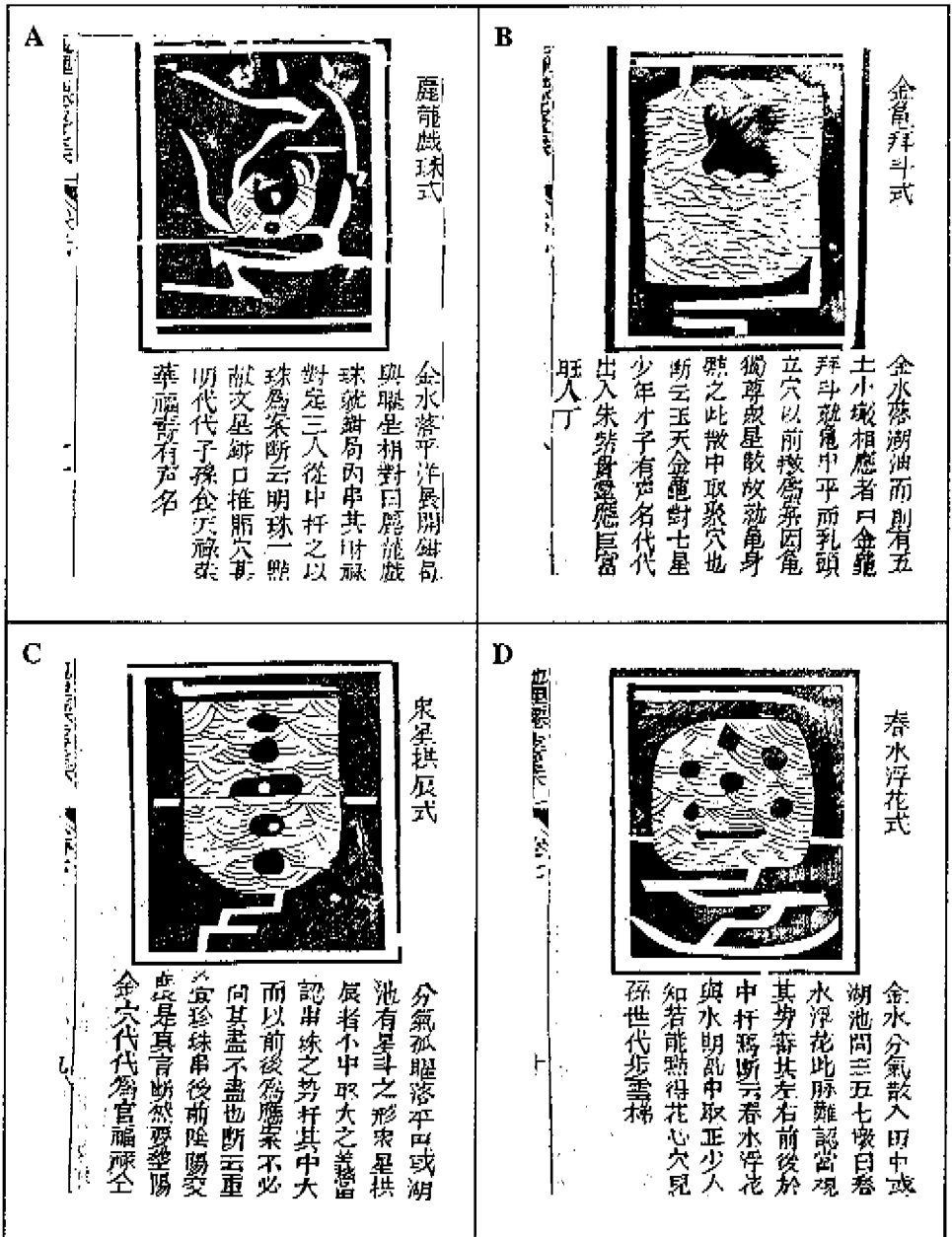
Figure 3-12 Patterns of Water (source: *Xian Po Ji* P.623-629)

ized into one of those 5 Elements.

As to the question of the complexity of symbols in *FengShui* representation, obviously, no upper limit can be set, thus question is shifted to the rule system in judging the favourable or unfavourable combinations of those basic components, with which we have already discussed in last section.

Basically, there are two types of iconic representations in *FengShui* which correspond to two interdependent schools of *FengShui* respectively:

1). The abstract representations of cosmological forces;
2). The topological spatial representations of earthly forms.

As we discussed earlier, the cosmological forces and its "counterpart" - earthly forms are not accidentally or deliberately brought together to form the *FengShui* couple. They imply each other. And, each has an absolute typology and special way of ordering. The first one (cosmological force) which concerns with the arrangement of *Yin* and *Yang*, Five Elements, *Qi*, constellations... is symbolic, and we won't repeat more here. As to the second one (the earthly form), we have only given the ordering of the representation in the earlier stage, we would like to continue to its mechanism.

From the manual, we can see that, *FengShui* landscape is represented topologically either by it's projection on the plan with a centre point (site) in it or by the profile. All the profiles are viewed from the angle of site, so, all *FengShui* diagrams tend to appear in an 'enclosed' shape. Besides, this 'site centred' idea is emphasized by the division of bright and dark sides of the mountain range (according to whether it is site facing or not). A South-North axis can be always clearly identified. The typology is made purely according to the shape of the landscape features and is formally linked with *Objects*, *Musical Instruments*, *Offices*, *Animals*, *Five Elements* and others respectively.

The typology of earthly forms was used as a checklist in *FengShui* operation, and since each category has its specific explanation: the concepts in everyday experience have been metaphrased in space, they are present in space. Thus, iconic representations in *FengShui* represent certain images or cosmology as well as objects or physical relations. In the course of this representation process, the

mathematical nature of mapping geometrical form is reduced to the conventional task of representing what is already given in the imagination of the subject: the world as experienced. In other words, the mapping of the landscape features is the process of creating the conditions of the real with its concepts and symbols as well as explanations.

In short, iconic representations in *FengShui* manual reproduce the empiricist problematic by serving as the models of the real, and since those models are themselves iconic, i.e. visual, they tend not only to abstract, to simplify, and to correlate, but also to help "visualize" a real that is given in images. They function as explanations of an "site reality" with a presumed validity.

3.5 Summary

This summarizes the description of the compass - the most complete and comprehensive single body of *FengShui* symbols which forms *FengShui* cosmology, and its counterpart - the Earthly Forms, which link the compass with topographical features and empirical situations. The description amounts to an outline of the representational system of *FengShui* according to manuals. I have not attempted to trace back each category of *FengShui* symbols to its source, as our primary aim is mere disclosure of the system, rather than its evolution, the efforts then have been put more on relations.

As we have seen that the single conception of universal dynamics that included all of the classes of symbols which organized *FengShui* representation is the notion of appropriateness that underlies *FengShui* - the appropriateness of the general course of human behaviour to the working of the universe. What a geomancer's (or diviner) responsibility is to decide whether a specific set of circumstances is in harmony or in conflict with the regular forces of the universe and whether it is an instance of a constructive or destructive cosmological phase.

Two systems are employed to serve the purpose: a cosmological system - *FengShui* compass which is concerned with generalities and an earthly forms system which is concerned with particularities and their consequences. Neither of the two systems alone can entirely tell the geomancer's attribution of

appropriateness to every conjunction of symbols: the reference to the cosmology can only tell whether growth or decay, production or destruction are taking place in any particular instance; further interpretation of that particular instance relays on the reference to the personification of the symbols, of the *Branches* and *Animals* of the *Four Quarters* for instance, or to the astrological bodies, the nine stars, and in particular to the topographical forms and their resemblances.

The symbols either from compass or earthly forms rarely stand for a static state, nearly always a process or a state of being that is in flux and always in some kind of relation to another symbol. In practice, there is always some sort of dialogue, basically between the *Heaven* and *Earth* aspects of the situation (as *FengShui* symbols *per se* are produced out of the observations of astronomical phenomena, natural phenomena and human behaviour), but more specifically, even within a single series of symbol, one symbol implies another and interacts with it.

We may end our summary of this case study on *FengShui* as follow: *FengShui* representation is a system of symbolic representation on space in which the inexhaustible variety of landscape features was by successive reduction, organized as a series of symbols connecting percepts and concepts. These symbols obtained their power to signify through their correlations with a set of symbolic categories - the *Yin-Yang* series, *Five Elements* series, *Stars*, etc.- which were seen as fundamental schemes for representation of the universe. *FengShui*'s top-down structure is characterized by its generative and combinatorial nature.

Chapter 4

Representational System on Site of Kevin Lynch

In this chapter, we will analyze the second case, Kevin Lynch's *Site Planning* (SP). The central question that will occupy us in the pages to follow is the same empirical question of how sites are analyzed and represented in Lynch's theory on site analysis. This includes the questions of what elements are involved in the interpretation of site knowledge and how those elements are categorized, as well as what methods are employed in the analysis.

As we have already mentioned (in chapter 2) that, the first reason we choose SP as the object of study is that it has remained for over two decades (and still is) the only comprehensive source of information on all the principal activities and concerns of arranging the outside world. The second reason is that it is an polarity in our initial purpose of a comparative approach in site analysis. Beside the similar reason we mentioned in the selection of *Xian Po Ji*, one thing we like to make a note here is that we just take one book (i.e. SP) from Lynch as the case, not the whole series of his system developed in several books. The reason is two sided: (1) SP is the most relevant manual concerning our subject among Lynch's other books; (2) one manual makes reasonable and convincing comparability with the case study on *FengShui* manual.

The discussion will be divided into three sections. First, with the case description on *Site Planning*, an attempt will be made to give a general structural layout of the system as a base for the further exploration, that is to answer question of what are the objects of the system? and how are they organized? The second section covers the mechanism, by which we will discuss those questions

as: problem definition; elements identification; notation, classification and typification, analogies and metaphors and representation. The third section focuses on empirical applications of the system, by which, we will evaluate the system in terms of efficiency, comprehensiveness and global applicability.

Different from the case study with *FengShui*, the analysis of SP will be proceeded in a more explanatory manner. This is due to the reason that Lynch's system is much more "accessible" than *FengShui*.

4.1 Case Description

A general review on SP shows that the whole system with its complex sets of concepts or terms is organized by a specific *problematic* - "site planning" (SP), i.e. the system of formulating problems: "For whom is the place being made? For what purpose? Who will decide the form is to be? What resources can be used? What type of solution is expected? In what location will it be built?" (P.3).

As a matter of fact, the whole system of SP is constructed by defining those problems and providing possible solutions. The fundamental structure of SP as we identified is a "Site - User" paradigm (as Lynch claims in the very beginning of SP, "site analysis has two branches - the one oriented to our particular purpose and the other to the site itself" (P.29)). The site, the user are the central topics of SP. And different from other site analysis in modern architectural practice which tend to approach the problems from either the point of view of sociology or epistemology, Lynch proceeds the site analysis taking both as objects with balanced regards to the community of designers, architects, planners, engineers, contractors and clients. And this point is also what make SP special: man and nature are both taken account in the system.

4.1.1 The objects of SP and their formation

Before we go deeper into the structure of SP, it will be useful to give a brief review on the objects (or elements) of SP and their status of formation which will provides answer to the most basic question of *What*.

The object of SP as we observed is such a field which comprises of parts of

a large number of disciplines (e.g. architecture, town planning, geography, (P.1-28) ecology, (SP, P.32-34), physical, (SP, P.35-42) biological and social sciences (SP, P.34-35)), techniques (e.g. quantitative techniques, direct and indirect observations, cognitive mapping, direct communication, participant analysis, (SP, P.80-105) topology, graphical means, experimentation, speculation (see also in detail on mechanisms of SP in later section)) and problems (e.g. for whom? what purpose? who decide? what resource? what solution? what location? (P.3)). The central object "site" and its derivations: "Site - User" (S-U) relationship (SP, P.29) formed the general framework of SP.

The formation of objects in SP as we identified involves several mechanisms, processes and stages:

1. First of all, the objects of SP are formed by using natural language, such as "site", "user", "space", "time" which are given to them by non-scientific practices and analysis or are imported from other disciplines within which they usually have different status. (As Lynch claimed the status of SP himself:"since this is an introduction to an old and well-developed art, there is not much here that is original. These ideas come from many sources and have been so condensed, to any single origin" (SP, P.VI).

2. The objects of SP are formed by reference to same empirically given real objects. SP relies on the observational "recognition" (i.e. not a theoretical cognition) of the real objects. These objects are either given to subject sensorially, thus are obvious, like "soil", "climate", "landscape", or are given by theoretical and practical ideologies (like "orientation", "time") which accord a double status to these subjects and objects.

In the first case, it is the "obviousness" which is key to the difficulty of SP to analyze the reality which is not visible. In the second case, the real object is seen as the embodiment of a "concreteness" and an "ideal essence" which alternatively, or simultaneously, inhabit "site" and "user" of the "S - U" couple. This mechanism operates whether the real object is a building, a square, a single person or a group of men/women.

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3. The objects of SP are formed by reductions and simplifications. The site analysis in SP is proceeded by relying on reductions of complex problems into simple appositions, theoretical problems into empirical issues, and social problems into technical ones. For instance, the complex relations between the physical, economic, ideological, technical, political instances of a social formation which are operative in any "social-spatial" problem are reduced to a 'site-user interaction' or technical solution (SP, P.29).

At another level, it reduces real phenomena to an "ideal essence". This essence co-exists with the real and is invoked as a substitute for concrete analysis. Moreover, it forms its objects by reducing relations to things, distinctions to appositions, differences to separations, or diversities to typology (SP, P.131-133).

4. The objects of SP are formed by generalization. Site analysis from SP relies on generalizations constructed out of some empirical finds, or simply, set of observations. In this sense, the concepts of SP are groupings of "seemingly different objects and events into categories" (Abel, C. 1974). In fact, the term "site" itself is generalization of all the phenomena inside a certain place which is going to be used for building activities (as defined by Lynch:"a site is composed of many factors-above, below, and on the ground-but these factors are interrelated" (SP, P.30)). In this sense, SP makes judgements and statements on all those generalized objects.

5. The objects of SP are formed by reference to "ideal" and "original" objects, or pure principles. The "Site-User" problematic (P.29) which constitutes the SP is based on a system of original, ideal and pure states or principles. This involves two distinct levels:

a) The level at which real objects are defined on the basis of an "essence" which is conceived as whatever the knowledge of those objects are believed to be. In other words, it is this essence which is assigned to be the origin of knowledge and, consequently, it is the "goal" of SP to discover it. Thus, it becomes legitimate for many diverse phenomena such as place, soil, plants, landform,

settlements, atmosphere... to be conceived in terms of "their essence" i.e. "site". This is what we identified specifically in chapter 2 and 3.

b) The level at which the presumed essence is projected upon an "ideal" state which embodies the "origin". It is the framework within which "site planning" is expected to realize them (SP, Chapter 4, 5, the program and design).

6. The objects of SP are formed by the variations of the basic epistemological structure. The SP is concerned with describing and constructing certain phenomena on the basis of a relationship that is assumed to exist between "site" and "user", or between "subject" and "object".

One of the basic features of this epistemology is that nearly all other variants within the analysis in SP are the variants of the basic schema. Thus, a common mechanism is the substitution of variants into the subject-object structure. For example, in SP, "subject" is replaced by "man", "individual", "organization", "society", "user", "designer", "client", while "object" is replaced by "nature", "environment", "external world", "building", "site" etc. While this process does not necessarily supply new objects to the analysis, it, however produces sub-objects which gives the 'universal applicability of the "Site - User" schema.

7. The objects of SP are formed by analogies and metaphors.
"Design is a process of envisioning and weighing possibilities, mindful of past experience" and "dialectic framing and making" (SP, P.128). Analogies and metaphors serve as the prescriptive tools and basis of design styles in SP, since "through past experience, designer accumulate a repertoire of analogous situations" (SP, P.128).

8. The objects of SP are formed by shifts of domains. Since "a site is composed of many factors - above, below, and on the ground - but these factors are interrelated" (P.30). SP thus, necessarily exists at the "intersection" of many fields, practices and disciplines. These factors are operative in SP by means of shifting domains, disciplines, levels, instances, practices, points of views, fields or terms.

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9. The objects of SP are formed by means of graphic representations. In addition to the conceptual effects of metaphors, substitutions and shifts that employed in SP, the modes of representation in these mechanisms have significant effects on the objects. It carries the presumed meaning of the object represented, while imposing upon it a certain degree of conceptual content in nearly all domains of SP, graphic representation (as well as photos and schematic diagrams) common means of expressing "Site - User" relations. In fact, in SP, these representations often become the only 'evidences' of the validity of the relationships which they are supposed to represent (For example in chapter 1, "One Example of Site Planning Process", graphic means dominate the methods of representation in the planning process. P.13-28). Detailed discussion on graphic representation see also later sections.

4.1.2 The structure

A structure is a system of relations and of transformations which involves 'wholeness' and 'self-regulation'. In fact, the formation of a system, is identified more with its structure and effects than with any of its other properties. Hence, our knowledge of a system is only possible on the basis of an understanding of its structure.

What is most relevant to our analysis concerning structure of SP is the questions of:

1. What is the structure of SP?
2. Whether that structure is conceivable?

To start with, structures are abstract systems. They are not (necessarily) visible in the formation they constitute, so, our analysis is principally a question of identifying non-visible system of relations between visible (or non-visible) elements.

The theoretical structure of SP is identified as one which relates a homogenous field of given phenomena (site) and an ideological conception of subject (user).

It is here that a distinction is found between "structural models" and

"paradigmatic structures" (Nutini, H.G. 1968). "Structural models" are superimposed constructs which cannot be obtained from an analysis of the data. Rather, it is theoretical mode or the mechanism employed in the system which is determined by the site-user problematic. "Paradigmatic structures", on the other hand, are ordered arrangements of a body of empirical data (of site) and are extracted from the data. Structural models enable a system, through a set of rules, to make statements, assumptions, explanations and descriptions (design program, strategy), but have nothing to do with the configurations and nature of the data themselves. Paradigmatic structure, on the other hand, are based on and derived from data - they are empirical generalization (site analysis and design).

Therefore, SP commits two types of mixtures: the structure of site and "site-user" relations is:

1) the locus of a mixture of two types of conceptual tools, namely structural models and paradigmatic structures; and

2) the locus of a mixture of empirical relations and theoretical structures or real objects (site and user) and theoretical objects (site-user relations).

To put the problem in semiological terms, the structure of SP is identified at the level of the signifier (therapy), not of the signified (diagnosis like we find in *FengShui* system).

Generally speaking, the structure of SP is composed of:

1. The problematic: Site - User relationship;
2. The objects: site, user, S - U relations;
3. The textual structure: 'conceptual couples, variant of the invariant structure, variants of the invariant objects.
4. The epistemological structure: subject-object relationship;

4.1.3 The textual structure of SP: "conceptual couple"

What the textual structure of SP implies, basically, is a division of site reality at level of words, terms, and conceptions - all as analytical elements. This division process includes classifications, organizations and demarcations which all take place at several levels from simple to complex, from naive to sophisticated and

scientific.

The apparent, textual structure of SP consists of a couple of terms, 'S' and 'U' (and their variants, such as organism, ecology, society, space), as such, it constitutes what we may call a "conceptual couple" (Leech, G. 1974, P.106-8). Most of those couples constitute some wholes which imply "original unities" or complementarities that are assumed to have been split and divided into opposition, dichotomies etc. They are simplifications of what may be complex questions.

Finally, the epistemological structure as we identified in our study of S-U couple:

a. S-U is at least formally a conceptual couple;

b. The terms of S-U couples, "S" and "U", singly or together are the epistemological equivalents, homologies, isomorphs, analogies or metaphors of several other conceptual couples found in SP, such as:

organism	- environment	activity	- space
man	- nature	artificial	- natural
man	- world	designer	- designed
society	- environment	built S	- natural S
knower	- known	private	- public
content	- form	part	- whole

c. The existence of the term "site" itself is bound up with its etymology, and conceptual structure: it exists only in relation to another element which it surrounds.

We have intended in this section to show that the concept "site" in SP comprises of, and represents a large number of objects normally dealt with in distinct practices, and SP implies an initial recognition of the site problematic as well as of the substantive claims of all those practices and disciplines. The structure of SP consists of a complex permutation of the multiple status of site, user and their

supposed relations in addition to different levels, disciplines, problematic and change processes within which these permutations exist in different contexts and combinations.

4.2 The mechanisms of SP

By this section, we are going to identify the mechanisms by which the whole system of SP functions.

To mention a few, the set of mechanisms applied in SP includes the 'shift' of domains, terms and problems; problem definition; the reduction of levels, complexities and unities, classifications and representations. Before tackling these specific mechanisms, a close look at the epistemological bases of these mechanisms should be useful. Thus, we will start with a detailed set of discussions on the 'givenness' of a 'homogenous field' which defines the objects and operations.

4.2.1 Givenness of the "site"
It is easily observable that there exist, in SP, numerous "facts" about so-called "site", and about the assumed relationship between "site" and "user". But these facts and relations are not presented by SP as a result of an explicit process of theoretical production. Despite the amount of facts the abundance of assumptions, why is it that the theoretical construction of SP is not made explicit? How is it that there can be a silent "consensus" on what constitutes an "site problem", what type of relations can be considered as S-U relations, or what are specifically "site facts"?

It would be difficult to look for a clear answer to these questions within SP itself. It is simply written, that "a site is composed of many factors-above, below, and on the ground-but these factors are interrelated" (SP, P.30). In other words, site is the totality of a piece of land beside man. U and S interact in many ways, and we can measure, collect data on, and record "site facts". But these are all presupposed conceptions. They are not produced, but, simply assumed. They are assumed as "given", and what is given, by definition, pre-exists any

statement about it. Thus, any theoretical or empirical work that is conducted is done so on the basis of this givenness precluding the possibility of questioning the basis of so-called "site facts", "data", and "relations".

Of course, this givenness itself does not exist in a vacuum. All these objects, facts and relations are given within a homogenous field - site. It is in this "field" that they are assumed to interact and to be measured. The main function of this field is that it enables SP to be assured of its legitimacy, and it provides an unquestioned *field of reference* that is itself a *given.*

4.2.2 Problem definition

The first mechanism we should discuss is, of course, the definition of problem, since "the first step - the most difficult and most bungled step - is to ask what the problem is." (SP, P.2-3)

"Problem" is a theoretical object that needs a problematic to exist, to be defined, and tackled. In SP, defining the problem means making a whole cluster of decisions: "For whom is the place being made? For what purpose? Who will decide what the form is to be? What resources can be used? What type of solution is expected? In what location will it be built?" (SP, P.3)...etc. But, in majority of cases these 'problems' are recognized as problems only after the extra-scientific analysis recognize them as such. In other words, they are given to the SP, by empirical or ideological recognitions rather than by theoretical analyses.

Thus, there is good reason to suspect the validity of such problems (i.e. "site problems") and to work for the establishment of a problematic that will adequately deal with real and theoretically defined problems. Secondly, site analysis in SP come to recognize real and scientifically specified problems only if the latter are formulated in empirical and fragmented terms on the one hand, and neologistic and intellectualized manners on the other. For example, "crowding" or "density" (instead of "distribution"), groups and individuals (instead of classes), houses and rooms (instead of housing), objects (instead of products)... are recognized as the loci or types of problems in SP.

Another characteristic of "site problems" is their minimized content, obviousness, trivial concerns, and often, non-problematic. Partly due to the

technical nature of site practices, and partly to the inherent limitations of other disciplines and practices whose methods and concepts were introduced into site practices, there is a dominant mode of fragmentation with consequences of minimization or trivialization in SP.

4.2.3 Models

As an important mechanism, a "model", which is "intriguing representation of reality" (SP, P.96), is a tool operating not only in SP, but also within other mechanisms of SP (SP, P.96-97, 169, 411). It works as an analogue or computational device which behaves in an "as-if" kind of procedure. In other words, the relation between site and user is expressed in terms of a model of (site) reality, mechanisms such as origin, ideal, pure principle or conceptual couple are all constituted by, and within, a "theory of model". Even though, its functioning as a connection device between the empirical (site reality) and theoretical, and as an explanation of the real is devoid of theoretical content.

What should be said here is that the models that we identified in SP include architectural models (small scale representations of physical space in three dimensions), technical ones, as well as quasi-epistemological frameworks which guide, regulate and often condition, the relationship between the terms and the mechanisms of SP (figure 4-1). In other words, they underlie the operations of the SP practice as the means of connection, and if necessary, as the means of explanation. They serve as "theory" although they often have nothing to do with theoretical modes of operation.

While, model neither proves nor disproves any reality, in SP models exist in several forms: as technical tools, they are used as descriptive, predictive and prescriptive abstractions of the real object (P.96-97). As explanatory tools, they impose upon the real a conception that limits the chances of producing scientific conception of site problems (P.169, 411). They prepare the ground for several other mechanisms such as cause - effect relationship, reduction, definition of artificial points of view and correspondences. Moreover, several models of "site", "environmental behaviour", "man", or "site preference" are constituted as guides for empirical research.

INVESTMENT OUTLAYS	OPERATIONS	FINANCING	REVERSION
1. Size and Types of Apts.	1. Rental Income	1. Amt. of Equity	1. Holding Period
2. Total Building Costs	2. Operating Costs	2. Amt. of Debt	2. Selling Price of
3. Land Costs	3. Inflation Factors	3. Amortization Period	Property
4. Depreciation Method		4. Interest Rate	3. Debt Retirement

Income → Tax Assumptions ← Capital Gains

Annual Cash Flows During Holding Period — CASH FLOW ANALYSIS — Reversion Cash Flow at End of Holding Period

RATE OF RETURN ON TOTAL CAPITAL INVESTED

YIELD ON EQUITY INVESTMENT

Figure 4-1 The standard model for analyzing the financial viability of a development package (source: SP, P.111)

What needs to be stressed here is the way in which the S-U schema is accorded as the status of a universal model without, or in place of, a theory. This is achieved by simply accepting "U" and "S", "U-S" and "Behaviour-Site" as given, natural and universal models in terms of which diverse problems are formulated.

4.2.4 The division of site reality

One of the fundamental issues in understanding of the multiplicity of objects in SP is the mechanism in which so-called "site reality" is divided or classified, and is related again.

In SP, an object, whether real object or thought object, is defined and distinguished from other objects in order to be identified as a specific object. The mechanisms that are involved in the process of distinction and specification in SP include classification, typology, choice and demarcation. As preliminaries of

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identifying these mechanisms some fundamental problems should be clarified:

1. Is the distinction (or specification, or classification) done at the level of real object, or thought object?
2. What type of criterion is used to achieve the distinction or specification?

First of all, as we have already argued in the case-study of *FengShui*, it is the distinction between real object and thought object which is basic to the question of specifying an object.

It is basic, because without such a distinction, other types of specification cannot impede the development of a scientific understanding of real problems. When "site" is referred to, it is often taken both either as a set of objects in space and/or as a relation and/or as a concept. And it is hardly clear whether "user" is a concrete empirical man, or a concept. Consequently, the supposed relation between site and user appear to be both either/neither a physical interaction and/or/nor a theoretical relation.

Central to this mechanism is the blurring of difference of the physical boundaries between physical objects and theoretical specificity of thought objects. This leads to confusion between the analysis of objects (such as buildings, sites) as economic objects in particular, social formations, on the one hand, and idealist conceptions of site on the other hand.

It must be emphasized that systems of classification, typology and distinction applied in SP are not the intrinsic properties of the real object but are abstract systems which are to be seen as tools for an analytic understanding of reality. Thus it must be seen that if there may occasionally be apparent overlaps of divisions in the real and in the classification system, these arise mainly due to the confusions mentioned above. Most important problem, however, is the effects of such systems of division. They are not simply explanatory tools. They tend to indicate the mode of explanation; and impose upon the real a conceptual system.

For example, the notions of "built site - natural site", "in -out" impose upon the physical world a system of classification. They are results of transfers of theoretical productions that are then presented as belonging to the reality.

The criteria of distinction or specification used in classifying or distinguishing

elements are external, that is they are brought in from other domains or fields to organize the internal mechanism of objects. To name a few, these may be aesthetic, political, legal, ecological, perceptual, economic, physical, ideological and temporal criteria to classify or demarcate real and/or thought objects.

For example, "site" (chapter 2) is specified according to, in terms of physical barriers, ecological conceptions, perceptual limits, legal norms, personal experiences, conception of society, human behaviour, political preferences, architectural considerations, etc.

Similarly, "user" is specified and classified (chapter 3) in terms of user, clients, user group, and so on. These terms implicitly carry the "essence" of "user" while conceiving in terms of empirical subjects.

4.2.5 Classification and typification

Methods of classification and typology employed in SP are dictated by ideological, institutional or personal requirements and experiences rather than theoretical or technical ones. For example, why and how is it that a "public" space is distinguished from a "private" one, or "landform" is typified as "flat" (slopes under 4%), "easy grades" (between 4% and 10%) and "steep" (over 10%) (P.40), or why is it that settlements are typified according to the size of their populations.

An important process in classification is distinction. Since each definition requires an initial distinction (with or without precise criteria). Of various types of distinctions that operate in SP four ways of distinction can be seen as most pervasive ones:

a) Epistemological distinction
b) Social distinction
c) Temporal distinction
d) Spatial distinction

a) The presumed schema of S and U is based on a distinction between a subject (User) and an object (Site) (P.29:"site analysis has two branches-the one oriented to our purpose and the other to the site itself"). Thus, it is basically an empiricist

schema. The boundary between S and U is an imaginary boundary: it either does not exist in the real, or it exists only in the imagination. "It is assumed to exist in the skinbound biological individuality" (Wilden, A. 1972: P.220), or in cultures whose structures are understood in terms of "binary opposition" (cf. Levi-Strauss).

b).To start with, social distinction should not be confused with the theoretical identification of determinant elements and instances of a social whole. Secondly, the definitions of other types of distinction should not be seen to be exclusive of the "social". on the contrary, whether it is epistemological, temporal or spatial, they are all socially constituted and determined. What the present discussion tries to analyze, is the particular conceptions of social whole and social relations of production in SP.

"Social distinction" in SP involves first and foremost the way in which these conceptions are initially divided, defined and classified. The structure of SP is based on individual subjects, events and phenomena. Society is thought to be the complex sum of individuals, or groups of individual, given in a unity. In this conception society is first divided into two: "man" and "society" which are then counterpoised to each other.

Moreover, the social whole is divided into classes (SP, chapter 2, *The User*, P.67-105) according to relations of ownership (that are specific to particular modes of production), and presented as cultural variables. Thus, ambiguous and relativistic notions such as "user", "user groups", "clients", "pedestrians", "housewives", "participants", "designer", "engineers" are used as the human subjects of problems that are basically economic, political or technical.

Even though, "user analysis" (SP, P.70-72) is proceeded, the deliberate separation of production and consumption aspects of products in SP, transformed society into a curious entity of users and clients who only consume finished products which are conceived in terms of their functions, comfort, properties and prices.

c) Temporal distinction involves the initial question of how specific sets of "site facts" are related with specific "user": if a different site is defined relative to

each U (s), can an "essential section" reveal the "typical" pattern of an S-U relationship in view of the fact that the life -cycle of each "site fact" and each U is necessarily different? Moreover, can an event be specified in terms of duration, and the life span of an U in terms of the "duration time" of its S?

We know that "site" is not only a relational and relativistic notion, it is also a confused one as far as its specificity and status are concerned. It is both a relation, a set of constraints or conditions, and a set of physical objects. Secondly, events are timed though indirectly spaced, and objects are spaced though indirectly timed. This timing however is linear, and spacing relative. Thus, the dimensioning of U and S can not be reduced to a linear timing or to a relational spacing alone.

d) Spatial distinction

The question of spatial distinction in SP arises in following two senses:

1) How are these "sites" defined and classified?
2) How much of any given site phenomena is to be considered the site of the user?

1) Definition, division and classification of spacial aspects of a site is bound up with the problematic of site which ensures the unity of the object of SP in the first place. As an effect of the multiple status and confusions that dominate this problematic, divisions and classifications cannot but reflect these multiplicities and confusions: all of which are assumed to be "objectively determined". For example, "space" and "site" are classified in terms of points of view, internal-external, domains-places-paths, size or subjective perception. These and other types of division of a site are fundamental to the distinction of the real, whether it is social and/or physical.

2) The second question is more of an operational distinction than a quantitative one, although the latter property also came into the picture. In the ecological context of plants or micro-organisms it may be possible to define an "operational site" which is absolutely essential to their survival, and which impinges upon the

U. Yet, when a complex U like a "region", a city or even a building is concerned, it becomes difficult to see what exactly the U and its "operational S" are, and how they are specified for analysis and design purposes. Whether spatial connotations of the term "site" is denied or emphasized, it remains to be one of the multiple senses in which it is used in SP. This is, in fact, only one of the reasons why biological analogies and S-U problematic are bound to fail in tackling spatial problems of particular social formations.

In SP, the concept of "boundary" (SP, P.356) is employed for expressing or defining spatial relationships, freedom, accessibility, permeability, class characteristics, sense of belonging, property relations, etc. or the 'uniqueness' or social characteristics of zones and regions. In all these functions the concept of "boundary" is asked to express the sociological in epistemological terms, and epistemological in sociological terms.

"Boundaries" (in SP) also carry symbolic, cultural and ideological meanings whether made explicit or not. These meanings are the products of material/social conditions. They express the ideology of a social order some of whose physical requirements they meet. That is they define the legal ideology of "private property", and provide tangible affirmations of possession. They define the limits and extent of the appropriation of surplus value, provide physical or metaphysical separation between people, and consolidate the existing social divisions.

But, physical boundaries are objects of a specific order: they are "real objects". They do not necessarily have epistemological corollaries. there may be walls in different socio-economic systems and they may have completely different social functions. They may function as property boundaries in one system, while they only define areas of use or function in another. Thus, not all distinctions of spatial nature between U and S have social and economic definitions, nor can an imaginary boundary be charged with the task of distinguishing elements that are ideologically defined, and are imaginary, in the first place.

Further more, it is not possible to distinguish social formations, individuals or groups of people in basically spatial terms by establishing physical, symbolic and often arbitrary boundaries. This is because that a social formation is not an empirically given and physically observable entity, but an articulated structure

of several instances.

4.2.6 Reductions and shifts

Reduction is one of the most pervasive and effective mechanisms of SP. It operates wherever there is a multi-levelled and complex whole having several instances and elements. In other words, it is not an integral mechanism, but an inter-level one. Reduction, reduces the complex to the simple, new problems to the terms of older ones, one discipline or practice to the techniques and problematic of another one (see SP, chapter 2, P.29-66) social phenomena to individual behaviour (SP, chapter 3, User, P.67-105) and multitude of factors to simple schema or to a pure principle (SP, chapter 4, program, P.107-125). SP, which is constituted by a large number of mechanisms, includes an equally varied range of reductions. In fact, it has already been shown that it is characterized by the very multiplicity in its fields of operation, its objects and its structure. Reductions will therefore be analyzed in terms of these operations, fields, problematic, etc. With "operations" we understand the specific types of inter-level movements that a particular type of reduction performs amongst various concepts and conceptual systems. For example, shifts of concepts from one domain to another, or correlating two or more "variables" are specified types of movements. In a second mode of analysis the reduction is seen to be present as the organizing principle of a particular problematic, or of an ideology or method.

As pointed out earlier, SP is constituted as the "cross-roads" of a large number of disciplines, assumptions and practices. It not only borrows, but also interrelates and distorts, the mechanisms and methods of all these domains. Thus, none of the reductions that are examined here is exclusively "site oriented".

One thing worth to mention is that, in SP, the conception of the real is usually based on some empirical generalizations (which are then called "theories")(like those conceptions:"systematic survey" (P.63), "orientation" (P.58)). Observational "facts" abstracted from the complexity of the site phenomena are classified according to a preconceived (yet, not theorized) schema, and processed statistically, to test some hypotheses. So-called "theories" are then supposed to have been established. In such a process reduction of theory to facts, or derivation of theory from facts are the bases of relativist and subjectivist

approaches of SP to site problems.

One of the common types of reduction in SP is that of the complex to the simple. Needless to say, depending on the different conceptions of complexity, different types of reductions take place. For example, the reduction of a whole to its parts, the multiple to the singular, complex connexions to one-to-one relations are all distinct forms of reductions employed in SP.

The process of reduction is internal to the very conception of complexity, an understanding of which requires posing some questions such as:

1. Is complexity a feature of observable phenomena or/and of underlying structure?
2. Is it a feature of "user" or/and "site"?
3. Is it a relational or an objective category (of "part" and "whole")?

But, all these questions and the problematic in which they are formulated imply an essential unity (SP), an original state (S) and a binary schema (S-U). As we have already seen it is these very mechanisms which lend support to the other mechanisms in SP.

The conception of complexity in SP (in my opinion) is one that is evolution-istic, linear, dualist, analytic, expressive, and most significantly simplistic. As this rather brief description would suggest, according to this conception what is now complex is thought to have evolved from a single origin following a linear process. Furthermore, this linear process is relative to the "knowing subject" who conceives of the phenomena. The phenomena in question carries with it parts each of which expresses and reflects the whole universe. SP's conception of complexity is integral not only to its treatment of its objects, but also to its own constitution. It is a complex practice with many determinations, yet, it is at the same time SP functions on the basis of "essences" and pure principles, and works on objects whose complex connexions and contents are reduced to simple schemata and correlations.

In fact, there is no simple phenomena to speak of as a unity, because simplicity is not the origin but the product of complex process (cf. Marx, K. 1975: P.209) both at the real and at the theoretical domains. An understanding

of the complex as complex is necessary to an understanding of other, simpler, levels or elements. Thus, in SP, the process of reduction from complex phenomena to visible relations, or to hierarchies does not actually fulfil this requirement, but, rather, it attempts to achieve the understanding by first constructing hierarchies by empirical generalizations, then using them as the basis of explaining what was earlier generalized.

Another notion in SP that ignores the question of complexity is "totality" of site. It is a tautological notion in that "totality" is explained by assuming the globality implicitly in the term "site".

What has already been discussed can be illustrated in specific types of reductions that are commonly found in SP:

- Complex structured wholes are reduced to pure-principles, or to "root-causes" such as "competition", "moral state", "cultural pattern", "civilization".

- Complex reality is reduced to a single framework, such as "ecosystem", "ecological viewpoint", "behaviour" (see SP, chapter 2 *The Site*, P.29-66).

- Even the recognized object of SP, "site", is reduced to some of its elements, for example, to "built environment", to "nature", to "community", "soil", "behaviour", "landform", "plant cover"...etc. (see SP, chapter 2, *The Site*, P.29-66).

- Some complex activities, policies and decisions are reduced to the behaviour or performance of one subject (or group of subjects) who is then held responsible for the effects of those activities. For example, in many site practices, the user is not present, "the planner (or decision-maker) is driven to the more indirect sources: studies of market choices or of behaviour in analogous places, or consultation of the research literature" (SP, P.104).

- Physical objects, products and spatial orders are reduced to easily conceivable things. For example, houses to machines, or towns and traffic to rivers.

- Every object is reduced to representation, if not always to a form especially in technical practices like planning. This reduction then limits the mode of perception to a figurative one. Moreover, a similar reduction of real and/or theoretical objects to graphical representations is a commonly employed mechanism in SP - often as a substitute for theoretical analysis (see SP, Chapter 2, *One Example of the Site Planning Process*, P.13-28).

- Complex properties, forces and factors in socio-spatial reality are reduced to some of the latter's physical aspects, or to a notion of "physical site". In a rather different version of physical systems or objects, such as architecture, are accorded the status of the symbols of society, world and "value system" or, still further, certain social patterns and behaviour are correlated with physical forms (see SP, chapter 5, *Design*, P.127-152).

- The biological phenomena are reduced to the sociological, or the sociological to the biological. For instance, ecology "describes the limits and conditions of human intervention" (SP, P.34)), which obscures the real domain of problems (with, of course, many ideological, political and technical implications).

As far as SP is concerned, another effective mechanisms is the "shift" which functions between levels, and instances, and often, simultaneously with other mechanisms such as "subdivision", "interchanges", "assimilation" (by which, we will not go into detail discussion). Moreover, its field of operation can be metaphorical or literal.

Shifts between disciplines are done not only at the level of disciplines and objects, but also in terms and words of them. Thus, terms used in one context is transferred to another without any theoretical specification of such a transfer. In the absence of a theoretical procedure to ensure what can and cannot be borrowed, any word or term that seems to fit into the literary structure, or the subject-matter of statements and texts are imported. Similarly in new sub-disciplines such as environmental psychology as well as in more established ones such as history of art, architecture, urbanism and in urban sociology terms that

are imported from philosophy, historiography, everyday and technical discourses, folklore, social sciences, literature. They are absorbed easily and often without any critical scrutiny.

4.2.7 Correlations, correspondences

While examining the structure of SP we have noted that the basic elements, namely S and U are related with each other in hundreds of variant forms. Among those "relations" were included "correlations", "correspondences". They are actually mechanisms. What is fundamental to these mechanisms is their internal, procedural specificity. They relate what the same problematic separates in the first place. Thus, the elements that are somehow related are not totally separate entities or phenomena, and their very definitions imply each other.

In one way or another, SP tries to correlate, correspond artificially separated elements and put them into certain relations. But this separation itself is based on a unity that is constituted on the basis of some ideal entities in the first place. This circular process interests the present discussion insofar as it produces certain effects or mechanisms, and insofar as the separation involves an artificial division of reality - a question that has already been dealt with.

Most common type of correlation in SP is the one between two variables that are, in fact, the variants of the S-U structure. The types of variables are often designated as "dependent" and "independent".

For example, while defining the task of SP as making places fit human purposes, these two variables are very clearly pointed out: "the nature of the site, on the one hand, and how its users will act in it and value it, on the other" (SP, P.67), and a designer is called on to give a "careful analysis of the place as an ongoing social (U) and ecological (S) system" (SP, P.65). Other examples on such relations in SP is shown in table 4-1.

The variables designated by SP vary not only quantitatively and internally, but also in kind. Essentially, what happens is that for the "U" variable "individual", "psychological", "economic", "organizational" or "cultural" whereas for the "S" variable all sorts of physical, spatial, visual objects or phenomena are substituted. This substitution mechanism is greatly assisted by the epistemological structure of the S-U couple. and is itself instrumental in securing correlation of the

Table 4-1 The relationships between physical setting and human purpose

User	Site
culture	nature (P.35)
behaviour	ecology (P.34-35)
social interaction	architectural space (P.261)
economic opportunity	environmental potential (P.12)
function	form (P.134-135)

theoretical with the physical, the object of the domain with the subject of another, the element of one problematic with the real object of another practice, etc.

These constructions are further assisted by the inherently figurative nature of perception in site practice, that is, by the way in which the objects of site phenomena are seen, perceived, and known, most other objects and phenomena are reduced to the physical, visual, figurative and formal. Even so-called "architectural semiotics" reproduces this mode of perception and consequent reductions. "Meaning" is reduced to the meaning of what is visible.

Correlations in SP are constructed not only between the elements but also between the problematic or theories. In fact, the correlation of S and U can be traced to the level of two problematic (those of U and S).

4.2.8 Analogies and metaphors

As important mechanisms, analogies and metaphors are so common in the figurative and descriptive analysis in SP that they often turn out to be the dominant mode of expression.

Examples: "Design is a process of envisioning and weighing possibilities, mindful of past experience". "Thus design is a dialectic of framing and making, leaping from metaphor to metaphor". "To do this, designers need to construct a 'virtual world', a model of what they know about site and program, which allows possibilities to be tested quickly". "Through past experience, designers

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accumulate a repertoire of analogous situation" (SP, P.128-129, and P.131, 138, 143).

As a matter of fact, establishment of similarity between objects on the basis of similarities in their properties and aspects is not peculiar to SP alone. Analogies and metaphors are mechanisms that are the bases of many theoretical constructions in most sciences.

Analogy is made by an operation (or assumption) that relates the properties *a, b, c, d, e* of object B to the properties *b, c, d, e of* object C, and asserts the similarity of objects B and C. This is made possible on the assumption that object C also possesses the property a (cf. Rosenthal, M. & Yudin, P. (ed.) 1967: 169). Metaphor, on the other hand, is a mechanism in which the meaning of one thing or realm is appropriated to designate it to another. It carries with it the images, ideas, sensations as well as modes of analysis and representation that normally belong to the domains from which metaphors have originated. Similarly, the problematic and rationale of the original domain take up determinant positions in the second domain.

Both analogy and metaphor are the bases of model-building, and like models, they become dubious and dangerous mechanisms when their nominal, partial and provisional natures are transformed into complete, exhaustive and permanent "truths". Yet, models are not to be reduced to analogies and metaphors. Moreover, scientific use of all these mechanisms in different disciplines differs considerably. The above-mentioned transformations and reductions are more prone to ideological conceptualizations in "social" disciplines than in "physical" ones. Thus, the present discussion does not attempt to cover these three modes of theoretical mechanisms, nor does it claim the final word on their status and effects in all domains. It tries to show briefly the types of possible analytical forms that SP employed.

In SP, the similarity that analogies are said to establish is between not only properties of certain objects, and the "site", but also between whole disciplines. While in the first type of analogies similarities are sought between isolated phenomena and their properties, in the second, fundamental problematic of disciplines are transferred into the field of "site" practice.

Whatever the type of analogy, it is used to explain conveniently what is

difficult or impossible to explain, or to *prove* what, in fact, is untenable in the first place. Furthermore, by visual and graphical representations of analogical positions, a scientific understanding of social and physical problems are substituted by schemata which are easy to construct and attractive to look at. This mechanism is partly due to, and partly responsible for, the visually dominated mode of perception (in site planning practices) that reduces the understanding of physical/social organization to the *visible* properties and patterns of sites. This reduction is also a function of an epistemological fallacy examined earlier: the "obviousness" of perceptual experience and visible objects as the basis of knowledge and explanation. But, "appeal to analogy cannot function as a principle of explanation in the absence of a theory justifying the analogy by reference to similarity of internal coherence" (Mepham, J. 1973: P. 111). The practices mentioned are characterized precisely by such absences. Thus, analogies in SP function in a *pseudo-heuristic* manner. They refer to certain visible objects or patterns as sources of explanation, or even of proof. In fact, this mechanism is possible only by an isolation and hypostatization of those empirically observed objects.

But, not all analogies in SP function as analogies. Some are simply imitations of natural forms and structures. Especially when such forms or structures are used as design principles (see SP, chapter 5, *Design*, P.127-152) what actually happens is the transfer of some natural forms or patterns into the geometric or engineering operations as alternative solutions. It must also be noted that these alternatives are occasionally innovative, i.e. they only come to realization on the basis of such transfers. Yet, such obvious usefulness should not be extended to provide a "scientific truth" about design, planning and production. Similarly, architectural objects should not be seen as reflecting or resembling the "world order". Nor, can a "circular analogy" be a substitute for a general theory. A circular analogy is an analogy in which a hypothesis stemming from a conception of the real is reapplied to that real after being transferred to another realm.

Moreover, "linguistic analogies" which use the tools and concepts of linguistic and semiotics to explain site objects is also employed in SP. As the figurative mode of site perceptions dominates the conception of the real in SP linguistic analogies are based on the visibility of objects and spaciality of relations.

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In one way or another, the term "site" itself is a metaphor. It designates several types of real and conceptual objects while at the same time constituting itself as a unity.

Moreover, SP uses psychological, sociological, ecological, literary, and even mystic metaphors. But, what is most important is the spaciality of most of these metaphors. The terms that refer to physical objects or spatial relations are themselves spatial, that is, they literally carry spatial meaning. This is most peculiar in graphic representations which we will examine later. For example, the 'surrounding' capacity of site is implicit in S-U schema that is constructed by two (seemingly legitimate) notions. Yet, it is tautological conception in that, it is not only the fact of U being "surrounded" by S that makes up such a relationship, but S is defined and represented as an object that surrounds. Moreover, it implies relations or properties of in/out, boundary, opening or area. As a metaphor for a large number of objects (cities, communities, buildings, society,..), notions (microclimate, milieu, living-space, setting,...), "site" represents an "essence", and unlike other representations, it represents things, but also resembles what it represents.

4.3 Graphic representations

Just like the case study with *FengShui*, representation methods applied in SP include both verbal and non-verbal ones. For Lynch, graphic means of representation is "the only other possibility for complementing linguistically expressed ideas, to 'think in forms as well as words'" (Tzonis, A & Lefaivre, L. 1992) As to the verbal representation, we have mentioned earlier that object formations of SP relies on natural language, so does its representation. In fact, all the mechanisms we just discussed are only expressible by verbal means. It has also been mentioned that it is represented by graphical means which is our main purpose in this section to explore. Before attempting to examine the mechanisms and effects of such means, we will see some examples of these representations.

Basically, there are two types of graphic representations (including both photographs and drawings) in SP:

1) The graphic representations of U and S and their variants;
2) The graphic representations of U-S relationship.

The first types of representations are not necessarily the products of SP, while the second are. Yet, as argued earlier, U and S are not accidentally or deliberately brought together to form the U-S couple. They imply each other. Thus, in what follows these two types of representations are referred to only as a convenient way of ordering the examples, and not as the elements of an absolute typology.

1) The graphic representation of U and S.
The anthropocentric and anthropomorphic conceptions of social and physical world are responsible for most of the conceptions of "user". As far as representations are concerned they tend, in a majority of cases, to originate from the

Movement   Behavior
patterns   circuits

A   B
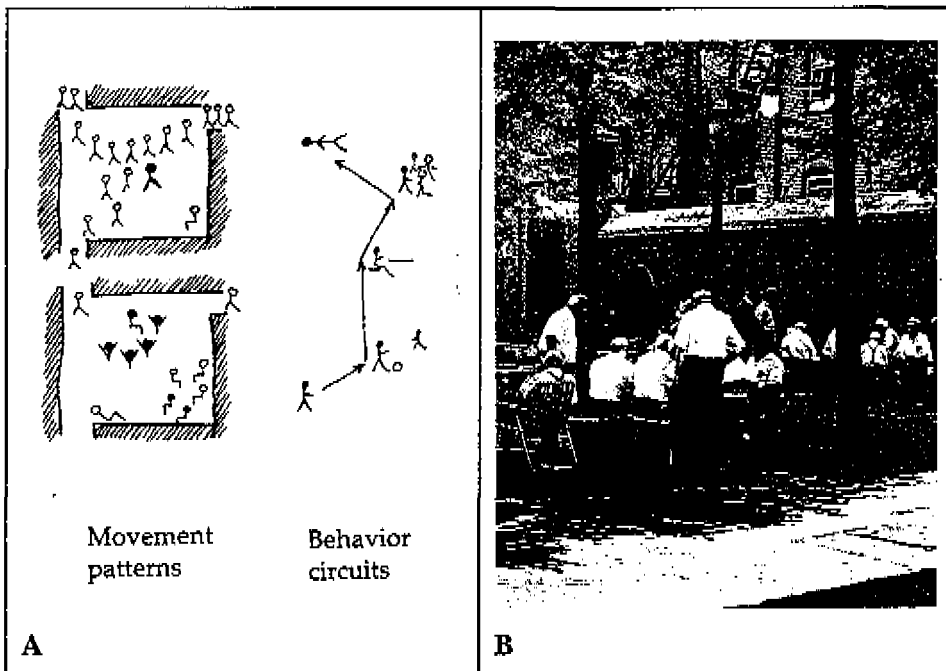
Figure 4-2 Selection of graphic representation of "users" (in both concept and reality from SP (source: SP, P.73-95)

images of "user", that religions, cosmology and certain theoretical ideologies carry with him. Lynch talks about a "universal" essence of "user", while conceiving of "user" in the body of a "abstract man" in terms of "his" behaviours. Of course, depending on the type of variant that is recognized or desired to be expressed graphic representation of "user" varies. "Site", defined almost always in a relativistic manner is one thing for one, and another thing for another person or analysis. Thus, its representations can be expected to be as varied as its definitions. Generally, three kinds of graphic means of representation are used in SP, i.e. map analysis, perspective, and photography. Figure 4-3 shows a collection of graphical representation of either "site" or elements of a site from chapter 2 of SP

As "site" is the all-purpose name for all sorts of natural, physical, architectural, urban or psychological objects or frameworks in relation to a certain place, it designates all such objects often at one and the same time. (For example a site is "the local association of plants, persons, and other animals, all dependent on one another, together with the surfaces and structures they inhabit" (SP, P.42). "How human beings are acting is usually, for us, the more critical aspect of any place (site). This can be described in terms of behaviour settings or small localities, bounded in time and space, within which there is some stable pattern of purposeful human behaviour, interacting with some particular physical setting" (SP, P.34). "The diverse living species, which capture the energy of the sun, or prey and are preyed upon, live in close relation with their immediate setting of water, earth, and air. Self-reproducing, evolving organisms interact with their changing spatial environment and create a persisting community" (SP, P.32). It is therefore no accident that "site" (or its variants) is represented in such a variety of graphic or pictorial representation.

Besides the representation of physical aspects of a site through conventional signs, Lynch also employed an abstract notation in the analysis of visual and perceptive aspects of a site. With the development of a series of symbols representing motion and space, figure 4-4, 5 show the notational representation of an imaginary highway as it enters a city, illustrating one graphic image for the explicit design of visual sequence, rhythm and locus of attention, orientation, and space and motion etc. This records the cognitive image of the viewer of the

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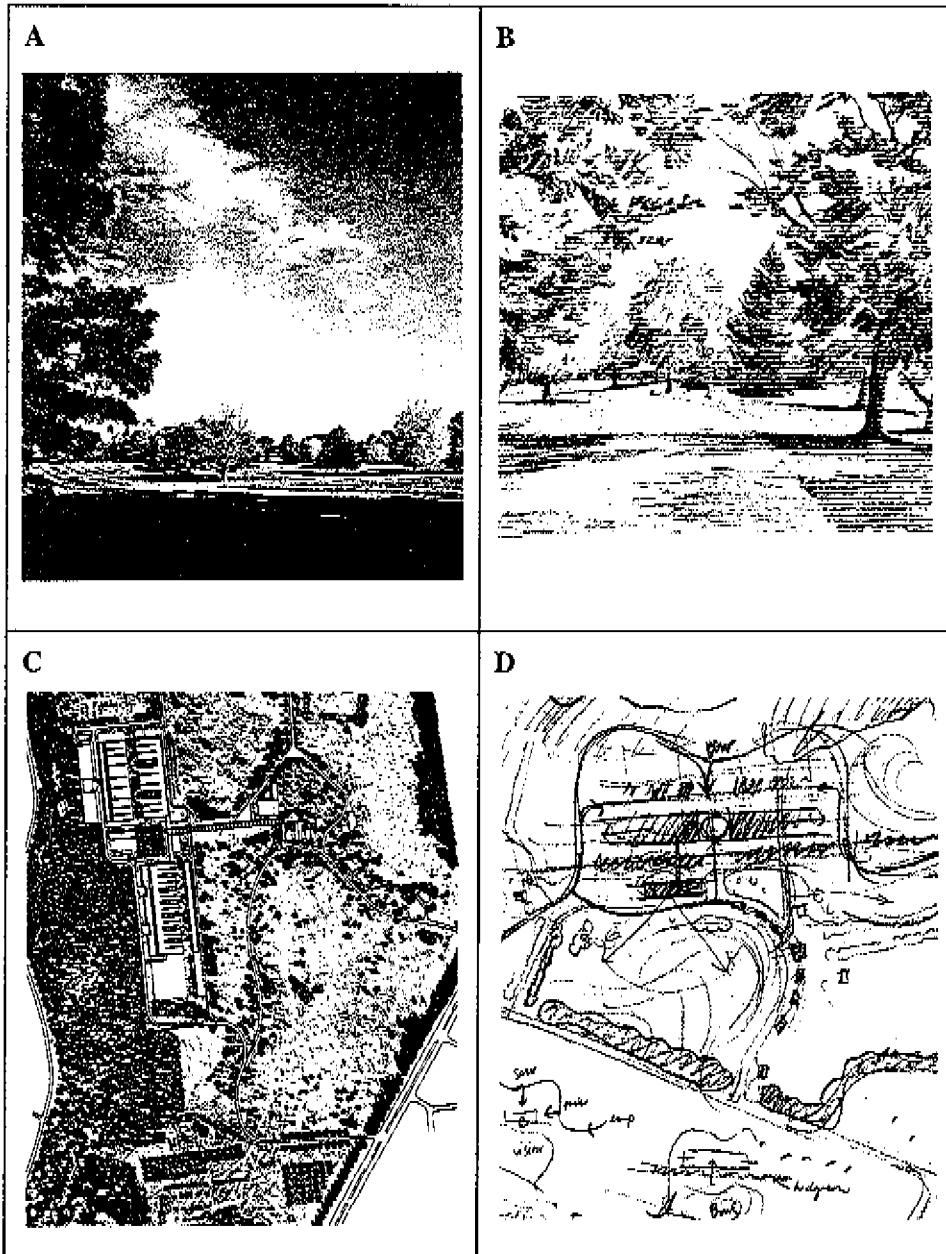
Figure 4-3 Selection of graphic representations of "Site" (source: SP)
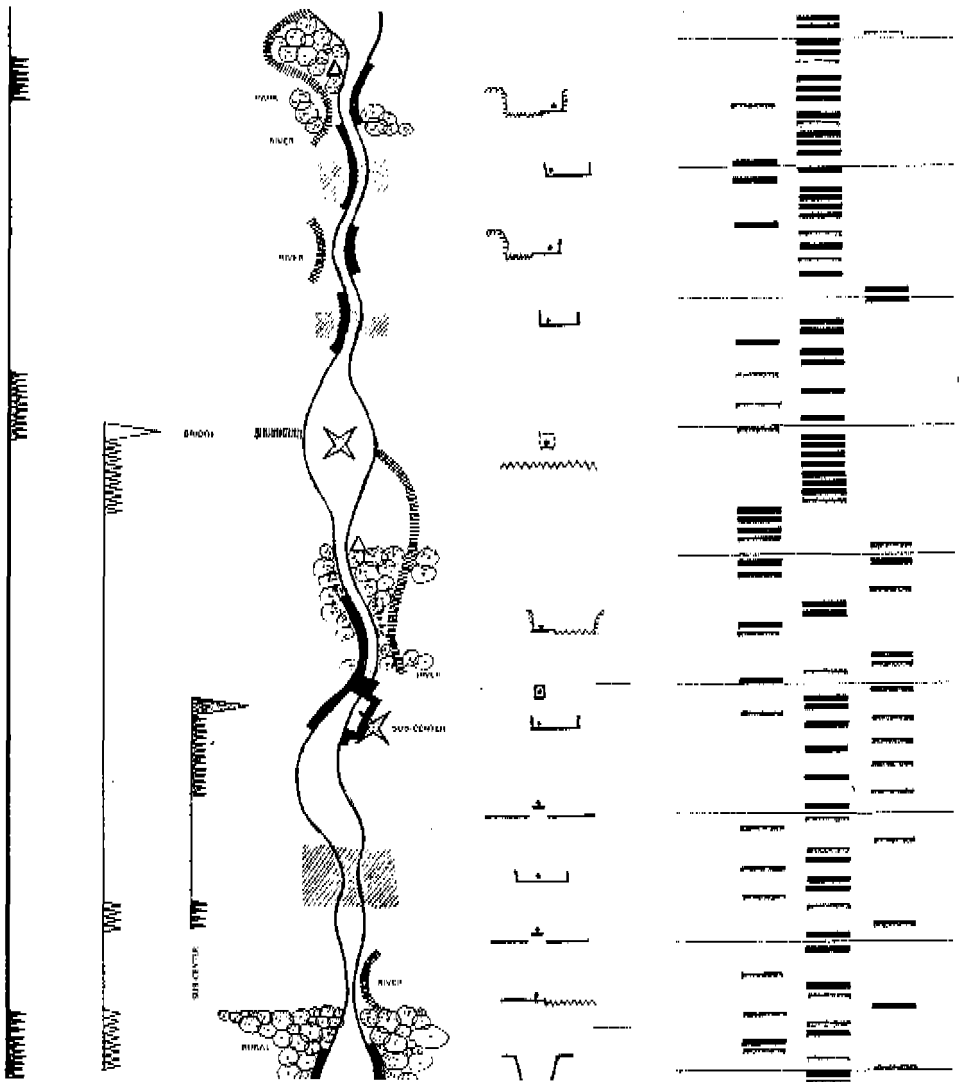
Figure 4-4 An imaginary highway as it enters a city, illustrating one graphic language for the explicit design of visual sequence. The diagram deals with turns, up and down movements, the opening and closing of space, the forward views, the rhythm and locus of attention, and things that pass alongside (source: Lynch, 1964. P.65-74)

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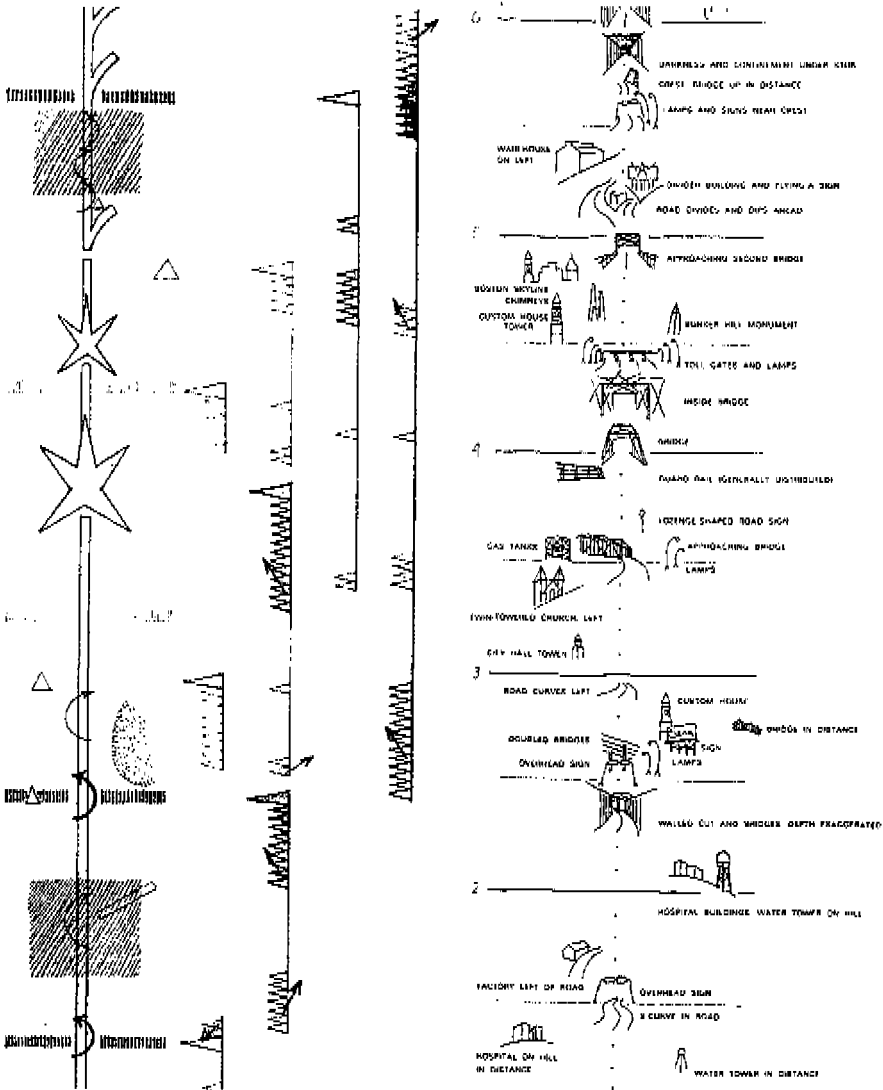
Figure 4-5 Space motion and orientation diagram for Northeast Expressway
(source: Lynch, 1964. P. 65-66)
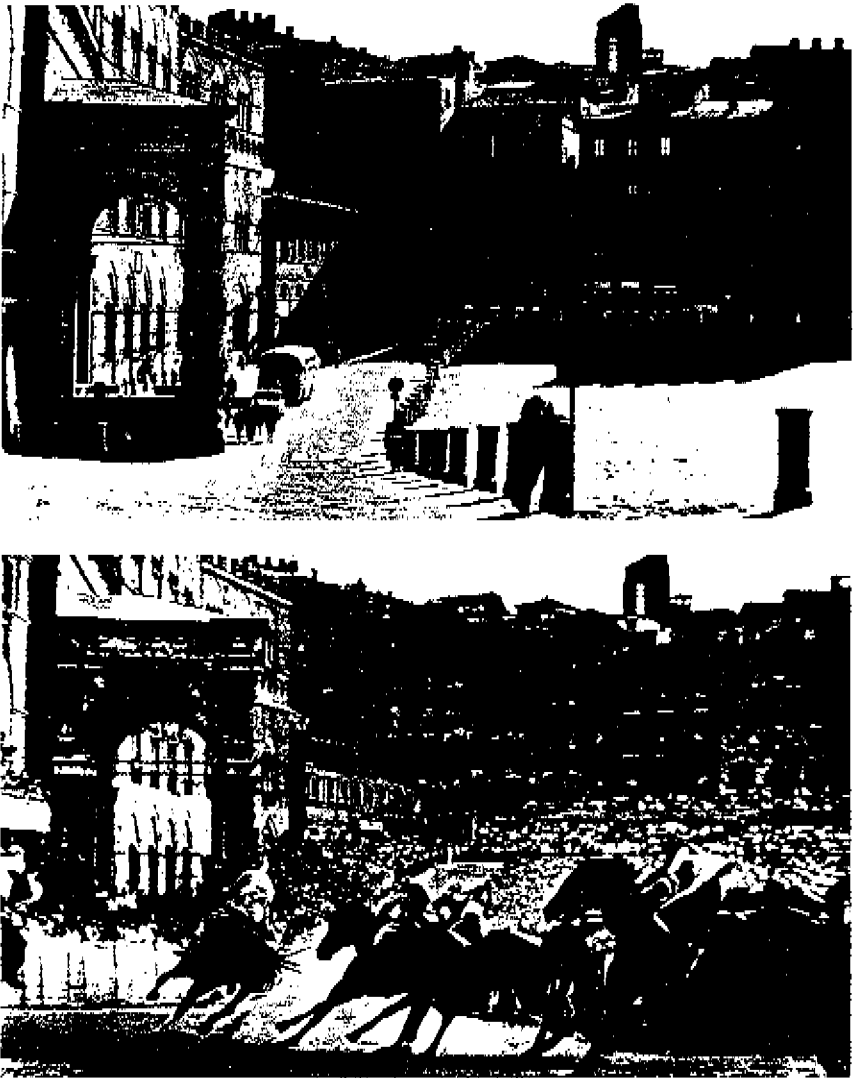
Figure 4-6 Siena's central square which has an entirely different character when the palio fills it with crowds and wild riders shows explicitly the relation "user" and "site" (source: SP, P.159)

highway.

2) The representations of U-S relationship

The relationship that is assumed by SP to exist between U and S is explicit in the conception of U, and especially in that of S ("the site and purpose for which it will be used - the two sources of site design - are curiously interrelated. Thus, site analysis has two branches-the one oriented to our particular purpose (U) and the other to the site itself" (SP, P.29)). Graphic representation of such a relationship thus carries with it the principles that guide the emergence of certain geometric or figurative conceptions of U and S.

The variants of "site" are graphically related not only to "user", but also to user's culture, belief systems, world-views and ideologies. For example, cities, - settlements or buildings are represented in complex, and sometimes symbolic, ways. Pure principles, and correlations are constructed out of the geometric as well as visual analyses of "site reality". These pure principles and correlations then provides the bases of explanation of the same "reality" - this time as the design and planning principles of harmonious and "ideal" objects, or as models of universe.

While putting our discussion in the spatial context, graphic representations and metaphors present serious problems. Most of the spatial concepts that are in current use in SP are spatial, that is, they are concepts of spatial objects, these concepts have their metaphors in space. They are presented in space (as in those terms, such as, "urban society", "village life"). Their graphic representations , or symbols, such as what we see from figure 4-7, are spatial symbols. They define enclosures, spaces and areas. Thus, they create the conditions for a confusion of the real with its concept and representation. As we have seen in the analysis of metaphors on SP the term "site" is itself a metaphor. It is also a name describing a real object, i.e. "site". Thus, graphic means (photographs and drawings) represent certain images or cosmology as well as objects or physical relations. This mechanism functions in another level too: as metaphors cannot stand in for notions or for concepts, the necessity of concepts for a scientific analysis is bypassed in SP simply by reinstating images from ideological systems into concrete socio-physical relations; and by conflating metaphors by what is

meant.

In short, representations of U - S relationship reproduce the empiricist problematic by serving as the models of the real. As we have already discussed, models tend to correlate empirical givens with theories, or real objects with images. Especially when models are themselves graphical, i.e. visual, they tend not only to generalize, to simplify, and to correlate, but also to help 'visualize' a real that is given in images. Some features of empirical reality are first transformed into models, and then visualized in terms of these models. In absence of a theory, all these models, representations, metaphors and analogies function as explanations of an "site reality" with a presumed validity.

Another important point which makes SP's graphic representation unique is the concept of "cognitive mapping" Lynch developed in early 1950s[1], which is both verbal and pictorial. For Lynch, the main concern is not with developing "a scientific technique for creating 'objective' descriptions 'from the outside', rather to discover "an empirically grounded methodology to represent the urban environment as its users capture it 'from within', to reconstruct their cognitive maps of the city" (Tzonis, A & Lefaivre, L.). Based on this, "the well-formedness of place was the result of a happy relationship between the cognitive structure of the mind of the inhabitant and that of the "lived-in" environment that lead to successful recognition, navigation, memorization of the city and its parts" (ibid).

In conclusion to our discussion of this section, SP do, in fact, use graphic means and representations for purposes other than the cosmological and epistemological. They produce their proposals, plans, projects and designs in drawings. Drawings vary from perspectives to working drawings, from maps of countries and regions to street elevations, or from geometric and topological representations of the site to the graphs and figures of industrial production, land use, traffic pattern,... etc. (cf. SP, chapter 1). These models of representations are as necessary to the

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[1]Lynch's concept of "'cognitive mapping', that takes shape in his Italian diaries, has become a key expression to be found concurrently in the writings of post-modernist Marxists and cognitive scientists" (Tzonis, A. & Lefaivre, L., 1992).

practices involved as writing is to literature. Therefore, the present critique of graphic representations in SP does not imply a wholesale dismissal of such modes of representations. However, it is here that we can link the powerful domination of graphic representations of "U-S relationships" or "site" to the nature of the practices that give them currency and support. It is not accidental that SP finds it convenient to represent its conceptual and cosmological schemata in graphic medium.

Once dominated by this mode of perception, site practices tend to give form to, and convey, not only the information and proposals that they normally produce, but also some non-technical ideologies. On the one hand, quite functional, and primarily technical representations are produced - a role which basically technical practices in a class-society can hardly avoid taking on. On the other hand, this capacity to produce and to communicate with visual means enables the practice to read and represent the world, objects and society in graphic terms. In other words, it is a philosophy made visual.

In various ways, this mode of recognition and representation provides the only "evidence" of the validity of the U-S conception which provides the framework for the recombination in the first place.
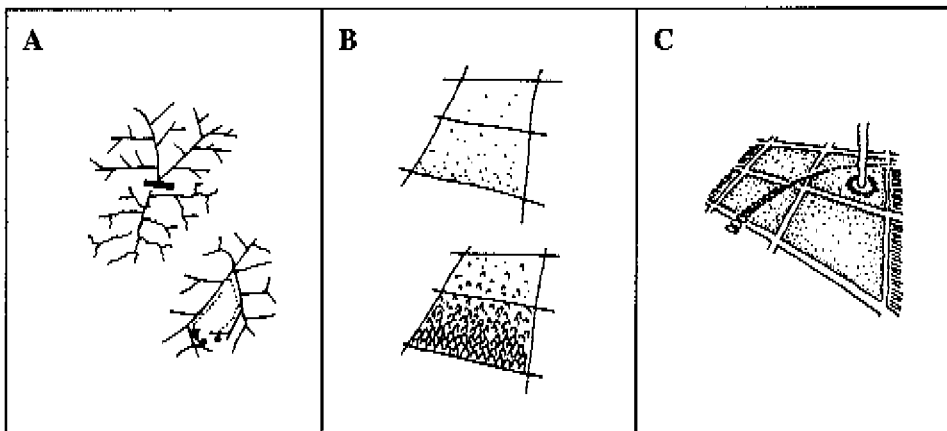
Figure 4-7 Symbols for spacial representation (source: SP, P.55-189)

4.4 Performance of SP

Perhaps the most justified question concerning the analysis in the present section might be that of the efficiency of SP. This, however, must be distinguished from the effects that it produced (which is beyond the scope of the present discussion). What is meant with "effectiveness" here is the degree to which SP and the so-called "site practices" are capable of producing effects. This question is very much tied up with some other, more specific, questions. As SP is operative in various practices and activities, it is reasonable that these questions are directed to them. However, there will be no attempt here to answer all these questions. The rest of the study contains sufficient answers and examples for them. Instead, the questions will try to produce further questions. It is hoped that the complex and difficult enterprise of the present analysis will not be reduced to these deliberately simple, yet provocative, questions.

The first and central question is: what is it that design activity designs or planning activity plans In SP? In other words, What is their object? Is it "site", space, human behaviour, social interaction, or something else? Consequently, where does SP produce its effects? We have already seen that all these "objects" are vague, multiple, relativistic and often undefinable. We have already disclosed some possible objects or relations that may actually be the objects of these activities, and the actual loci of problems that SP talks about. "A site design deals with three elements: the pattern of activity, the pattern of circulation, and the pattern of sensible form that supports them" (SP, P.127). In other words, it could be the distribution of the surplus-value that is actually being planned and organized; it can also be the ideological demands of the dominant classes that design activity gives form and utility. Thus, SP cannot be seen as a simple tool of site analysis, but also as an (ideological) expression of dominant social relations that determine the analysis.

Next question will be: what is the nature of physical planning in SP? Physical planning and design are activities that organize certain physical as well as cognitive, financial as well as cultural, resources. They do not produce but utilize knowledge and information. They express their schemes in drawings, in technical specifications, in statistical tables and in words. Thus, the efficiency (or

performance) of SP in these practices depends upon the modes of functioning in specific socio-economic context as well as upon their modes of perception and representation.

The third question: who precisely is it that benefits from SP activities? To answer this question we have to refer to the notion "domination" which is not an abstract notion, but a theoretical concept. It denotes, among other things, the specific forms in which a particular relation of production thrives to function and to be maintained. The domination is thus one of the means of production of goods as well as ideas, physical objects as well as discursive formations applied in SP. It is in the context of this mechanism that the question of "who benefits from a particular discourse" can be answered.

The fourth question is: what rentability do design and planning have? To answer this question, we should first divide SP into two different activities: design and planning. Site design in SP is integral to the enterprise that produces site objects and buildings. Yet, it is marginal with respect to the relations of production dominant in the social formation. For site planning it is rather different, as no contemporary social formation can function without some sort of planning. Thus, the question of efficiency that concerns the present section should be answered in connection with specific social formations, and specific areas of design (architectural, graphical)or planning (economic, physical, urban, agricultural). The service and the function of SP in those specific cases should thus be examined in relation to each case.

How correct is the distinction between "theory" and "practice" in SP? What effects do the conceptions on this distinction have on the site practices involved? The simplistic correlation established in SP between a general "theory" and a general "practice" implies a conception of their relationship. In this conception, there is a body of "theory" (consisting of writings in planning and other "site" professions), and a "practice" (presumably what these professions and activities do - not refer to the writings). There is no intention here to dwell upon this question. Suffice it to say that this conception tends to "judge" a theory or suggestion on the basis of some ubiquitous criteria of "practice".

The question of the role and function of various professions in SP depends

very much upon the conception of the latter's nature. Since professions and disciplines emerge, develop and function in close relation with prevailing socio-economic systems. This has already been repeatedly stressed.

What is to be said here is that each professional practice has different links with the socio-economic-political system in question. Their relations with sciences are also effected by these links. The ideologies of these professions are thus linked with the applications that they make, of various sciences. As to the practices (e.g. SP) dealing with physical and spatial organization (geography, town planning, architecture, landscape design), their nature and function have to be seen in the context of their material determinants, namely the specific modes of transformation of territories. The efficiency of these practices should thus be analyzed in those contexts.

Furthermore, SP as a practice, like other practices, does not fall from sky, or is invented out of nothing. It is constituted, modified and articulated within/in spite of/together with/against, other practices. In other words, it is a formation. As such, it has an articulated structure. An analysis of SP and its formation involves an identification of what exactly gives SP its status, its legitimacy, its function, its currency; and what exactly derives, organizes, institutionalizes, transforms, ignores or promotes it.

Finally, as we have discussed earlier, SP is such a distinct practice with its specific structure and relations. Its practice is constituted at the point where the power of knowledge and information is instituted at the very structure of social relations of production. The assumed "knowledge" that the established power recognizes and promotes, is shown to be as "natural" and legitimate as the epistemology of "subject - object", and sociology of "individual - society". Hence, SP as practice is governed by all the rules that other practices in the same social order are subject to: *exclusion, prohibition, naturalization, diversion, rejection, prosecution, praise, ritualization, realization,* and especially *institutionalization.*

4.5 Summary

The study has analyzed SP in terms of its objects, structures, relations (form), mechanisms (operation) and capability (performance). In doing these, it is expected to be able to open up the possibility of further and more comprehensive comparative studies with other domains and practices.

SP was shown in our analysis to be a widespread discourse that is constituted basically by a 'Site-User' problematic (and which operates in many domains where its epistemological structure and elements as well as its arguments are presented in a variety of ways.). The elements of that problematic, namely 'Site' and 'User' were surveyed (although not systematically) through the specific fields in architecture, planning, ecology, geology, social sciences and everyday life. They were shown to belong to an ideology of humanism the epistemological structure of which was constituted essentially by the subject-object couple. Thus, the analysis has identified the objects and the structure of SP. And, it also has been shown that SP produces its effects by means of a set of *mechanisms*. These mechanisms were not readily and explicitly given in SP, but had to be seen in their operations and effects.

In the course of study a large number of effects were observed. For example, SP presents many socio-economic problems and architectural, urban and ecological problems as "site problems". Yet, as the notion of "site" is a vague generalization which defies definition and scientific specification, the problems that it supposedly defines are all reduced, purified, simplified and displaced. They are confined to a homogenous field where everything is classified according to a given pure principle, by which an original state of the S-U relationship needs to be achieved. As to the ways in which this original state is proposed to be achieved different mechanisms are produced. Yet, all these mechanisms are based on the same problematic (S-U).

On the basis of these central mechanisms, problems expressed in terms of a relationship between "user" and "site" are treated as purely physical, ecological, technical, ethical, or psychological. However, in all the reductions S-U schema is present as the universal, cosmological and ideal invariant.

Although the purpose in this case study is not to legitimize SP, but to

deconstruct and criticize it, we have no intention to propose an alternative definition of "site" or "S-U" relationship right now. Instead, the objects and many theoretical problems of SP which have been defined and analyzed in the study (e.g. "S", "U", "S-U" relationship; the natures of site 'knowledge' and of site design and planning activities; the question of the relationship between social and physical phenomena....) will be used, redefined, analyzed, criticized and, if possible, transformed in the following chapter for an alternative representational system on site knowledge which will hopefully overcome the shortcomings of SP we discussed earlier in the chapter.

PART II

Concept Synthesis

Chapter 5

A General Theory of Categorization and Representation

After the case studies on *FengShui* and Lynch's system on site, we have accomplished one of the two major steps (i.e. elements and rules of interpretation) in every comparative case study research, that is, the elements (out of the concept analysis). The question is what we are going to do about them? or how we may make use of them for our purpose in a general representational theory on site? The next step, thus, is to define the rules of interpretation, that is, we have to define a set of rules, out of which, questions like how the empirical observations (on the case studies) are to be given theoretical relevant interpretation can be answered, and through which, we may start synthesizing the concepts in comparing the two cases. As well, the rules of interpretation will allow us to have an assumed congruence between certain characteristics of the empirical systems (of *FengShui* and Lynch) and the possible theoretical formulation. They also tell us "which of the statements in our (theoretical) language describe observable phenomena, and just what observations will establish whether the predictions of a given theory are right or wrong" (A. Richard N., & J.J. Preiss, 1960. P.23). Therefore, to assure for a valid, precise, and verifiable general theory on site analysis, it is crucial important to set up the rules of interpretation.

To do that, we need theoretical backups from others, upon which, our own theory can be grounded. one of the important theoretical backups is category theory, since categorization "serves to cut down the diversity of objects and

events that must be dealt with uniquely by an organism of limited capacities" (Bruner, J.S., Goodnow, J.J. & Austin, G.A., 1956, P.235). A stronghold of category theory will help us in cutting down the unlimited diversities of objects in landscape such that they can be dealt with by our limited capacities.

"A category is a number of objects that are considered equivalent" (Rosch, 1978). By this chapter, the following fundamental aspects of category theory will be discussed: (1) structure of category system; (2) principles of categorization; and (3) category representation. The discussion of those items will be based on the establishments of those experts on the subjects like Eleanor Rosch, Brent Berlin, Nelson Goodman, Stephen Palmer, Stevan Harnad.... and so on. It must be clear from the outset that the goal is not to present a new and better theory of category. Rather, it is to understand fundamentally category theory to the extent that we can apply it in the setting up of a rule system of interpretation.

5.1 Structure of Category System

First of all, we argue that no category exists a priori in the real world waiting to be discovered. Rather, "categories are considered to raise out of an interaction between stimuli and process" (Rosch, 1978). By this section, we are concerned in different ways with the structure of real world categories.

According to Rosch, category systems are used to be conceived as "having both a vertical and horizontal dimension. The vertical dimension concerns the level of inclusiveness of the category; the horizontal dimension concerns the segmentation of categories at the same level of inclusiveness" (Rosch, 1978).

5.1.1 Vertical dimension of categorization

As to the vertical dimension of category system, according to Rosch, categories within taxonomies of concrete objects are structured such that there is generally one level of abstraction at which the most basic category cuts can be made (Rosch, 1976a). A taxonomy is here defined as a system by which categories are related to one another by means of class inclusion (ibid.). The greater the inclusiveness of a category within a taxonomy, the higher the level of abstraction.

Each category within taxonomy is entirely included within another category (unless it is the highest level category) but is not exhaustive of that more inclusive category (see Kay, 1971). Thus, the vertical dimension of a category system can be formalized according to the level of abstraction which refers to a particular level of inclusiveness. The question is how many levels could we define with a particular category system? Obviously, the answer differs with different objects. But, we argue that there are a certain levels which all the categories share fundamentally.

Brent Berlin, as an anthropologist, once proposed a hierarchy based on biological classification which includes six levels (see table 5-1). Crucial to his understanding of the hierarchy was the recognition of the importance of the group of taxa that he labelled the generic rank - the level at which plants or animals are morphologically and behaviorally most distinct. The ranks below this level, the specific and the varietal, appear culturally arbitrary, both in the sense that fewer are formed and that the recognition and labelling are correlated with function. The ranks above the generic also have arbitrary nature in that not all generic ranks are included in the restricted array.

Table 5-1 Proposed Hierarchy of Folk Biological Ranks by Berlin

Levels	examples
1 kingdom	plant, animal
2 life form	tree, fish
3 (intermediate)	evergreen
4 generic	pine, bass
5 specific	whitepine, black bass
6 varietal	western white pine, large mouthed bass

(Source: Berlin, B.: Ethnobiological Classification. Cognition and category, ed. Rosch, E, 1978)

Obviously, the entire system is relatively restricted, which can not be applied universally but only to the biological world. Whereas our primary concerns on site involves much more than biological world. We need a universal applicable hierarchy of category system. For which purpose, Rosch's system of classification seems more acceptable.

In her discussion of the importance of the basic level in classification, Rosch provides a formalization of category system in terms of cue validity[1] (Rosch, 1976a) or in terms of category resemblance[2]. A category with high cue validity is, by definition, more differentiated from other categories than one of lower cue validity. Thus, three levels can be defined: superordinate level, basic level, subordinate level. The basic level, or in Berlin's system, the generic rank, is that level at which objects share, with other members of the class, the most attributes. Categories one level more abstract than basic level will be superordinate categories whose members share only a few attributes among each other. Categories below the basic level will be subordinate level categories who contain many attributes that overlap with other categories.

Both superordinate and subordinate categories have lower cue validity than the basic categories, because: superordinate categories have fewer common attributes, the category resemblance measure of items within the superordinate even be negative due to the high ratio of distinctive to common features; subordinate categories share most attributes with contrasting subordinate categories, in Tversky's terms, they tend to be combined because of the weight of the added common features tend to exceed the weight of the distinctive features (see more on Tversky, 1978). In short, basic level categories are those at the level of abstraction maximize the cue validity.

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[1]Cue validity is a probabilistic concept which is defined by Beach (1964) and Reed (1972). The validity of a give cue X as a predictor of a given category Y increases as the frequency with which cue X is associated with category Y increases and decreases as the frequency with which cue X is associated with categories other than Y increases (see more on Beach, 1964, and Reed, 1972).

[2]Category resemblance is defined as the weighted sum of the measures of all the common features within a category minus the sum of the measures of all the distinctive features (see Tversky, 1978).

5.1.2 Horizontal dimension of categorization

As to the horizontal dimension of category system, we are actually talking about the internal structure of categories.

As we argued before that, categories do not exist a priori in the real world, so it will be valid that categories do not have clear-cut boundaries. The separateness, clarity or boundaries in category system are simply imposed by human through formal, necessary and sufficient criteria for category membership (see Rosch, 1978). Or in other words, human being tends to conceive the category in terms of its clear cases rather than its boundaries, just like Witten-stein (1953) has pointed out, categorical judgements become a problem only if one is concerned with boundaries. Hence, categories can be viewed in terms of their clear cases if the perceiver places emphasis on the correlational structure of perceived attributes such that the categories are represented by their most structured portions.

Referring the two dimensions of category system to our case studies on *FengShui* and Lynch's system, we may identify the following two systems of categorization: with *FengShui*'s category on site, it's basic level is composed of Heaven, Man and Earth, above this level, the superordinate level is the metaphysical term known as *WuJi* (or nothingness), the lower level (subordinate level) is composed of 5 *Elements*, *Yin-Yang*, 8 *Trigrams*, 4 *Directions*, 4 *Seasons*, 4 *Animals*....and so on; with Lynch's system, the basic level is made at the division between site and man, they are further divided into the subordinate level of plant, soil, water, mountain, users... etc.. These categories were made explicit in both cases.

Furthermore, to represent the clearest cases of category membership, the concept of prototype was introduced by Rosch and others. According to whom, the formation of category prototypes should, like basic levels of abstraction, be determinate and, closely related to the initial formation of categories. Hence, it is reasonable to believe that, the prototypes of category should also be developed through the same principles such as maximization of cue validity as those principles governing the formation of vertical dimensions of category system.

The most common belief about prototypes is that they must be templates of some sort. This is partly because prototypes are frequently discussed as "images"

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and because they are associated with particular examples of the category. The association between prototypes and templates is further strengthened by the fact that templates are universally described as "prototypical" examples of their class. In a book on pattern recognition (Reed, 1973), we find the following discussion of results demonstrating the importance of prototypes of category:

> "Insofar as a prototype may be thought of as a type of template, these results also support a template theory. But a prototype is not an unanalyzed template in which the amount of overlap is used to judge its similarity to other patterns. Instead, a prototype consists of features and when it represents the central tendency, is determined by the mean value of each feature when the mean is calculated from all patterns in the category." (P.32)

This passage also illustrates the confusion about prototypes; they are template-like and yet they are not templates but features. In what sense are they like templates and in what sense like features? Are they necessarily related to these concepts at all? Other confusions such as the concept of prototypes has tended to become reified as though it meant a specific category member or mental structure. As well, the empirical findings about prototypicality have been confused with theories of processing – that is, there has been a failure to distinguish the structure of categories from theories concerning the use of that structure in processing (see Rosch, 1978). Further discussion on the subject will be beyond the level of the present analysis, rather, we simply accept the concept of prototypes as the representation of clearest cases of category membership as long as it can serve our purpose in setting up of a rule system of categorization on site. We will come back in chapter 8 for more discussion on the concept formation of site knowledge.

5.2 Principles of categorization

In her article of Principles of Categorization (1978) Rosch has proposed two general and basic principles for the formation of categories: the first has to do

with the formation of category systems and asserts that the task of category system is to provide maximum information with the least cognitive effort; the second has to do with the structure of the information so provided and asserts that the perceived world comes as structured information, rather than as arbitrary or unpredictable attributes. Thus, the maximum information with least cognitive effort is achieved if categories map the perceived world structure as closely as possible (see more on Rosch, 1978).

The first principle is also understood normally as *cognitive economy* (Rosch, 1978) which contains the most common-sense notion that, as an organism, what one wishes to gain from one's categories is a great deal of information about the environment while conserving finite resources as much as possible. To categorize a stimuli means to consider not only equivalent to other stimuli in the same category but also different from stimuli not in that category. As stated by Rosch: "One purpose of categorization is to reduce the infinite differences among stimuli to behaviorally and cognitively usable proportions" (Rosch, 1978).

The second principle of categorization concerns with the structure in the perceived world which asserts that the material objects of the world are perceived to possess (in Garner's sense, 1974) high correlational structure. That is, given a knower who perceive the complex attributes of plant, site, and landscape, it is an empirical fact provided by the perceived world that plant co-occurs with landscape more than with site.

These two basic principles of categorization, a drive toward cognitive economy combined with structure in perceived world, have implications both for the level of abstraction of categories and for the internal structure of those categories once formed.

5.3 Category representation

All discussions of structures and principles of category system lead eventually to the issue of representation: How are categories represented? What structures and processes make it possible to categorize appropriately? Even though, we have explored the representation of two empirical systems on site practice, we need

to give more theoretical thought on the subject, which may provide us a more sound ground. By this section we will explore the ways in which images may serve to represent and encode information about the properties of members of category from the point of view of category theory.

The previous discussion has provided us some basic knowledge on category formation. To answer the question of category representation, we also need knowledge on representation itself[3]. "A representation is, first and foremost, something that stands for something else" (Palmer, S. 1978). The description implies the existence of two functionally separate worlds: the *represented world* and the *representing world*. The job of the representing world is to reflect some aspects of the represented world in some fashion. No matter what aspects of the represented world are to be modeled, or what aspects of the representing world are going to do the modelling, there must be some corresponding aspects if one world is to represent the other. In order to specify a representation completely, one must thus state: (1) What the represented world is; (2) What the representing world is; (3) What aspects of the represented world are being modeled; (4) What aspects of the representing world are going to do the modelling; and (5) What are the correspondences between the two worlds.

According to Goodman, if an object represents another object, it "must be a symbol for it, stand for it, refers to it; and that no degree of resemblance is sufficient to establish the requisite relationship of reference. Nor is resemblance necessary for reference" (Goodman, N. 1969). In other words, to say "A represents B" is the same as "A denotes B", but not as "A resembles B". "Denotation is the core of representation and is independent of resemblance" (ibid).

But, the formula needs modifications. Because, on the one hand, "nothing is ever represented either shorn of or in the fullness of its properties" (Goodman, N. 1969), that is, "A" is not possibly able to represent everything about "B", unless "A" is the copy of "B" (then "A" is not representation any more.). On the

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[3]In the introduction of the book, we have already defined the site-representation problematic of the present study. However, the term 'representation' was defined in a rather premature manner, by which we did not give any theoretical discussion on the subject.

other hand, "A' never merely represents "B", but rather represents "B" as "B'",
since, only certain aspects of represented worlds can be represented through
certain aspects of representing world.

Thus, given a represented world B with a certain aspects of b1, b2, b3...,
there must be a representing world A with certain aspects of a1, a2, a3.... to
represent respectively the given b1, b2, b3.... "A represents B" actually means
that a1 of A represents b1 of B, a2 of A represents b2 of B... and so on. In this
case, the formula concerns both denotation and classification.

In general, then, an object B is represented as soandso by an A if and only A
is or contains an object that as a whole both denotes B and is a soandso object.

So far, a representing world has been treated as an "object" that stands for a
represented world which is also an "object". It does so by virtue of certain
relationships between it and the world it represents. But, the concept of
representation also includes an operational component (Palmer, 1978). It is true
that within an information-processing framework one cannot discuss representa-
tion without considering processes. the role of processing operations is that "they
functionally determine the relations that hold among aspects of an object"
(Palmer, 1978).

From the above discussion thus far, we may see that a representation requires
a certain kind of relationship between two functionally separated worlds. Each
world consists of objects that are characterized by relations that hold among
them. These relations are operationally defined. The function of a representing
world is to preserve information about the represented world. We can tie all of
these together by assuming that the information contained in the two worlds is
the set of operational relations among objects. Preserving information, then. is
equivalent to having corresponding relations in the two worlds.

We may thus summarize the nature of representation as that there exists a
correspondence (mapping) from objects in the represented world to objects in the
representing world[4]. In other words, if a represented relation, R, holds for

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[4]This definition has a straightforward formalization in terms of model theory (Tarski, 1954). The
represented and representing worlds are relational systems, each consists of a set of objects and sets
of relations. A representational system is an ordered triple consisting of the two relational systems and
a homomorphic function that maps the represented objects into the representing objects.

ordered pairs of represented objects, (X, Y), then the representational mapping requires that a corresponding relation R', holds for each corresponding pair of representing objects, (X',Y').

The same sort of representational relationship can hold for properties of individual objects. All objects in the representing world must correspond to objects in the represented world.

We now have at least an informal answer to the basic representational question. A world, X, is a representation of another world, Y, if at least some of the relations for objects of X are preserved by relations for corresponding objects of Y.

Back to the initial question of this section: How are categories represented? Harnad, Doty, Goldstein, Jaynes and Krauthamer (1977) provided us a provisional model for category representation which is based on *categorical perception* (see Harnad, 1987). According to which, there are two levels of representation are involved in category representation: (1) an *iconic* representation that subserves our similarity judgements and (2) *Categorical* representation, which are representations of the members of the category that they discriminate. It works like an "analog filter" that picks out the invariant information allowing us to categorize the instances correctly.

The hypothesis is that whenever the categorizer encounters a represented object, not one, but two kinds of representation of the stimulus object, i.e. iconic representation and categorical representation begin to be established (if they do not exist) or become activated (if they already exist).

The iconic representation, being an analog of the represented object, is actually not governed by a category boundary. By its nature, it will in fact be many analog representations; the differences among these will arise from the instance-to-instance variation of the input class of represented world in question. To give an example: Suppose the represented object was a site. The instance would vary in all the ways such a site could vary; not only in size, form and other on-site situations, but also in location, surroundings, climate, even time.

So analog representations are unbounded in the sense that nothing reliably links them to a shared category except whatever natural similarities and

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differences they may have.

Hence, iconic representation would be ideal for relative discrimination, in that they faithfully preserve the iconic character of the represented world for such purposes as same-different judgements, stimulus-matching, and copying. These are all fundamentally noncategorical tasks, in which categorization would probably introduce biases that would distort the analog, holistic character of the raw, unfiltered objects.

The categorical representation would be forming at the same time that iconic representations were being strengthened by repeated exposure to a class of inputs. Categorical representation "would have (1) a category boundary and would be (2) highly context-sensitive and (3) feedback- or consequence-dependent" (Harnad, 1987). In the case of site discrimination problem, the context would be all kinds of surrounding situations of the site. In other words, categorical representation would include a kind of iconic-to-categorical filter (Harnad's term) that could reliably sort the site instances into their appropriate, bounded categories using distinctive, confusion-resolving features.

So, in general, it is clear that some interaction among instances of represented world, stored iconic representations which can account for discrimination performance, and stored filters will be involved in categorization which can account for identification.

In applying the above defined rules of interpretation to the comparative case studies between *FengShui* and Lynch (next chapter), there is still a problem of validity of categories (R. Naroll, 1968) to be solved.

As we have depicted in the previous chapters that, the categories of both *FengShui* and Lynch's system are variables of their respective systems, or in other words, they are the definitions of variables. "Logically, a definition is valid of it is clear and unambiguous, so that we may easily and confidently say that any given object or behaviour pattern either is one of the things defined or is not one of the things defined" (R. Naroll, 1968, P.267).

The definition of the variable can be both qualitative and quantitative, the value of the variables can thus be given either in terms of stated measurement scale or pure logic definition.

Still, there is the problem of comparability of categories when we apply those variables from different cultural backgrounds in a universally applicable system. We need to define a set of criteria for defining a standard set of categories and terms, out of which the variables are defined universally acceptable. The solution to this problem was given clear statement in Goodenough's rule in the field of ethnological comparative study. Goodenough (1956) puts it in this way:

"A comparativist is trying to find principles common to many different universes. His data are not the direct observations of an ethnographer, but the laws governing the particular universe as an ethnographer formulates them. It is by noting how these laws vary from one universe to another, and under what conditions, that the comparativist arrives at a statement of laws governing the separate sets of laws which in turn govern the events in their respective social universe." (P. 37)

In this sense, by the validity of a category is meant the ability of an investigator to learn something useful about the theoretical problem he is investigating through the use of category theory as rules of interpretation.

The ultimate criterion for validity of categories in our comparative case studies on site then is their theoretical relevance.

5.4 Summary

By the first section of this chapter, we have discussed two dimensions of category system, i.e. the vertical and horizontal dimensions of category system, by vertical dimension, we explored some important concepts in category theory such as: level of inclusiveness (or level of abstraction); cue validity introduced by Beach (1964) and Reed (1972) as well as Rosch (1978); category resemblance provided by Tversky (1978). Through which, we identified three most fundamental levels in category system, i.e. superordinate level, basic level and subordinate level, and we argue that the basic level of categories are the most inclusive level of classification. By horizontal dimension, we focused on the internal structure of

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a category and considered this structure in relation to other categories at the same level. Then, two principles of categorization, i.e. cognitive economy and perceived world structure, proposed by Eleanor Rosch were shortly discussed.

The section on representation concentrated on the basic question of what constitutes a category representation. By which, we first reviewed the fundamental questions concerning representation itself, and then, a provisional model of category representation provided by Harnad and others was discussed. The knowledge we gained in this chapter will be used as rules of interpretation in next chapter on the comparison between *FengShui* and Lynch's system, as well as in **Part 3** on the framework of universal classification system on site.

Chapter 6

Comparison between FengShui and Kevin Lynch's Site Planning

In a messy world full of various kinds of site tasks (selection, evaluation, designing, arrangement...etc.), the primary purpose of investigation, notation, representation and strategy is to find a niche for the human community, a comfortable place, a locality where the community can survive and prosper. Two systems have been explored in previous chapters to aid the site decision-maker in these nest-seeking activities: *FengShui* and Kevin Lynch's *Site Planning*. Both systems have *proven* (in their respective contexts) to be useful additions to the body of knowledge in the field of site practice. Each system brings a different perspective to the site problem; each has a different set of operating procedures; each rests on a different set of assumptions; and each advises the designer to select different facts and to analyze them in different ways. Consequently, there is something of value to be gained from using each method. However, there are also misleading and disfunctional aspects of each method. In short, each has a characteristic set of strengths and weaknesses.

As we have already argued in chapter 2, with the use of the comparative method and through carefully selected cases, we could manipulate the experimental variables of site indirectly, and at the same time assure the magnitude of the types of site problems that have to be faced in the establishing of a holistic theory on site analysis. In this chapter these two systems will be compared in terms of their structure, mechanism, categories and graphical representation. We will try to distinguish between those regularities that are "system-specified" and those that are "universal" (Grimshaw, 1973).

6.1 Structural Comparison

First of all, I should like to review the general structure of the two systems which will give the most essential theoretical features of the two. In the case of Lynch's system, what we are dealing with is a site system the identification of which was based on a series of levels of natural categories (of a "site"). These are related in ways homologous to the series of social categories (of "user"). Each category and each group subsumed minor categories or species but they were not unified into a hierarchy of groups. The structure of Lynch's system is organized by a specific problematic - "site planning", i.e. the system of formulating problems: "for whom is the place being made? for what purpose? who will decide that the form is to be? what resources can be used? what type of solution is expected? in what location will it be built?" (K. Lynch, *Site Planning*, P.3) To put it in semiological terms, Lynch's system is identified at the level of the signifier (therapy). What the system provides is a design tool (not a diagnostic instrument).

On the other side, with the *FengShui* system, the situation is substantially different. It is a strict, basically very simple, but powerful structure that achieves full consistency between all factors in the system. *FengShui* theory is a method of self-identification. The whole system was built not as part of series but as a hierarchy. Through this, a person or group is identified not as one of a collateral of series but as an ego-centred universe with status achieved or aspired to and which may impinge on other ego-centred universes. The compass is oriented from the centre of the site, the centre of the defined area of one's self-interest. The site itself is a projection of the compass, a miniature, and its very centre is the *Heavenly Pool* (see Appendix II).

Both *FengShui* and Lynch brought much attention to the purely formal, visual, indeed aesthetic qualities of landscape. With Lynch, the realistic projection of visual elements lead to "discover an empirically grounded methodology" to represent the living environment as "its users capture it from within", "to reconstruct their cognitive maps" (Tzonis, A. and Lefaivre, L. 1992). For him, "image" and "cognitive mapping" were the categories that were meant to develop a "user-based" design methodology.

With *FengShui*, on the other hand, the forms of the landscape suggest certain types of movement and organization. They are further identified as certain elements, or objects, which is plainly a subject for the psychology of projection and of selective perception[1]. The patterns and images seen in the shapes of trees, mountains and streams by *FengShui* masters have nothing to do with their real structures. They are projections of the imagination, and the actions taken by *FengShui* believers have only incidental effects on the physical reality of the life of men in conjunction with trees, rocks, watercourses and the weather.

In other words, for Lynch, the identification of landscape elements are what they really are (visual or structural). Objective preciseness and comprehensiveness are the criteria of Lynch's representation. *FengShui* representation, on the other hand, is a projection of symbols for which there is a mass consensus of recognition. We are dealing here with a matter very different from the individual's projection of a stored perception, the significance of which can only be known by him and those closely acquainted with his history. And those projections are not simply projections of past perceptions and experiences that have become significant. They are also symbols of yet a further step. They are not themselves past experiences but stand for past experiences of each individual and similar experiences in other individuals: one symbol classifies one type of experience.

Symbolism permeates all through *FengShui* representation. Symbols applied in *FengShui* are metaphysical. These are given public status through conventional recognition and govern all site actions. While in Lynch's system, signs (instead of symbols) are used. The basic difference is that signs are analytical tools which stand for what is known and can be strictly defined, whereas symbols are ambiguous and stand for undefinable and incompletely known factors. This ambiguity of *FengShui* leaves room for personal interpretation of site elements. In other words, *FengShui* leaves room for the non-objective factors, the personal

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[1]I believe that this is the weakest point of FengShui system in practice. That is the identification of landform into elements is up to the personal judgement of the geomancer which makes the whole process of operation an opportunistic situation.

circumstances of the decision, its meaning for the decision-maker.

6.2 Mechanisms

Just as the two systems have completely different structures, they also employ very different mechanisms in the operation of each system.

6.2.1 Criteria

Both Lynch and *FengShui* exponents set criteria for deciding on a site from a given number of site alternatives. In Lynch's system, besides the five fundamental criteria (habitability or vital support; sense or psychological and environmental identity; a good fit with user actions; good access; control), the criteria concerning each individual case are uncertain in term of function and are supposed to change depending on the particular site situations. Normally, criteria are established by both designers and site users, depending on the function that a site is going to serve. However in *FengShui*, criteria for making the choice are fixed and the decision is highly consequential. As the manual indicates, the world is in great flux, principles must be found to docket it. The compass which follows the natural principles dockets the golden mean in the confusion of the physical world. It mechanises the choice of site. The metaphysics of *FengShui* create criteria for the selection of sites where practical criteria have been exhausted. In such a way, the burden of the decision of site activity is taken away from the individual by its being ritualized. It is done by divination, the symbols of which are conventionally recognized (by the *FengShui* practitioner).

In fact, this property of ritualization in *FengShui* is the fundamental difference with Lynch's system, since for *FengShui*, siting purports to do more than place a building in a good ground. Not only does it guarantee the worth of the site itself, it predicts the future of the site's owner. It makes the decision with its full load of imponderable and personal factors.

6.2.2 Operator

Another difference due to ritualization is that the operation of *FengShui* is not

available to ordinary people. Everything in *FengShui* is on the side of the geomancer who can always explain failure by pointing out interference by neighbours in the site which formerly promised success, or he can claim the interference of heaven, neither of which he can be expected to predict. In Lynch's system, a whole community of designers, engineers, contractors, even the users of the site are invited to participate in the process of site activity. Their opinions will be treated equally by the decision-maker. In other words, ordinary people are not blinded by the operator of the system.

One thing worth to mention is that a non-expert and common sense choice will normally lead to a site that has a strong chance, practically and scientifically speaking, of being satisfactory, even though the measure of success is in any case vague. The crucial difference between the two systems here is that in Lynch's method, signs are demonstrably linked to the prediction made, whereas in FengShui there is no demonstrable link. However, reasoning on those lines is easily discounted when the percentage of success is just as or nearly as high in the magical method as in Lynch's method[2].

6.2.3 Objectification, publication and legitimation

In some ways, we may also define Lynch's system as divination through scientific geophysical methods. Thus, it provides us the possibility of comparing three possible functions of divination between the two systems: objectification, publication and legitimation of decision (Park, 1963 'Divination and its social context', in Journal of the Royal Anthropological Institute, Vol., 93 Part 2, 1963). Objectification means depersonalization of the decision. As we have discussed earlier, it is done in *FengShui* by transference of the decision to an instrument, i.e. the *FengShui* compass, to a third person, the *FengShui* master, and by reference to a cosmology. Externalization also comes under this heading and is achieved in *FengShui* by the very fact that its symbols are in and of the

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[2]However, we cannot make too many comments on the performance of FengShui due to the difficulty of making on-field investigations. Our statement is based on the existing examples of success listed in the third part of *Xian Po Ji* (P.931-1180).

physical environment.

With Lynch, this is done by the participation of the whole community in site analysis (designers, engineers, users as well as contractors).

Publication in *FengShui* is the expression of the decision to analyze a site or to defend one's personal interests in commonly recognized symbols. This has the effect of referring the decision to what Park calls (1963) "universally shared conventional understanding" (Park, P.201): giving occasion for the emergence of a public consensus on it (ibid. P.199). Divination is a dramatisation of the circumstances of a decision for appeal to the public. Dramatisation of conflict and competition is tactful, since the possibility of resolution is always left open on the same, symbolic, plane of action.

A function of *FengShui* divination is, therefore, to formulate or crystallize the conditions that circumscribe the decision to select a site or to contest a site; to make known the unknown in symbolic terms and show willingness for it to be governed or defined by publicly recognized terms. A decision, which has already been made in intent, is dramatized.

In Lynch's system, publication is embodied in the way that the system itself is an aggregation of many other disciplines. The "universally shared conventional understanding" is based here on the understanding of those sources, which are presented in clearly defined signs, visual as well as verbal representations. Such a system expressed publicly in direct and unsymbolic, and therefore unambiguous and unguarded terms, leaves less room for compromise symbolization of conflict, competition or resistance to change in site analysis.

Legitimation also has a function in the two systems. The decision is publicly sealed and certified by being expressed in publicly recognized symbols (*FengShui*) or scientifically defined signs (Lynch). It gives the decision public status. We find completely different operations on these lines with respect to both systems. When a *FengShui* diviner decides on the status of a site, he is making a very real as well as symbolic decision. This status is later expressed in reports of how long and how much care was taken in the choice of site, in the pedigree given by the diviner's description of it and by the self-evident beauty of the surroundings in which the house or grave is situated and judged in the *FengShui* of common usage. Thus, by *FengShui*, a site is an emblem of its owner's present

status, and more privately, the medium for his aspirations.

With Lynch, the status of a site is recorded and interpreted as it really is without any reference to status of the future owner of the site. It is done by the observations not only by the 'diviner' but also the potential user of the site.

6.3 Categories

Referring to the discussion about the general theory of categorization and representation in the last chapter, categories can be defined on different levels. According to this, we identified the category system in *FengShui* to be the following:
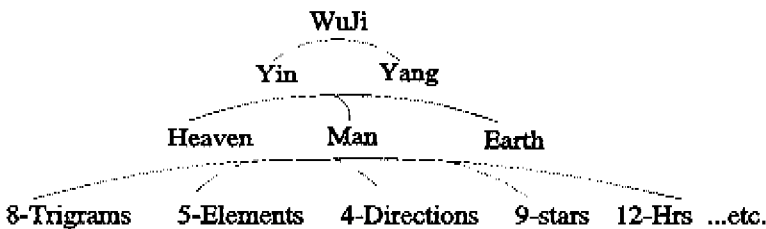
Figure 6-1 Category system of *FengShui*

The categories refer to the Chinese universal law of nature. In Lynch's system of site, he undertook a classification of site phenomenon first as a division between "site" and "user", and each of them are further divided into: ecology, soil, water table, landform, plant cover, contour, climate, orientation; and user group, clients, designer...etc.

Both *FengShui* and Lynch's system are aware of the division as well as the intimate relation between human being and nature, in fact, at the basic level of categorization of both systems, they are highly identical with each other:

The tripartition of site in the *FengShui* system, of heaven and earth as two

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polarities of the universe with man in between, coincide fairly well with Lynch's division of site and user. However, there is big difference between the two when the categorizations are made on a lower level. *FengShui*'s mythical division into 8 *Trigrams*, 5 *Elements*, *Yin-Yang*, 9 *Stars*, 12 *Sticks*, 24 *Jies*, 4 *Directions*, 12 *Hours*..., most can be hardly predicated of anything, not even themselves. In other words, they don't represent a substantial thing, only the attributes. On the other side, Lynch's system is well aware of the

Table 6-1 Basic categories of *FengShui* and Lynch's system

FengShui	Lynch	common characteristic
Heaven, Earth	Site	Nature
Man	User	Human being

relation between name and thing. Of his categories, ecology, soil, landform, plant cover, water table, orientation...etc., every concept (name) is highly predictable, for there is substance. However, Lynch's categories do not carry any attributes.

It is important to notice this difference between a substance and its attribute in *FengShui* and Lynch's system, since neither a substance without an attribute, nor an attribute without a substance is not a complete, universal acceptable category in the sense of holism.

It is, thus, useful to compare *FengShui* categories with Lynch's in such a way that we may hopefully find a link between them.

Comparing Lynch's "water" with *FengShui*'s "water" should be acceptable, for both "water(s)" have the epistemology indication of water, further more, with *FengShui*, the concept "water" also involves attributes in relation to a typology of watercourse (see Chapter 3, P.80-81), that is with different kinds of water, there is an attribute attached to it.

The categories of Lynch centred on classification of the ways of existence of individual things in the sphere of the phenomenal or natural world, which given

Table 6-2 Comparison of categories between *FengShui* and Lynch's system at lower level

Lynch's Site Planning	*FengShui*
ecology	*Five Elements*
soil	*FengZheng* (seam-needle)
landform	*Five ELements*, *Shan* (hill), *Sha* (Chapter 3)
water table	*Shui* (water)
orientation	4 *Xiang* (directions), Animals
clients	8 *Trigrams, Yin-Yang*

considerably less emphasis in *FengShui*. The relation of lynch is the relation between individual entities or things in the natural world, whereas *FengShui* relations among elements are those among genus-concepts or abstract universals.

The categories of Lynch were rather concerning physical aspects, whereas those of *FengShui* were more conceptual realism. One must consider that this difference between the two categories actually reflects the difference between modern western and traditional eastern ways of thinking.

6.4 Graphic representation

Graphic representation plays crucial important role in both *FengShui* and Lynch's system. Especially with *FengShui*, without which, the whole system would clap.

It will be interesting, if we put one of *FengShui*'s graphical representation of a real site (figure 6-2) next to that of Lynch's (figure 6-3, 4), not only the methods of representation are different, but also the contents each system choose to represent in terms of accuracy and level of generalization.

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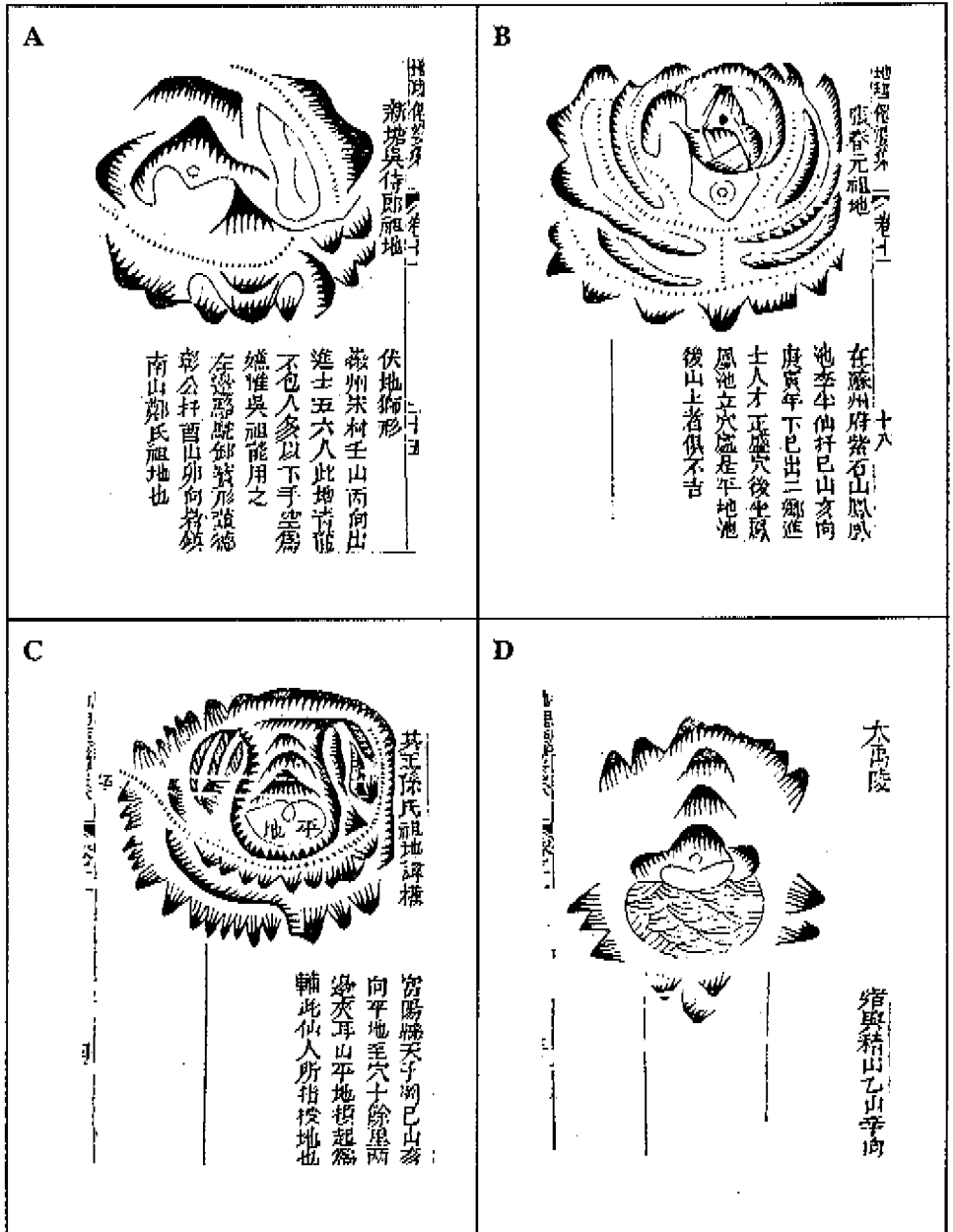
Figure 6-2 *FengShui*'s representation of a site (source: *Xian Po Ji*, P. 935-995)

mature native woods
young native woods
old orchards
park with specimen trees
allees, hedgerows and plantations
reese's run
drainage swales
major view
unique or important vegetation

Figure 6-3 Lynch's representation of site (source: SP, P.18)

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			1	RELATIONSHIP BETWEEN CHEMICAL AND POLYMERS CENTERS
			A	Close relationship with existing school campus
			B	Dispersed sites separated by existing school campus
			C	Separate sites located away from school campus

2 REUSE OF EXISTING BUILDINGS

A Retain existing school campus

B Reuse Administration and Gymnasium Buildings

3 OPEN SPACE PROPOSALS

A Extend English landscape character towards Reese's Run

B Retain distinctive character and separate function for heavily wooded areas

4 FUTURE BUILDING NEEDS

A Future development site "E" on southeast corner of site

B Future development site on northeast corner

C Future development site on north side of main park area

Figure 6-4 Lynch's analytical representation of site (source: SP, P.15)

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Table 6-3 Comparison of information display between *FengShui* and Lynch's graphic representation

	FengShui	Lynch
Elements:	mountains, water course (doted lines), *Xue* (site).	mature native woods, young native woods, old orchards, park with specimen trees, alleys, hedgerows and plantations, drainage swales, major view, unique or important vegetation.
symbols employed in the	3:	9:
structure of the site:	explicitly presented.	explicitly presented.
diagnosis:	explicit	implicit
rules of interpretation:	presented	no
method of representation:	bird's-eye view, nonscale, pictorial, no rules of perspective, landscape representation.	scale-map based on survey and diagrams.
therapy:	one	many (see Figure 6.6)
type of system:	synthetic, closed.	analytic, open-ended

Table 6-3 shows the comparison of the information displayed in *FengShui* and Lynch's diagrams. Comparing the two diagrams, what the *FengShui* diagram presents is a condensed view of landscape with a high level of generalization of

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landscape features. It consists of pictorial mapping of a near-vertical picture of the landscape, like an air photograph would be, but, of course differing from the air photograph in its limit of thoroughness, and its lack of a single overall perspective. Still, the result was a representation of landscape that was faithful and effective (even though not complete) and beautiful. *Shan, Sha, Shui* and *Xue* are the prerequisite elements to be represented. A rule of interpretation of the landscape based on those elements is explicitly presented (see chapter 3).

What Lynch's diagram presents is the cartographic tradition of the topographical map drawn to uniform scale. The generalization of landscape features is made at a very low level, no prerequisite elements are required beforehand. The information displayed is more richer than *FengShui*.

Further more, with Lynch's graphic means of representation, attempts were made not only to analyze the intricate system of a site as a physical object, but also to represent its "underlying cognitive" and "cultural structure" (Tzonis, A & Lefaivre, L. 1992). What *FengShui* diagram represents, on the other hand, is an imposed structure of heaven on earth. The information the diagrams carries is more than mere physical part of the landscape, the connotations of that landscape play even more important role. In this process, what is important is not how man "cognitively" perceive the environment, because it is a fate predetermined by *Heaven*. It is the *FengShui* master's duty to convey the message from *Heaven* to man.

The evaluation of these two kinds of graphic representation will be difficult without a common set of criteria.

In fact that the graphical representation of *FengShui* and Lynch represent the picture-map and the scale-map respectively. They are different from other historical picture-maps, which usually had the disadvantage of masking what lay immediately behind the mountain range if the pictorial conventions were properly observed. *FengShui* overcomes this problem very effectively. This is certainly not to say that we may expect the same level of efficiency from *FengShui* of its application to the modern context of site practice. But, technically, in combination with Lynch's method, *FengShui* can help in the understanding of the topographical map with signs which are not conventionally used, and can grasp the general picture of the landscape represented.

6.5 FengSui and Lynch's system in relation to general model situation

Now, it is appropriate to go back to those fundamental questions about *FengShui* and Lynch's *Site Planning*, which I put forward when concluding the case studies of each respective system. With *FengShui*, I concluded that it was a way (a) of conceiving and perceiving reality and (b) of dealing with reality. Regarding these, I have attempted to reconstruct the *FengShui* cosmological model and then to follow through its application to reality, and have expanded at various subsequent junctures on the expressive function of *FengShui* symbolism and the use of the landscape as a medium. Identification of interests was the subject of expression.

In the conclusion of Lynch's system on site, I said that it is a widespread discourse constituted basically by a "site - user" problematic (which operates in many domains where its epistemological structure and elements as well as its arguments are presented in a variety of ways). The elements of that problematic namely "site" and "user", were surveyed through the specific fields of architecture, planning, ecology, geology, social sciences and everyday life. They were shown to belong to an ideology of humanism, the epistemological structure of which was constituted essentially by the subject-object couple. The system produces its effects by means of a set of mechanisms which were not readily and explicitly given in the system but had to be seen in their operations and effects.

The *FengShui* metaphysics is a *synthetic, inductive* and self-defining set of concepts. It is not open to contradiction except in its own terms, certainly not by being compared with reality. *FengShui* practitioners always have a line of escape, within the terms of the metaphysic. A site diagnosed as favourable can always be re-diagnosed as unfavourable because it can never be the case that no elements in it are not somehow in conflict. No site is perfect and the system dictates no strict rules for the relative importance to be given to its thousand aspects. But the elements themselves do provide a consistent articulation of the metaphysic. *FengShui* is a closed system in the sense that the system is not able to change its elements and their relation under any cases of feedback from practice.

On the other hand, Lynch's system is a *analytic* and *deductive* system with a complete set of concepts which are organized by a problematic. It is an open system since the system is always able to be reprogrammed due to feedback from individual cases of site situation. Lynch's system is a therapeutic device.

As to the application of the *FengShui* model to the social situation, any one part of the metaphysic could be used in an analysis of a specific site and the rest of it could be ignored. No principles were imposed in the operation of *FengShui* practice. In the case of the conflict, *FengShui* could be used to express both the conflict and its resolution in a self-contained way, and arbitration was not made objectively, so to speak, by an appeal to the logic of the system. *Fengshui* concepts could not be computed to give the resolution of two *FengShui* situations. Only by a primary decision on the part of the disputants, for other than *FengShui* reasons, could a resolution be brought about, but it could then be sealed by reference again to *FengShui*, made possible then by *FengShui*'s very flexibility and lack of strict logic.

Given the above situation, we may conclude that both *FengShui* and Lynch's system are less model than language. A stricter use of the meaning of 'model' should clarify the situation and for this purpose I will employ Brunn's (1979) lucid account of *general model situation* (figure 6-5).

The general model situation defined by Brunn contains four elements and five relations:

Elements:
1. The original object: can be any material or ideal object, an element of the original interaction; an action object of the original subject.

2. The original subject: an active subject; an element of the original interaction; has the general action aim.

3. The model object: (like the original object) can be any material or ideal object, an element of the model interaction; similar to the original object.

4. The model subject: (like the original subject) an active subject; an element of

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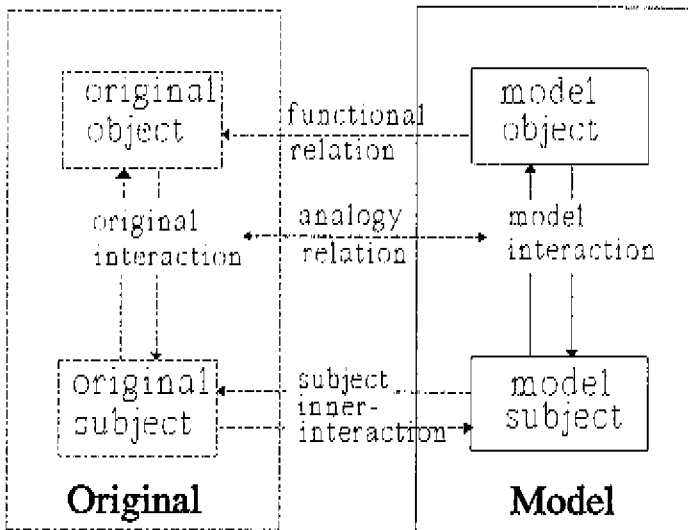
Figure 6-5 General model situation (after Brunn, E. 1979)

the model interaction; has the special action aim of supporting the practice arrangement of the original subject in the original interaction; an element of the subject inner-interaction.

Relations:

1. The original interaction: exists between the original subject and the original object; an operation relation between original subject and original object; an information relation between original subject and original object.

2. The model interaction: exists between model subject and model object (is completely symmetrical to the original interaction); is not by definition a model, but develops this quality only under certain conditions.

3. The analogy relation: exists between original interaction and model interaction.

4. The functional relation: exists between original fields (object, subject and interaction) and the model; the model interaction affects the original fields due to the involvement of function.

5. The subject inner-interaction: exists between original subject and model subject, corresponds to the general subject of the model situation; mediates materially the influences according to the functional relation from the model interaction to the original interaction.

To compare *FengShui* and Lynch in accordance with the above conditions of the general model situation, we may put them in table 6-4.

As to the first condition, the represented (or original) objects in *FengShui* was exclusively natural landscape, whereas, Lynch's original objects include both natural and man-made environment.

As to the second condition, in the case of *FengShui*, this field is the success and failure of man (alive and dead) in the social life, dependent upon the physical environment. In the case of Lynch, it is the preservation and betterment of the physical environment as it is viewed by man as part of the environment.

Concerning the third condition, the abstract 'man' in *FengShui* was transformed into the history of client which was represented as 8 trigrams, 5 elements, *Yin-Yang* conditions ...etc; the model subject of Lynch's system was classified into user, user group, designer, contractor ....and so on.

The model object of *FengShui* was a typology of landform represented by the compass and pictorial *FengShui* diagrams (see Chapter 3); in Lynch's system, model object was represented by the symbolic mapping based on geographical survey, as well as on techniques of photography and scaled models.

The original interaction in *FengShui* was expressed by the traditional chinese philosophy of unification of heaven, man and earth; in Lynch's system, it is the demarcation of site and user.

The subject inner-interaction exists between diviner and clients in *FengShui*, and between designer and users in Lynch's system respectively.

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The model interaction was realized in *FengShui* through the compass and other rules (like the numeration system, the mutual productive and destructive

Table 6-4 Comparison of general model situation between *FengShui* and Lynch

	FengShui	Lynch
original object	natural landscape	built & natural
original subject	man (dead and alive)	man
model subject	man (8 *Trigrams*, *Yin-Yang*, 5 *Elements*)	users, user groups, designers,
model object	landform (*Shan, Shui, Xue, Sha*) in *FengShui* diagrams and compass (refer to chapter 3)	mapping of landscape in graphic representation (refer to table 6-7)
original interaction	*Heaven - Man - Earth*	site - user
subject inner-interaction	diviner - customer	designer - user
model interaction	compass	absent
functional relation	implicit	explicit
analogy relation	pictorial representation	symbolic mapping based on geographic survey
objectives	ideological, aesthetic	economic, functional, aesthetic

relationships among 5 elements... etc.); Lynch's system fails to work as a model due to the absence of model interaction.

Functional relation is explicitly defined in Lynch's system; with *FengShui*,

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however, the functional aspect has almost no impact on the selection and arrangement of the site. In addition, the evaluation of the site has nothing to do with the function the site is going to serve (except the difference between *YinZhai* (dwelling for the dead) and *YangZhai* (dwelling for the living).

In the last condition, analogy relations are obviously presented in both *FengShui* and Lynch, except that the analogy is made at different levels due to the employment of different methods of representation.

Further more, as with *FengShui*, inference and predictions are made, but not checked back. *FengShui* works more as an explanatory or diagnostic device than as a design tool[3].

Lynch's system on the other hand, is a therapeutic device. As the title of the book itself indicates *Site Planning*, the book *per se* is aimed at 'planning' of the site. Its inference, predictions are based on the programs designed according to the model fields (object/subject) and are checked against the known data in the original fields (object/subject).

Because we are going to set up a *meta*-model on site representation, I would like to go one step further with analogies between the use of theoretical models and the use of the two systems under comparing. The characteristic of the theoretical model is that the relationship between the two fields is metaphoric. The model is "a sustained and systematic metaphor" (Black, 1965. P.236). A description of the model is a metaphorical description of the original because relationships between the parts of the one are the same as, or are believed to be the same as, the relationship between the parts of the other.

This seems to be the proper sense in which to take the expressive function of *FengShui*. Two types of theoretical mode described by Black are employed in *FengShui*. The first is the so-called existential model, in which one physical entity is used to explain another - this is that the landscape or the site is the social success of the owner, which is typical of *FengShui*. The second is what Black calls the analogue model which concentrates on reproducing in another

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[3]The statement here has no indication of denying *FengShui*'s possible function as a design tool in its modern application in site practice. The argument is theoretically made in comparison with Lynch's system, and in this sense, we must agree that demarcation in comparative studies is always a problem of degree. There is no such a thing as 'black and white'.

medium the relationships between parts of the original, which happens in both *FengShui* and Lynch's system. *FengShui* cosmology is eminently more about relationships than fixed entities; the phases of cosmic breath and the interaction of elements may easily be and are, in the manual itself, personified into social phases and interactions.

Analogue model is common in the figurative and descriptive analysis in Lynch's system as well, though, Lynch pays more attention on the identification of the entities (instead of the relations among them). The similarity that analogies are said to establish is between not only properties of certain objects and the site, but also between all the disciplines in the system. While in the first type of analogies similarities are sought between isolated phenomena and their properties, in the second, fundamental problematics of disciplines are transferred into the field of site practice.

Concentrating on relationships, the analogue model allows the widest variety of content and therefore great scope of interaction. "Analogue models furnish plausible hypotheses, not proofs" (Black, 1965). This is where the vagueness of *FengShui* operation lies.

In the system of Lynch, no such expressive function of model is necessary. The model represents clearly defined information, not symbolized metaphysical data.

In a sense, the metaphorical content for the analogue is supplied by the landscape, the physical environment, in other words by the existential model, in the case of *FengShui*.

Having gone this far in comparing *FengShui* with Lynch's system on site analysis, we might notice that we are dealing two kinds of 'models'. With *FengShui*, it is actually not a consciously constructed model, rather an archetype. The universe, the landscape, the seasons are already there, Moreover, there is an empirical connection between them, the second field, and the original field. The model is metaphysical; it is *meta*-natural-environment, where the original field is the social environment.

We might say that the compass, as an ideal reconstruction of the natural universe, is a model of the model used to explain the social environment. The

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metaphysics of nature apply directly to the fortunes of man. The model itself becomes the hypothesis it is supposed to furnish. The metaphysic becomes universal, explaining both nature and society, and if it is one at all, the compass is a model for both.

Richards (1936) says that the secret of the connection made by metaphor is that it depends on the readers knowing the standard meaning of the illustrative mode. It is a "system of associated commonplace that are the common possession of the members of some speech community" (P.40). This is precisely what *FengShui* is. A number of cliche images - such as Dragon or Tiger - are used as symbolic illustrations. But, crucially, symbol and type of event are vague enough to allow specific and personal interpretation.

Hence, it is reasonable to say that *FengShui* is more an archetype than a model. An archetype is an understood field of reference which provides the imagery for describing the original field for investigation. In this sense, it is used as a device for diagnosis and prevention.

Lynch's system, on the other hand, even though it has clearly identified elements, fails to provide a rule system (model interaction) to organize those elements. Missing this, Lynch's system is a *pseudo*-model. It is used as a therapeutic device for planning and developing.

Still, both *FengShui* and Lynch's system on site analysis have *proven* to be valid for their respective purposes in their different contexts.

6.6 Summary

We have tried in this chapter to find out the similarities and differences between *FengShui* and Lynch's system. The purpose of this comparison is the in-depth understanding of the structure of site phenomena and the means of its representation.

The comparison has been made in terms of structure, mechanism, categorization, graphic means of representation and *FengShui*'s and Lynch's relations to the general model situation. Both systems have *proven* to be useful additions to

the body of knowledge in the field of site analysis. Each brings a different perspective to the site problem; each has different set of operating procedures; each rests on a different set of assumptions; and each advises the designer to select different site elements and to analyze them in different ways. Through comparing and consequently synthesizing the concepts from the two systems, we have prepared a common ground for the formation of a new system on site representation.

PART III

Theory Development

Chapter 7

Framework for a universal classification system of a site

The *elements* for a general representational theory on a site derived from the comparative case studies between *FengShui* and Lynch's system on site analysis and the rules of interpretation outlined in chapter 5, provide us with a frame of reference for examining the fundamental properties of a site from the point of view of an empirical observation with a theoretical basis. There is no suggestion, however, that it should supersede other frames of reference which have been successfully employed in various systems concerned with the problem of categorization of a site. All such frames of reference involve a measure of categorization according to the properties which are deemed to be important. In *FengShui*'s description of site, for instance, *Heaven, Man, Earth* and their relationships have been accepted as the fundamental organizers of knowledge. The symbolic division of landscape into 5 *Elements*, 8 *Trigrams* and 9 *Stars* or 12 *Stems* is practically inevitable.

The same basis of differentiation would be inappropriate in Lynch's system in that his concern is to explain the characteristic of a place experienced by the user of the place "from within" (A. Tzonis & L. Lefaivre, 1992). He sees a primary significance in the dichotomy between "site" and "users".

The division between users and site or between *Heaven, Man* and *Earth*, though quite untenable if pressed too far, provides a minimum meaningful starting point from which a new approach can be derived.

A moment's reflection will show that both *FengShui*'s and Lynch's systems

of categorization of a site can be equally valid for their respective purposes. They are not mutually exclusive, and we do not have to demonstrate the invalidity of one before we can propose another. Indeed, even the most sophisticated examination of a vast amount of data classified in one system could totally overlook the significance which might be immediately apparent were it classified in another. Just as a classification of landscape into 5 *Elements* or 9 *Stars* would be useless for Lynch's system which nevertheless, needs a more precise and highly exacting system of categorization for its own end, so a division into ecology, soil, landform, water table, plant cover and others was developed.

For our own purpose in this study of a general representational theory on site, we need a framework of categorization based on universal as well as fundamental concepts of site phenomena. Once we have provided ourselves with this and begin to refer to it in actual features of site, an explanatory link between theoretical concept and actual site would seem attainable. Let us therefore set up such a framework.

7.1 The categorical interpretation of site

Since we are attempting to develop a *meta*theory[1] on site representation, our interest is not really in individual instances but in the categories of things and the universality of phenomena or underlying structures of a site. In other words, we shall consider a common categorization system which is universal (of properties, values and procedures) to all site situations. Then the question of interest is to find a structure establishing mapping between them so that fundamental meaning of site representation can be disclosed. To deal with the categorization problem, we will use (most naturally) the category theory.

Before proceeding with specific developments of a categorization system of a site, it is useful to take a broader view and consider what role the category theory (refer to chapter 5) could play in our study on site analysis, furthermore, it is necessary to set up some goals for the development of a more meaningful

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[1] i.e. a general representational theory on site.

application of categories in a general representational theory on site analysis.

Let us start by recalling some of the principal roles which the category theory plays in knowledge systems in general. Referring to chapter 5 (P. 130-135) on the general review of category theory, the first role of the category theory is to provide a common language and a set of unifying concepts to various branches of our knowledge about the world. Using these unifying concepts, structurally analogous results are represented by a single result which provides a deeper understanding of the problems involved. The second role of the category theory is to provide a precise definition of natural or universal relationships between various facts. The third role of the category theory is to provide a vehicle by means of which the results and methods of one sort of knowledge can be transformed to another.

We believe that the category theory can play these general roles in the general representational theory on site as well.

Since the general representational theory on site analysis has its own set of problems different from other domains, some aspects of the category theory are specifically emphasized and categorical concepts will be particularized in our application. One such problem, which will be considered in more detail in our study, is that of structural similarity between different systems on site phenomena. Constructing a model of a system and deriving conclusions about the behaviour of the system from using that model - among the most prominent features of the systems approach - are heavily dependent on the concept of structural similarity (Mesarovic, 1972)[2].

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[2]The following comments made by M. D. Mesarovic in his opening remarks at the Symposium *"System Approach and the City"* held at Case Western Reserve University, will characterize the system approach:

(1).When considering any particular problem one uses the broadest possible context. Whatever the system one focuses on, it is recognized that it represents but a subsystem of a still larger system. It is therefore, imperative to recognize that a study can not be limited to include the concepts from a single traditional discipline, e.g., economics, sociology, architecture, the various branches of engineering, etc. On the contrary, there is a need for the blending of tools from a large number of areas. This broad approach is quite apparent in the case studies to be found in several of the chapters of these proceedings.

(2).In describing the various factors of importance for the given urban problem, primary emphasis has been placed upon both the relationships between the factors as well as upon identifying the inner

Generally, the structural similarity between two entities, for instance groups, is represented by the notion of morphism[3]. In the application of the category theory to our study, the general notion of morphism does not appear to be useful as such: it becomes meaningful only when it represents a structural similarity among the systems. In other words, one of the reasons that we are interested in the category theory is that it can precisely represent the structural similarity. The general representational theory on site, therefore, focuses on the concept of a morphism as a modelling morphism. Actually, it is this limitation that most clearly distinguishes the application of categorical concepts in the field of site study from others. The other difference between the application of category theory in general and the field of site analysis is that categories vary in their degree of precision. Categories of quantitative aspects of our knowledge may be extremely precise, but the categories with which we are concerned are typically

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mechanisms which produce the observed behaviour. The future, then, is assessed not on the basis of extrapolating past trends, but rather on the basis of understanding the effects determined by these inner mechanisms and how they affect the future. This is in essence where urban dynamics studies differ from the more traditional urban planning.

(3). Relationships between various factors, simply referred to as variables, are described in terms of decision-making and information processing concepts. It is necessary to consider carefully feedback affects, optimal response, information transmission, etc. The contrast of this method of description with the traditional ones will be particularly striking in several of the papers which consider the city as a cybernetic system. Of course, any of these variables have origins within some specific interpretation, but in the assessment of the interdependence, the variables are simply considered as a set of interacting objects (e.g., as a system). Such an approach has at least the following two advantages: (a) Methods of analysis developed in various specific fields can be used quite readily for the study of urban problems; (b) Since all subsystems are described within the same framework there is a better foundation for integrating the subsystems into a larger system - thus it encourages a broader view of the urban phenomena.

(4). Once the description of an urban phenomenon is posed in the system-theoretic framework, the computer simulation and possibly quantitative methods of analysis can be used for the study of dynamics as well to investigate the logical consequences of the alternative courses of action - say, for policy evaluation. However, it should be emphasized that the usefulness of the system's description is not confined solely to the possibility of a quantitative analysis. The very description of a phenomenon in the systems-theoretic framework can provide important insight perhaps by establishment of some important cause-effect relationships (even though these may be in but qualitative terms). A notable example of this is the recognition of the information-input overload as an important determinant of the psychology of urban living. (P.1-3)

[3]The notion of morphism is axiomatically defined on a general level in the category theory without referring to the concept of structural similarity.

much more vague, due to the employment of sensory perception categorization.

Consistent with the roles of the category theory in our study outlined above, the following system issues will be dealt with by means of the category theory:

1) Development of a framework for the study of structural
   similarities among systems of site phenomena.
2) Discovery of universalities in site phenomena.

1) First of all, category theoretic concepts yield the following framework for the study of structures and structural similarities of systems: a system is taken as an object of a category, the structural similarity between two systems is represented as a morphism. A morphism is a structure-preserving map and the existence of such a morphism implies a structural similarity between the objects (see more on Mesarovic, 1989). Since morphisms are basic elements in the category theory. Every categorical concept or result in the field of site study can be interpreted directly or indirectly in terms of structural similarities. If there is an isomorphism between two objects, they should be considered as being structurally the same.

In application of this idea to the field of site analysis, we may identify three fundamental components. All the objects (or elements) of each component have structural similarities with each other: human conditions, physical settings and the contextual formations. We shall later discuss more about the formation of those concepts and their connection to and difference from Lynch's division of site and users, and *FengShui*'s division between Heaven, Man and Earth[4].

The term human condition includes all those people who own the site, work on the site, maintain the site and design the site. They are clients, patrons or customers, commissioners, designers, engineers, building contractors, suppliers. They serve the site, live on the site, play on the site, contemplate and enjoy the

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[4]Beside the connection of those three categories with *FengShui* and Lynch, we should also mention the way Mesarovic (1972) classifies various urban phenomena in a manner compatible with the systems viewpoint. According to him, four basic factors are recognized to describe urban phenomena: (a) man, the individual, in the urban setting; (b) groups of people living or working together under urban conditions; (c) the natural environment, largely determined by the geography of the area; and (d) the man-made or technological environment. (P.3)

site or simply pass by the site. The structural similarity among the objects in this category is obvious: all kinds of *human beings* acting on the site.

Physical settings include both natural and man-made features. Natural physical settings include topographic contours of the landscape, plants, trees, soil, water courses (pools, ponds, lakes, rivers). Man-made features include existing buildings, playing fields, courts, patios, plazas, drives, walks or service areas, curb cuts, power poles, fire hydrants or bus stop shelters, utilities...on the site. The structural similarity here is that all the objects are *physical* or *morphological* structures.

The contextual formations include all the conditions, situations, forces and pressures that constitute the existing site. They are location, the immediate surroundings of the site, climate, flora, cultural background of the neighbourhood, customs, festivals, orientation...etc. As the term itself indicates, the structural similarity is that they are all the *background* of the site, not the site *per se*, nor what one may identify directly on the site.

2) As we have discussed in chapter 1 on the "concept" of a site, it stands for some kind of reality, be it objective or subjective. These abstract terms or general concepts of a site are absolutely necessary to the process of getting to know a particular site. We must refer to some kind of entity not given to the senses in particular. We may call this the "universality" of site phenomena, through which we may give a characteristic definition of all pieces of land where building activities are going to happen "site", which is a universal term, be it at a beach, a mountain valley, or on a desert, it does not exist as a particular site at some particular time or space.

The universalities of site phenomena are "beyond any quantitative category, they are purely qualitative identities" (Beck, M. 1974, P.232-236). They are elevated into separate essence from the being of the site as such that the properties, attributes or qualities of that site are separated as physical parts and raised to independent existence. They do not have existence apart from what they are... In other words, universality means those terms such as "abstract", "generic", "conceptual", "universal", "attribute"...and so on.

One point I should like to make clear is that the term "universality" we use is

different from the 'conceptualism' of Aristotle, according to which there are no such things as unique particulars, or real universals standing in complete isolation. "Universality" or "concept" in our case is merely one polarity of an unseparated wholeness of site phenomena, which identify the qualities or attributes of a site from the being of it. The properties are common to a class of sites, and constitute the construction of a certain *generic concept*.

Hence, those essences of site that are supposed to be present at every site phenomenon are proposed as "universalites" of a site.

Such statements as: a site is a centre of action and intention, it is a "focus where we experience the meaningful events of our existence" (Norberg -Schulz, 1971, P.10); sites are thus incorporated into the intentional structures of all human consciousness and experience, are also commonly possessed by all site phenomena.

Again, when we define the site simply as the context or background for intentionally defined objects, activities or events, they are universally referred to.

The basic meaning of a site, its essence, or universality does not therefore come from locations, nor from the trivial functions that sites serve, nor from the objects that occupy it, nor from superficial and mundane experiences - though these are all common and perhaps necessary aspects of a site. The *universality of a site* lies in the largely unselfconscious intentionality that defines sites as profound centres of human existence. These centres constitute a vital source for identity and security, a point of departure from which we orient ourselves in the world.

If we consider sites only in terms of their specific content, they present a remarkable diversity - one in which common elements are not readily apparent. Furthermore, our experiences on site are direct, complete and often unselfconscious, if there are component parts, they are experienced in the fullness of their combinations. However, from a rather less immediate perspective one can distinguish elements, bound together but identifiable nevertheless, that form the basic material out of which the universality of sites is fashioned and upon which our experiences of sites are structured.

In *The Visual and Spatial Structure of Landscape*, Tadahiko Higuchi (1983) uses a clearly structured approach in his accounts of the site of Itsukushima

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Shrine, both when he is describing his own experiences and when he is describing as an observer. He reveals not only what appear to be the basic components of the universality of all sites, but also the interweaving of these.

"Itsukushima Shrine, on the north shore of Miyajima, is built over an inlet, and its great torij is a fair distance out in the water. South of the Shrine rises a mountain, Misen, which is worshipped as a sacred peak, and it would appear that the entire island was formerly regarded as sacred. Some told that it was worshipped from the Chigozen Shrine in Hatsukuchi on the mainland, and that is why Itsukushima Shrine was built over the water rather than on land. The shrine area is bounded on either side by promontories, and the sea spreads out broadly in front. Since the shrine faces northwest, the directionality does not suit the zofutokusui pattern, but, with Misen looming up in the rear, the landscape as a whole may be regarded as belonging to the lineage of the hill-behind, pond-before garden" (Tadahiko Higuchi, 1983, P.153-155).
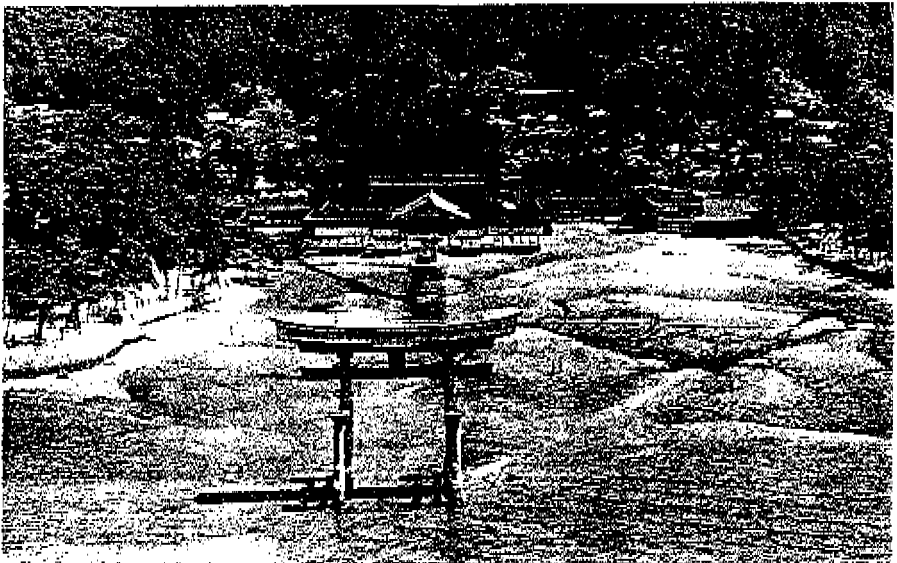
Figure 7-1 Itsukushima Shrine (Hiroshima Prefecture) (source: The Visual and Spatial Structure of Landscape. P.154)

Here, Higuchi makes quite clear the major features of the site of Itsukushima Shrine. First there is the beautiful physical settings of mountain, island, water and the shrine, which provides the backdrop to the ostensible, observable activities of the people. These embrace and infuse of course a set of meanings behind the shrine.

These three components of site that are so apparent in Higuchi's writings - the static physical setting, the human activities, and the meanings - constitute the three basic elements of the universality of sites. these echo exactly those elements in *FengShui*'s division of *Heaven, Man* and *Earth* and Lynch's site (physical setting and contextual meaning) and user. A moment's reflection will suggest that this division, although obvious, is a fundamental one.

The three fundamental components of site are irreducible one from the other. They are inseparably interwoven in our experiences of sites. In explicating this experience, however, they can be identified as distinctive poles or focuses, and can be further subdivided within themselves[5], which is beyond our present discussion, and we will come back to the subject in later chapters.

This analysis of components of universality of sites is not, however, complete. There is another important aspect or dimension of universality that is less tangible than these components, yet serves to link and embrace them. This is the attribute of universality that has been termed *genius loci*, or *local Qi*[6] (which literally means the spirit or sense of site) - which refers to character or personality. Obviously, the spirit of a site involves topography and appearance, functions and human activities, and particular significance deriving from past events and present situations - but it differs from the simple summation of these. Spirit of a site can persist in spite of profound changes in the basic components of universality.

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[5]To legitimize these three fundamental components and their subdivisions, we need theoretical support of categorization which is the subject of chapter 5.

[6]For more discussion on Qi refer to the case study on FengShui in chapter 3

7.2 Concepts as basic units of site knowledge

To categorize our knowledge of site, actually means to conceptualize it. Thus, the fundamental elements of a classification system of site phenomena are, as a matter of fact, either concepts or representations of concepts of site. Such elements may therefore be regarded as classes if they do in fact group together a number of elements in the system itself. Usually, however, the elements of a site exercise this function only in their application to items of reality, that is, to elements of site belonging to a certain class, indicated by a concept or a combination of them (like in *FengShui* system, the five *Elements*, nine *Stars* or the *Animals* are all such classes. In Lynch's system, they are classified in either various disciplines or domains). Thus, classes in our case are, as a rule, merely the products of classification systems rather than being their constituent elements. In other words, the function of a classification system of a site can be defined as its potential of creating order by relating items of reality to known and preestablished elements of a given site situation.

If it is accepted that the elements of our knowledge of a site are concepts or representations of concepts of site phenomena, then we must clarify what a concept is. In order to explain this we must use the theory of cognitive science.

According to cognitive science, man is able to perceive his environment and structure unconsciously. Later he can perceive the stimuli or percepts from outside and inside consciously. Through constant interaction with his environment, man creates stable structures in his mind; psychologists call these structures "concepts". Bolton (1977) defines such a "concept" as: "a stable organization in the experience of reality which is achieved through the utilization of rules of relation and to which can be given a name" (P.62).

7.2.1 Intension and extension of concept

The *concept* is thus regarded as a basic epistemological component of human knowledge. In the following a concept is defined to be an independently identifiable construct which has an internal structure and is composed of knowledge primitives and/or other concepts (Kangassalo, H. 1988). The knowledge content of a concept is called its *intension*. The concepts and knowledge

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primitives together with the structure they form in the intension of a concept are called its *characteristics*. A set of objects in the application field to which a concept applies is called its *extension*. The elements of extension are called *occurrences* of the concept.

In representing the intension of a concept in a definition, for example, one does not need to mention all the characteristics or all the broader concepts of a given concept. It suffices to mention the broader concept, which contains in itself its concept hierarchy. In addition, however, one or a defined number of specifying characteristics must be indicated, for example:

> Site   - a piece of land
>   - in a certain location
>   - involved with human activity

It is not necessary to define "human activity" or to name the characteristics of human activity when defining a site. But the characteristics "designing", "building", "living" are necessary ones in the concept "human activity" or in its concepts on a higher hierarchical level, and these need to be specified if a specific case of a site is to be characterized.

Hence, generalizations of special characteristics may help to clarify the characteristics of broader concepts in cases where their identification presents difficulties.

On the other hand, the *extension* of a concept is the sum total of the narrower concepts which a concept may possibly include. Extension can also be understood as being the set of concepts for which the intension of a concept holds true. That is, the extension can be the class of concepts which have those characteristics in common with those contained in the intension of a given concept. Accordingly we may distinguish between three kinds of extensions of a concept, namely,

1) the extension of a broader concept in relation to its narrower ones according to the genus/species relation as in:

> building site

city site, etc.

2) the extension of a concept characteristic as in:

size of the site
location of the site
user of the site

3) the extension of possible particular concepts, that is, the concepts of all particular objects of which it may be said that the prediction is a true prediction in a given case, such as:

The site in which a hospital is going to be built.

The basic epistemological relation between concepts is "intensional containment" which is a binary relation defined within the set of concepts. It holds between two concepts, A and B. In other words concept A contains concept B intensionally, if the knowledge forming concept A contains the knowledge forming concept B.

7.2.2 Knowledge primitives

Knowledge primitives are used as building blocks of concepts, possibly together with other concepts. There are various kinds of primitives:

- An identifier or a name of the concept is a linguistic construct used to refer to a concept.
- Existence property, i.e. knowledge about the existence of a concept: a concept has been explicitly recognized and possibly named.
- Identifying property is a property of concept B intensionally contained in concept A that enables an occurrence of concept B to be used to identify an occurrence of concept A.
- Condition is a truth-valued proposition that can be either true or false for a given occurrence of a concept.
- Constraint is a truth-valued proposition that must be true for the occurrence

of a concept if the constraint appears in the intension of that concept.
- Value set is a set of other concepts and their representations associated with a given concept.
- Semantic rule is a piece of text explaining the concept (in a natural language).

For each element (primitive) there are rules which specify how the primitives can associate with other elements and concepts.

The "epistemological primitives" are those pieces of knowledge which cannot be decomposed any more without losing their essential characteristics. In other words, they are irreducible blocks of "knowledge".

A "basic concept" is composed of epistemological primitives which cannot be analyzed or defined using other concepts of the same conceptual system. It is graphically represented by giving the name of the concept, to the name other knowledge primitives can be attached, e.g. description of the corresponding value set, constraints, identifying property with a key specification, and occurrence conditions specifying the conditions under which an occurrence of a concept may appear.

A "derived concept" is a concept the characteristics of which have been derived from the characteristics of other concepts in the way described in the definition of that concept. It is made up of concepts and knowledge primitives intensionally contained in it. Structurally, it is a directed acyclic graph based on the relation of intensional containment between concepts. Knowledge primitives contained in a derived concept are attached either to one or more concepts or to an intensional containment relationship.

7.3 Concept formation (definition)

How are concepts are formed or defined? To answer the question, we must agree that the process of concept formation is actually the process of knowledge formation.

It all starts by relating thoughts to actually existing objects. From statements about his natural surroundings, from experiments and measurements, from

counting and inferring, man has proceeded to formulate laws of nature and to apply these laws to his field of activity. Any of his statements relating a reality experienced or measured creates a "knowledge element" which may also be regarded as a primitive or basic concept. Collection of such knowledge elements referring to an object of reality or a verifiable object of thought may be termed as "knowledge unit".

Our concepts concerning site phenomena are such knowledge units as may be described or defined using natural language, and are formed by relating thoughts to the "verifiable"[7] objects of thought (existing theories on site practice).

Dahlberg (1978) once said that "scientific concept formation is based on prescientific cognition and thus can make use of ordinary language to support the cognitive processes involved, as well as to state its results" (P.67). And when answering the question of "How does concept formation take place?" he referred to the following three steps:

-by selecting an item or reference
-by formulating true statements/predictions about this item
 (this must be verifiable)
-by summarizing or synthesizing these predictions in a term/name

We can see that among the three steps the item or reference plays the most important role in determination of the characteristic of the concept. That is, if the item of reference is the individuality or particularity of an object, the statements about this item are descriptions of it. These lead to an "individual concept", but it is not the concept yet, only its item of reference, because it is 'individual'. In other words, only when the item of reference is something general, a plurality of individual items, or something abstract, or a process and its results, or a phenomenon, then the statements about such an item will result in definitions. One will refer in a statement to something known and add to it what there is to be stated in addition. In such a case, a "general concept" is involved.

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[7]The verification of *FengShui* and Lynch's system on site analysis is set up on the basis of successful performance in their respective contexts.

Actually we can construct concepts about anything, for general or special objects, phenomena, processes, operations, properties, places, periods in time, etc., by making verifiable statements about their items of reference.

In application of above to our case on a site, we will obviously choose those items of reference which are general, abstract, and about process as well as phenomena on sites in our construction of a general classification system of site phenomena. We will come back to this later.

Concretely, the formation of concept can be seen as a process consisting of two phases. In the initial abstraction phase the essential features from the observations are recognized and extracted. These features are matched and combined with types of epistemological primitives. The results are factual knowledge primitives, i.e. knowledge primitives with part of their knowledge content created as a result of abstraction from observation. This has been done in the previous chapters.

In the concept definition phase concepts are constructed from knowledge primitives and previously constructed concepts (Kangassalo, 1990). A "definition" is a linguistic expression which specifies how the knowledge (characteristics) in the defined concept (definiendum) is derived from the knowledge contained in its defining concepts (ibid). There can be several different definitions which define the same concept. In this context a definition is a graphical diagram which associates the new concept - that which is being defined - with the set of old, i.e. already defined, concepts in some specific way. The type of the structure of a definition of concept together with attached knowledge primitives specifies how the characteristics of a defined concept are to be derived.

Concepts can be formed or defined in many ways. To name a few: aggregation, generalization, value transformation, structural transformation, intensional operators... etc. (Ohsuga, *et al.*, 1990)

7.3.1 Concept formation by aggregation

In concept formation by aggregation, the concept is constructed by selecting an identifier or a name for it, and connecting it to the defining concepts using the relationship of intensional containment represented by a line. Knowledge

primitives of different kinds can be added to the definition. The general pattern of aggregation is shown in figure 7-2. The definiendum (new concept, or derived concept) is on the top of the diagram. Its defining concepts (concept 2...n, or basic concepts) are on the lower levels of the diagram. An indicator can be a conditions list, or a constraints list (refer to the discussion on knowledge

Concept name 1

indicator 1   indicator n

Concept name 2   Concept name n
(or knowledge primitives)

CR indicator 1
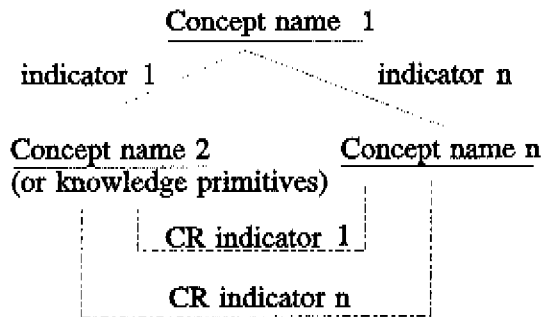
CR indicator n

Figure 7-2 Pattern of concept formation by aggregation (after H. Kangassalo, 1990)

Site

Heaven   Man   Earth
(context)   (human)   (physical setting)

Culture/value Users Designer

Physical setting

Landscape

Plant cover Landform water
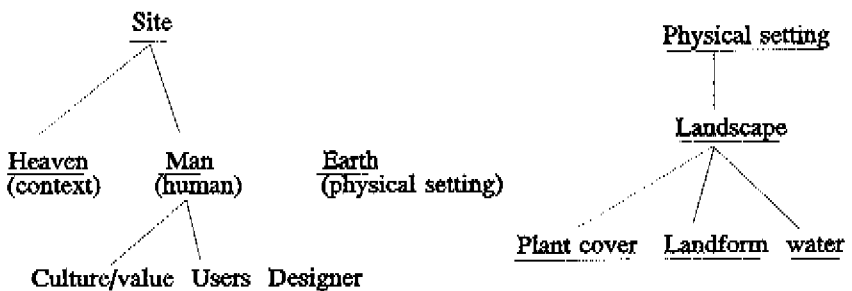
Figure 7-3 Examples of concept formation by aggregation

primitives in P.177). A C - indicator is a conditional - constraint.

In application of aggregation to our context of a site, the concept of a site is formed with six defining concepts. These are *Heaven, Man, Earth*, context, human, and physical settings, from two established theories of site - *FengShui* (FS) and Lynch's *Site Planning* (SP). The formation of physical settings indicates that it contains the concept of landscape which consists of plant cover, landform and watercourse,...etc.

7.3.2 Concept formation by value transformation

With *value transformation*, the defined concept is constructed by specifying how the value representing the new concept is derived from the values representing the defining concepts. The specification is given as a function V1 + V2 + V3 ...Vn -> V, in which V is the value set of the new defined concept and V1, V2, ...Vn are value sets of the defining concepts. The pattern of value transformation is the same with that of aggregation. The difference lies in the content of the knowledge primitives - one is the concept itself, another is the value of the concept. We will come back to this later in chapter 8 for its application.

7.4 Essential/accidental concepts in site phenomena

We said before that each statement relating to a reality creates a knowledge element of this reality which may also be regarded as an element or primitive.

There are many concepts in a site. However, regarding their applicability in concept formation or in the concept constituting process, there are two kinds that must be distinguished, namely the

-necessary/essential concepts, and the
-accidental concepts

With the essential (or universal) ones, general concepts are defined, with the accidental ones, in addition to the essential ones the specific and individual concepts are described. As to the application to the study on site, we have

already discussed the universality of site phenomena in previous section, we should now talk about the notion of accidental, or individual concepts as well.

The notion of individuality is a fundamental one in everyday life. If we call by whatness the abstract, universal concept of a site, then, the other polarity: the concrete, particular, or individual aspect of a site may be called by thisness.

Obviously, it is not enough to only have qualitative identification of a site. Our knowledge about our experience of site is "not alone a synthesis of particular nor alone an analysis of universals; it is both together operating upon an experience in which both elements are presented" (Blanshard, B. 1939, P.570).

Without concrete, or particular information display, it is impossible to explain satisfactorily the site phenomena. While the value of concreteness as represented by particulars should not on the other hand underestimate the value of abstractness as represented by universals, because we cannot experience the universal site in complete isolation from its embodiment in a particular object in time and space; nor can one know the particular site merely as this site, as a skeleton of bare existence.

The particularity of a site here refers to a persistent sameness and unit which allows that one site to be differentiated from others and serves as the basis for its recognition as a separable entity, as well as the concrete, detailed data display of a particular site information.

Thus, rather than being a point on a map, the particularity of a site is a basic feature of our experience of that site, which "both influence and is influenced by those experiences" (Relph, E. 1976, P.45). Particularity has concrete meaning and must be able to be represented either visually or verbally (not only mentally).

If we consider sites in terms of their specific content, our experiences of sites are direct, concrete and visualized, and often unselfconscious; if there are component parts they are experienced in the wholeness of their combinations and which form the basic material out of which the particularity of sites are structured. In this sense, "the word 'site' and 'locality' should convey the same meaning that the word 'person' does" (Kevin Lynch, 1984, P.30).

For instance, location as a general concept is applicable to all site, while a location where children' hospital locates would be the particular concept. Hence, the essential concepts are the ones that have also a function in naming an

particular concept. Whereas the accidental ones must be used in naming an particular concept. Another function the essential concepts have is structuring classification systems. we will get to this later.

To illustrate their application in our study on site, table 1 provides an overview of a classification of concepts as related to site.

This actually classifies concepts of site system in a hierarchical order: the sequence from higher levels to lower ones corresponds to that of general or essential one to accidental or particular ones.

What we wish to point out is that once the concepts of different levels have been identified, they may be used to facilitate understanding of the matter in question.

In conclusion of above: the finding of concepts can be called "concept analysis". Concept analysis can be considered as representation of known facts about a thing, an item of reference, it is something absolutely vital for a synopsis and for a useful structuring of knowledge.

We may define a concept in site phenomena as a knowledge unit synthesizing the characteristic of a stated item of reference on a site by a term or a name. A general concept of a site as a concept which synthesizes the necessary/essential characteristic of the site only. An individual or particular concept as a concept which synthesizes necessary and accidental characteristics of the site.

7.5 Concept relations

After having defined a concept as a synthesis of concept elements (characteristics), it is easy to understand that in comparing different concepts with respect to the quantity and kind of their characteristics, one may identify some concepts having one or more characteristics which are shared by others as well. In all of these cases, relationships may be found out to exist between such concepts.

These relationships are of different kinds, depending on the kind of concept under consideration. As related to our study on site, we may identify the following two relations:

Table 7-1 Classification of concepts in relation to site

Essential Concepts	Accidental Concepts
essence-constituting	accidental-general
substance	morphology of landscape
structure	climate
essence-consecutive	accidental-individualizing
physical property	place where the Fragrant Hill Hotel locates.
contextual formations	

1. Formal/categorial relations
2. Material-paradigmatic relations
   a. hierarchical relations
   b. partitive relations

1. These relationships depend completely on the kind of item of reference. We have identified in previous section three concepts of site which actually constitute three basic categories on site phenomena, i.e. human conditions, physical settings and contextual formations. In this way, concepts are related to their form categories.

2. There are two sub-relations under material-paradigmatic relations.

a. A hierarchical relation exists between two concepts when these concepts possess a stem of identical characteristics but one of these concepts possesses one or more than one differing characteristics. There are two kinds of hierarchical relations in the field of site, the (1) abstraction/specification relation or genus/species relation, and the (2) relation in array.

The genus/species relation creates "broader" and "narrower" concepts. We speak of "narrower concept" whenever a concept possesses one or more than one

characteristic in addition to the common ones possessed by the "broader concepts".

In application of this to the field of site, the term or concept of "landscape" stated as specifying the "morphological features" of the natural environment, causes this concept to become a more specific one, a "narrower concept" therefore with regard to "morphological features". Morphological features on the other hand may be stated to be a specification of "physical settings" which again is a specification of a "site". Thus, we may see the following steps of abstraction or specification - depending on the direction from which we may look - being realized:

Specification	landscape
	morphological features
	physical settings
Abstraction	site

We may also call broader and narrower concepts super- and sub- concepts or higher and lower concepts.

The relation in array creates "array concepts". We speak of such concepts whenever two or more concepts possess the same characteristics but differ in one characteristic which their common broader concept does not possess. Regarding to our example of above, we may e.g. find out there exist artifacts other than landscape as e.g. morphological features, and material formations other than morphological features as physical settings, and non-physical settings like human conditions as site activity etc.

Partition relations may be said to exist between a whole and its parts, where the later may also have parts, and the parts also may be related to each other. In relating this to concepts, it may be concluded that the concept of a whole includes as the concepts of all its parts.

In the partition relation there is no relation of hierarchy involved, since the concepts of the parts of a given whole belong hierarchically to other hierarchies. This can be easily seen: the broader concept of "human condition" is not necessarily "site", since human conditions are involved with other phenomena as well.

7.6 Summary

The framework of universal classification system on site is derived from the discussion of previous chapters on case-studies on site and the category theory.

This chapter first proposed three major issues to be dealt with concerning the categorization of site phenomena, that is, (1) development of a framework for the study of structural similarities among systems on site; (2) distinguishing two kinds of categories: sensory perception category versus generic knowledge category; and (3) discovery of universalities in site phenomenon. the discussion on the above issues is made mainly with reference to the general theory of categorization and representation outlined in chapter 5.

Consequently, The chapter analyzed the basic units of categorization, the concept. We argued that to categorize our knowledge of site, actually means to conceptualize it. A series of issues concerning the formation of a concept are discussed.

As well, the chapter discussed the issues concerning relations among concepts, through which we identified two major kinds of relations, i.e. the formal/categorial relation and material/paradigmatic relation.

In next chapter, the conceptual modelling, attempts will be made in a suggestive application of above knowledge to site analysis.

PART IV

Conceptual Modelling

Chapter 8

Structure of A 'Global' Model on Site

The *Global Model on Site* (GMS) is formed in response to the concept analysis and concept synthesis from case studies on *FengShui* and Kevin Lynch's *Site Planning* that *FengShui*'s identification of landscape elements is ambiguous and confusing, and Lynch's system is failed in providing a convincing structure to take site elements into account in the decision-making process.

 As we discussed in the previous chapters that, the result of *FengShui* is generally a top-down, self-contained and closed system, and due to its fixed nature of categorization which remains at very abstract level with no possibility of adjustment, *FengShui*'s applicability was greatly limited and was used mainly as a "diagnostic" device through which no design process was involved; while what underlying Lynch's system is a tendency by which the site practitioner approach the site problem from the bottom up, the weakness of his approach is that designer is expected to carry out the inquiry of aspects of a site at their lowest level (the checklist, refer to Lynch, 1984, P.420-426) first, which uncovers relatively trivial, simple logic information inside individual elements, then subsystem inquiring (next level), and finally the basic level (highest level) which uncovers the major, series interfaces between subsystems. In short, it remains an open ended, unmaintainable system due to the nature of its bottom-up approach and is used as a "therapy" (a design tool) in site practice. Still, both *FengShui* and Lynch's system provided us a basic knowledge on a site and its representation.

Together with the general review of category theory in chapter 5 and the framework of a universal classification system on site outlined in last chapter, they formed a meeting ground for us to make a further step towards a more concrete product.

The GMS is designed to complement *FengShui* and Lynch's system in such a way that it provide both a clear defined set of elements (concepts) and a structure, as well as a procedure which take all the components of a site as a unseparated wholeness. It is different from both *FengShui* and Lynch's system in that it is intended for an educational purpose and calls for the site practitioner to look holistically and beyond a mere physical view of the site.

The essentials of GMS include (a) a hierarchically structured methodology, (b) structured tools, and (c), the conceptual modelling.

8.1 Hierarchically structured Methodology

The structured methodology for GMS centres on building a logical model of the representational system in order to give decision-makers (practitioner) on site a holistic picture of all the fundamental components of a site and its interrelationships. It includes partitioning a large system into manageable smaller ones and organizing the details into an understandable structure by utilizing a top-down approach, i.e. employing functional or hierarchical decomposition to what ever level of detail is required. It derives basically from the categorization theory outlined in chapter 5. An integral part of this structured methodology is a modular system concept. Under this framework, separate but detailed information (of a site) modules are identified. For example, the physical settings (major module) can be subdivided into two intermediate modules (natural features and man-made features) which can be further divided into minor, lower and more concrete modules when specific site is involved. Thus, using this approach, the system can be subdivided into its component parts, from the highest to the lowest level (refer to the three levels in category system defined by Rosch: superordinate level, basic level and subordinate level).

8.2 Structured tools

8.2.1 Entities and information dictionary (ID)

Structured methodology is realizable through a rich set of analysis and design tools, each of which serves a particular purpose in developing the specifications. The first tool is the *entities* which are represented by *information dictionary* (ID). Entities are a primitive modelling construct intended for representing "concepts" of a site. Each entity has a unique identity which makes each entity distinguishable from others, even if they have identical observable properties. Entities also have *attributes* and *protocols*, representing internal structure and external behaviour, respectively. In the process of developing one or more information flow diagrams that partition the system into a hierarchy of networks, meaningful names have been given to each entity, and process. These aid greatly in understanding the general picture of the site situation. The entities and the process must be fully defined during the process of analyzing so that system users have a correct, complete understanding of the system. To represent entities, ID contains the definitions of all the entities referenced in the system. *FengShui* and Lynch's system are the main reference for the formation of ID in the modelling. There are two types of entities to be defined: entity structure and entity behaviour. All the definitions should include a name, a short description and various physical characteristics (examples of ID refer to table 8-1 and table 8-2, P.199 & P.201).

Entities are categorized, and so are their attributes and protocols. An entity category defines the common characteristics for all valid entities of that category.

The category of an entity is determined when the entity is created. Entities of the same category collectively define a set, the entity set, of all the valid instances of the entity category. The entity sets for different categories are influential to each other due to the existence of a *containment constraint* from the entity set for the source to the entity sets for the roles. The containment constraint is at the conceptual level. An entity is said to conform to a type if the entity satisfies the structural requirements of the category. Only conforming entities can be added to the corresponding entity sets.

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8.2.2 Relationships and information flow diagram (IFD) of GMS

A second tool needed in the system is *relationships*. As we discussed in previous chapters that all the issues in real site are related to one another, GMS adopts relationships as another primitive modelling construct. We use relationships to establish connections among entities. The relationships are represented by information flow diagram (IFD) which represents a significant change from the way site information is viewed in *FengShui* and Lynch's system. The use of a IFD provides a more complete, clear, and global understanding of a site than did the approaches of the past. Focus is on the logical flow of the information, rather than on the physical flow of control which is the case for both *FengShui* and Lynch (Underlying the preparation of IFD is the modular system concept, the discussion of which refer to chapter 5 and chapter 7). IFD can also be understood as the representation of interrelationships among subunits or submodels in the *Global Model of Site* which can be divided into two major sets.

1.Major unit integration: linkages of variables across modelling boundaries and the overall integration of the major submodels. There are two prior issues concerning major unit integration: (a) variable inclusion and (b) variable linkage. The first one sets the boundary and the major submodels; the second decides the way of connections among submodels. The primary criteria in deciding variable inclusion is theoretical, based on the questions to be answered, in our case, it is the "globality" of representation of site phenomena .

2.Relationships among elements of subunits: linkages are not only a problem across major model unit boundaries, they are also an issue to be resolved within submodels. The difference between linkages among subunits and linkages among elements of subunits lies in the difference between heterogeneity among subunits and homogeneity among the elements of subunits.

The space of all relationships is partitioned into three categories: *associations*, *aggregations* and *compositions*. A basic motivation for making such a distinction is based on the observation that not all relationships are metaphorically the same. For example, the "user - designer" relationship is different from the "human condition - user" relationship, in that, the participants of the former have an equal status in the relationship, while the latter explicitly denotes the notion that user is one case of human condition.

Obviously, the association is the simplest form of relationship. It only indicates the fact that entities are related, and nothing else. The aggregation or the composition relationships, on the other hand, have embedded connotations, in addition to relating the entities. For the aggregation, a distinguished participating type is recognized as the aggregation category. Similarly, for the composition, we distinguish the compound type from component types. One difference between an aggregation and a composition is the following: the elements of the former permit sharing, but the components of the latter are solely owned.

Other tools are necessary to describe the processes, the rules specified resulting a unique set of values for the information elements, we will come back to this in later sections.

8.2.3 General structure of GMS

The concept of structure in a model is the relation of parts to each other. A structural relation partially orders the elements (conceptual modules or entities) of the model set. GMS proposed here is topological in form, with the elements of the model indicated as vertices in a network (or graph) and the relations between elements as arcs of the graph[1]. Each element (concept or conceptual module) in a information flow in the model is represented by a vertex. Each vertex has a structure. The structure of the vertex describes the structure of an element. The structure of the model expresses the spatial relations (information flows) between elements.

The elements of lower level model are condensed (by ignoring all cycles in the graph) when GMS is viewed at the higher level, such that the condensed graph becomes a vertex in the information flow connecting conceptual modules together.

The GMS constructed by the above tools should have the advantages that (1) it is verifiable in a present sense and as to the degree of accuracy of its representation; (2) display the structure of the site which is to be altered or designed if desirable futures are to be brought about, and (3) it is a format which

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[1]Works on graph theory and on information flows are many, an example is Potts and Oliver (1972).

facilitates specific site situations within the global context.

8.3 Conceptual modelling

As we argued in previous chapters, what concerns us in modelling site phenomena is to model the general class of site phenomena rather than a specific aspect of a site. Here, this means a model representing the central process common to all site phenomena rather than representing those of a specific one. Hence, the general structure of the model will be simpler and more basic because it omits the peripheral considerations that may be special to a particular site situation, and also because that conceptual simplicity of a model is desirable in practice. It focuses on those system components, that are always to be found interacting in site phenomena. And the model should include only those processes necessary to the creation and correction of site activity.

The model proposed here is an attempt at an enormous leap in terms of the application of hierarchical control methods over their traditional application on representation of site. The purpose of modelling is to simplify a complex set of site phenomena to an appropriate level, and provide a deeper insight into the fundamental issues of functioning and the behaviour nature of a site, so to aid site planning and make things comprehensible.

The GMS consists of observing the site phenomena from discourses (chapter 3, 4), abstracting from observations (chapter 6), making hypothesis about the structure of site, and building a consistent conceptual description (a conceptual schema or a theory) of the site (chapter 7). It provides a framework within which the deterministic elements in major variables of all site phenomena can be analyzed in terms of feasibility, internal consistency and global applicability. The model here implies a simple and understandable representation of universal structure, a high degree of disaggregation on site. It applies a structured approach to the analysis of site information in a holistic manner.

The model will not be a device that delivers information or forecasts to the user, but rather an educational process through which the user learns what is feasible and, more importantly, what is not of future site activities. So, what we

provide is instead of an expert system, but a user-oriented system. The model user (architect, civil engineer, building contractor...etc.) wishing to examine the implications of a possible scenario to the model in terms of a relatively small number of major exogenous variables and parameters, or if he wishes, in terms of many more detailed variables and parameters. The model does not generate a solution.

By this section, first, we are going to define the problems (or "what to include in the model") in modelling site phenomena, that is to decide the scope of the problem and determining the level of aggregation (or detail) of the analysis and then setting the model's temporal horizon.

### 8.3.1 Boundary-setting: model scope and level of aggregation

In selecting a model's boundary one attempt to include all factors that are thought to significantly affect the problem being represented. The setting of model boundary includes the choice of its scope and aggregation level. Scope is defined here in terms of the number of qualitatively distinct spheres of interest covered in a model. Level of aggregation is defined as the level of detail with which a specific sphere of activity is represented.

Theoretically, once the boundary of the model is identified, the sphere of activity and levels of aggregation, i.e. those variables known to be essential components of the loops that create the pattern of interest, are predetermined. In other words, problem definition uniquely sets the boundary of the model.

In practice, however, there exists a dichotomy between model scope and level of aggregation on the one hand, and problem identification on the other. The obvious explanation for this dichotomy lies in the subjective nature of human perception. What a particular analyst perceives to be important to a given problem is guided by an implicit mental theory.

Referring to the category theory outlined in chapter 5, we will consider GMS at, first of all, the basic level. And by last chapter on the framework of a general classification system on site, we have identified it being constituted of three fundamental categories of site phenomenona, i.e. physical setting, human condition and contextual formation. We argued that it is at the level of abstraction maximize the cue validity (refer to chapter 5), that is, at which level,

objects share, with other members of the class, the most attributes. Thus, we have already defined the boundary of the model at this level, the next step is to set the proper relationships among those three aspects. Figure 8-1 shows a triangle composed of the above three categories which focuses on the simulation of a building site and is based on the hypothesis that the prediction and delivery of a set of consequences or effects that have been deemed positive and possible. The solid arrow represents the initial impact from one category to the other or to itself, thus, we have diagrammed the essential messages of the model.
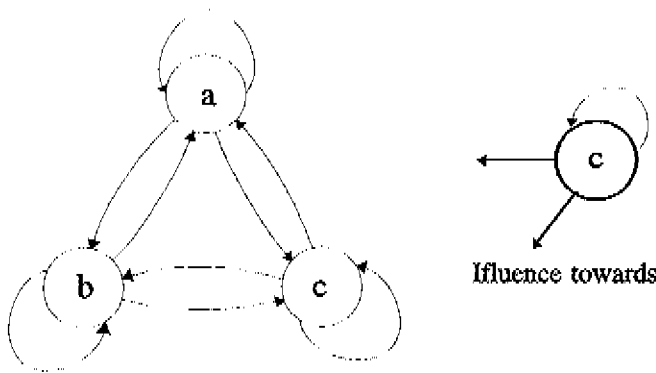
Figure 8-1 GMS at the basic level: A - Physical setting, B - Human condition, C - Contextual formation

It is not surprise that the model turns out to be the way as we showed in figure 8-1: each of the three categories is influenced by the other two and itself, and has impacts on the other two, as well is changed by the other two. But from the model, we cannot tell how exactly those impacts and changes happen, and what value do the arrows imply. We need to go one step further, that is to view the model in subordinate level. The above items are further divided into natural features, man-made features; value-culture, user, designer, commissioner, contractor; and location, climate, neighbourhood context, legal, and sensory. The ID of GMS at subordinate level is shown in table 8-2.

One example showing the relationship inside the category of human condition

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Table 8-1 ID of GMS at basic level

| Name	Description	Characteristics
A physical setting	composed of man-made and natural features	inanimate object (*Earth*)
B human condition	all those concerning human aspects, includes culture, value, psycho logical behavioral and sociological aspects	human (*Man*)
C contextual forma-tion	all the conditions, situ-ations, forces and pre-ssures that constituted the existing site prior to the construction of the building	indirectly linked with site (*Heaven*)
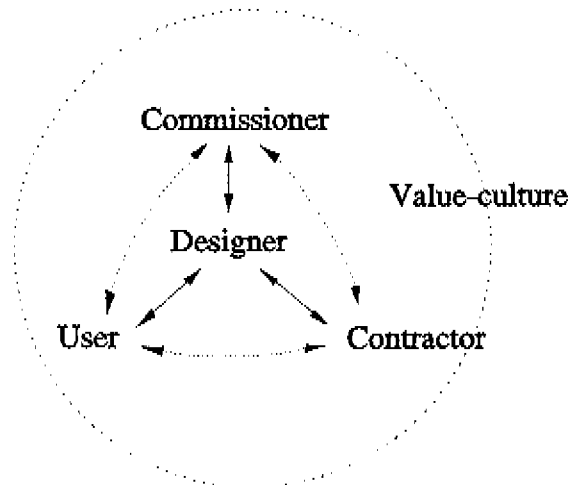
Figure 8-2 Mutual relationship among elements of Human Condition

is illustrated in figure 8-2. It must be mentioned here, what figure 8-2 illustrated is not definite relationship, but merely one possible scenario of site situations which should be adjusted when more detailed information is possible.

The complete model proposed at this level is shown in figure 8-3. Compare it with the model at the basic level, this model is illustrated in much more detail than the one at the basic level. Obviously, this exercise of modelling can go on much more deeper when a specific site is involved which is not our concern at this study. Hence, instead of going on with the process, we will concentrate on the internal structure and the general features of the model so that the model user may exercise on the model according to the concrete or particular site situation.
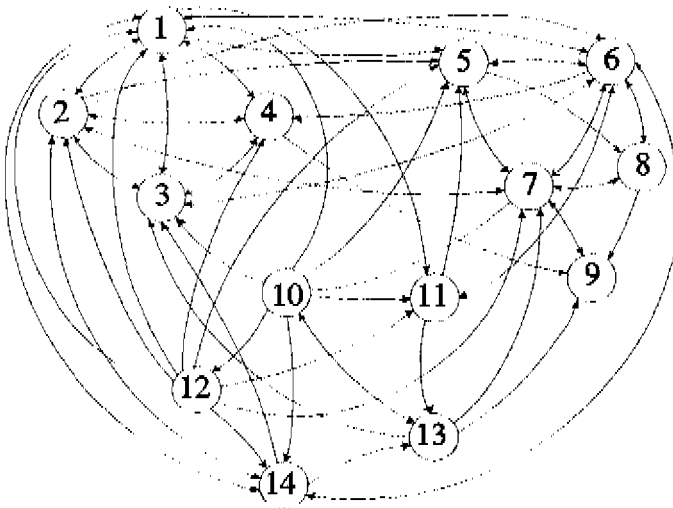
Figure 8-3 GMS at the subordinate level

The most important general features of the model are:
(1). The choice of the parameters;
(2). The major interactions and the feedback loops;
(3). The amount of details (the number of relationships);

(1) The choice of the parameter. All the variables of the model(s) are chosen on the basis of same level of abstraction. On the other hand, not all the variables are equally significant. (the value of a variable depends on its relationships (both initiative and passive) with other variables, normally, the more the initiative relationships a variable has, the higher the value of the variable. Obviously, some variables have more impacts on others than receiving impact from others. For example, the variable *climate*, it has impact on almost every other variables, but receive only one impact from location. Hence, the value of climate is reasonably very high.

(2) The major interactions and feedback loops. Figure 8-4 is a simplified diagram of the model at basic level with numbers of interaction among the three categories (we identified through the model at subordinate level).

(3) The amount of details (the number of relationships) are calculated according to a rule system which is constructed to connect site components in the model:
Rule 1:
If   < one component has impact on the other component >
Then   < there is a one way directional arrow representing the impact >

Rule 2:
If   < one component has interrelationship with another component >
Then   < there is a two way directional arrow representing the impact >

The optimum level of detail depends very much on the purpose of the model. At the beginning of the chapter we have said that the model is not going to be a forecasting device for calculating data of site. This is, on the one hand impossible, due to the complex nature of site phenomenon (qualitative judgement is more important than quantitative one). On the other hand, our purpose in modelling site phenomena is more an educational process to be used for architects, planners, engineers and contractors simply to gain an understanding of the conceptual relationships among site factors. To do the job, conceptual simplicity is desirable in practice, redundant details makes it more difficult to identify the important mechanisms in the model. Hence, GMS is viewed only on

Table 8-2 ID of GMS at the subordinate level

Name	Description	Characteristics
1.man-made features	buildings, walls, curb cuts, drives, hydrants, power poles, paving patterns...-.etc.	artificial physical objects
2.natural features	contours, drainage patterns, soil type and bearing capacity, trees, rocks, ridges, peaks, valleys, waters...etc	natural physical objects
3.circula-tions	all vehicular and pedestrian movement patterns on and around the site	patterns of energy flow
4. utilities	electricity, gas, sewer, water and tele-phone...etc.	
5.value-culture	population age, ethnic patterns, values, incomes, family structure, festivals, crafts fairs, vandalism and crime patterns, beliefs.	attributes of human
6.users	clients, patrons or customers, passers-by.	types of human
7.designers	architects, planners, engineers	types of human
8.commiss-ioners	government, private sponsors, companies.-..etc.	types of organization
9.contrac-tors	builders, suppliers...etc.	types of human
10.location	in relation to the surroundings	point on the map
11.sensory	visual, audible, tactile and olfactory as-pects.	
12.climate	rainfall, snowfall, humidity, temperature variations...etc.	climatic conditions
13.legal	property, covenants and restrictions, pres-ent ownerships...etc.	
14.neigh-bourhood	immediate surroundings of the site	outside the site
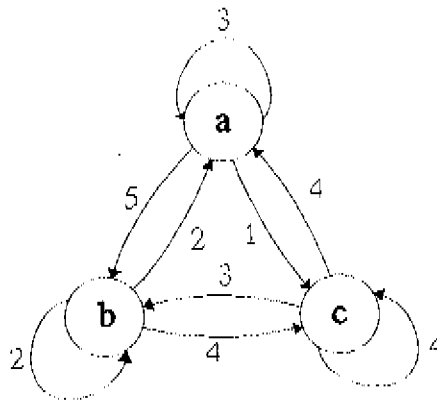
Figure 8-4 GMS at basic level with numbers of interaction among components in the model

basic and subordinate levels. The model at lower level with more details and particular purpose will be exercised by the model users in practice. The conceptual modelling is realized through entities to be related through rules. The entities (E) and rules (R) are defined by ID (information dictionary) and IFD (information flow diagram) respectively. Both entities and rules can be identified at different levels and may be distinguished to be either *active* (solid lines) or *passive* (dotted lines). The model user may selectively restrict the entities, as stated before, the complex system of site can thus be divided into manageable scale.

I hope that it makes clear already that the modelling we proposed here on site is the process of simplification in order to achieve conceptual clarification and understanding of a holistic concept on site. In the process, details are ignored and often forgotten but generality may be gained. Patterns and relationships are uncovered and more and more processes can be drawn into the same picture.

8.4 Summary

The GMS is formed in response to the previous case studies on *FengShui* and Lynch's system on site. The general purpose of GMS is to present the fundamental issues of site phenomenon in a holistic manner which combines the elements (from concept analysis and synthesis) and rules of interpretation (theory development) into a complete wholeness.

The essential of GMS include (a) a hierarchically structured methodology; (b) structured tools; and (c) the conceptual modelling. The main part of the hierarchically structured methodology is derive basically from the categorization theory outlined in chapter 5. Structured tools include (1) information flow diagram (IFD); (2) information dictionary (ID); and (3) general structure. With conceptual modelling, GMS is viewed in two different levels, i.e. the basic level and subordinate level.

Conclusions

No theory or study is ever really closed. Where and when a particular study begins and ends can hardly be determined absolutely. Yet, a text must be concluded within particular conjunctural limitations. The conclusion therefore marks the temporary end of a study. Thus, instead of repeating and summarizing the content of the study, this chapter will point out some key questions briefly and without diversions, distractions on examples.

These questions will basically be concerned with the study's possible contributions to the field of site analysis. In chapter 1, the conjuncture in which the study was initiated, formulated and developed has already been discussed. It was stressed that the objects of the study are discursive objects, that is, the framework of our analysis on the subject is constituted by the formation, the specificity and the status of the objects which have been taken (whether real objects or theoretical ones) as discursive objects. Therefore, the initial production of the present study is a unity, namely "site analysis". Having identified this unity, the study went on to analyze it. Yet, as there was no adequate method or mode of analysis within the field of site analysis, one had to be developed. In the end, however, the study produced not only an analysis of site, but also a mode of analysis that can further be developed and applied in similar projects. In addition, we presented a framework of a model of site analysis - a general representational system of a site, which is derived from the analysis and may be used as a general guide for site practitioners to understand fundamentally the site phenomena. Finally, it is relevant to the purposes of this conclusion to discuss the possible effects that the study is likely to produce.

The nature of contributions

First of all, the precise nature of contributions of the study should be identified. It was said that the study was about study of site analysis, yet, as there was no unity defined prior to the present research, it had to be created. Thus the study, in fact, was the site phenomenon itself where the study of site analysis was operative at various levels.

Now, as explained in chapter 1, the reason for developing a holistic mode of analysis on site phenomena was mainly the absence of an existing mode adequate to the task in hand. Without repeating what has already been said about the specificity of this (discursive) mode of analysis, we may examine what it has been achieved and how.

The question of what the analysis has achieved is related to the following items:

1) the state and the effects of site studies prior to the present study;
2) what the analysis did, or made possible;
3) what it did not do; and
4) its effects on its objects (i.e. site analysis), or on the questions which are presently expressed in site analysis.

The present study of site analysis is shown to be a widespread field that is constituted basically consists of a "site - representation" problematic. The elements of that problematic, namely "site" and "representation" were surveyed through specific studies and case studies of existing systems of site analysis. Two different theories, i.e. *FengShui* and Kevin Lynch's system, were analyzed as case-studies. These showed that both systems produced their effects by means of a set of mechanisms. These mechanisms were, however, not readily and explicitly given in the analysis, but hadwo be seen through their operations and performances. Various kinds of mechanisms from *FengShui* and Kevin Lynch's system have been identified and analyzed, and their relations to each other (inside the system) have been demonstrated. Due to the differences in their theoretical modes of analysis, they produce different aspects of effects on the site practice

and add different useful knowledge to the field of site analysis. Both systems have their strengths as well as weaknesses in their application to site practice. The analysis of those strengths and weaknesses is an important part of this work, since the evaluation of site analysis of this sort can, on the one hand, stimulate self-criticism within the domain of site analysis in order to improve it, and on the other hand, demystify the systems of site practice and explain the site phenomena with more clarity. As we have discussed in the case-studies, *FengShui*'s powerful, generative and combinatory structure and Lynch's clear, empirical and realistic identification of elements are the strengths of each system. The weaknesses are in *FengShui*'s vagueness of element identification and Lynch's lack of a convincing structure. These limited the application of each system to site practice. In such sense, the formation of GMS should be considered as a complementary to the situation. There is no suggestion, however, that it should replace *FengShui* and Lynch's system in application. It is, at most, an improvement which is based on both *FengShui* and Lynch.

The comparison between *FengShui* and Lynch's system in terms of various kinds of mechanisms has provided us with an in-depth as well as a holistic picture of the site phenomena. It also provides a means of representing the holistic picture of a site, which provides us with a frame of reference for examining the fundamental properties of a site.

As all the mechanisms are amply discussed in the text, there is no need to go further than these brief remarks. What we are really concerned with here, in this conclusion, is that the study has analyzed sites in terms of these and other mechanisms as well as in terms of objects: structure, function, performance, and representation. In doing this, it opens up the possibility of further and more specific studies on the subject. Thus, what they lead to is actually the question: "what did the present study do to the site - representation problematic, and what makes it different from other site studies"?

First of all, by pointing out some problems of existing systems of site analysis the study opened up the possibility of questioning certain obvious-looking positions, predefined issues, unquestioned assumptions, and closed arguments in other site studies and systems. This sort of study is by itself sufficient to suggest further efforts on the same line. What is of primary importance in the theoretical

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enterprise of this sort is the possibility of opening up channels for new areas of inquiry, new modes of analysis, new terms and even new problematics. Analyzing a whole system which is/was present in practice, showing its mystical structure, function and performances are at least the necessary, if not sufficient, conditions of advances in understanding problems as complex as those of a site.

This "opening up" through case-studies could not be achieved without the help of some interventions that the present study has attempted. First of all, the study has (hopefully) demonstrated that site problems are not simple (both conceptually and practically), and that no site problem can be explained in terms of simple, universal schemata, single causes, or pure principles[1]. For the same token, it was stressed that site phenomena cannot be explained or described as obvious, empirical unities; and that its complexity cannot be analyzed by reducing them to one or more of their aspects (e.g. material, spatial, functional, visual...). On the basis of this conception the study has analyzed the subjects in relation to systems in a holistic manner. The study saw those subjects not in terms either of elements or a totality, but as the absolute condition of existence of site phenomena as an inseparable wholeness.

The internal complexity of an analysis is inevitably connected with many "external" formations - both theoretical and practical. Yet, preconditions of such an understanding were shown in the study to be 1) a shift from the abstract and schematic domain of the Site - Representation relationship, and 2) abandonment of the terms and relations of the S-R problematic.

These preconditions involve a radical questioning not of particular definitions of "site" and "representation" or of suggested relations between them. Rather it involves questioning whether there are such theoretical concepts, things or relations in the first place. This, in fact, would lead to a deconstruction, and if necessary and possible, to a transformation, of the problematic itself.

Once such a strategy was initiated, the analysis could easily fill in what is absent in the arguments of those systems of site analysis, in addition to keeping

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[1]However, this must not be mixed up with our proposal on a general representational theory on site which may be used instead of a tool for solving a specific site problem, but a device for the purpose of education that a site can be fundamentally understood.

what is already present. For there are numerous cases in both *FengShui* and Lynch's system where certain questions were simply left out of the system; or when questions were included, certain problems, terms or frames of reference were excluded. The most common aspect of exclusion is, of course, the peculiar generality of the term "site" and the way it is classified. It is precisely that generality which excludes many fundamental objects and relations due to the inherent lack of specificity in those objects and relations. Hence, demystification of this generality by deconstructing its unity was the most appropriate step in the analysis of both *FengShui* and Lynch's system. For, once this generality and its supporting mechanisms were demystified, the whole concept of site can no longer be used without first bracketing, and then, scrutinizing it. Disconnecting the site - representation problematic leads to the disappearance of many problems from the field of inquiry. This deconstruction and disconnection do not, as it may first be imagined, lead to deprivation in the field, but to the generation of new approaches. And it is reasonable to compare what the new approach has achieved in the present study with the two case-studies on *FengShui* and Lynch's system. this is shown in table 9-1.

Thus, the present study of site analysis consisted of an object, i.e. the site analysis. It was nonetheless not to legitimize it, but to deconstruct, criticize it. By doing this, we proposed an alternative approach with an alternative formation on the definition of a "site"[2] and "site - representation" relationship.

In line with the initial decision of this conclusion not to present a complete summary of the study, the above points should be sufficient to indicate the nature of its intended contributions. Yet, in considering what the study has achieved, it is not only what it did, but also what it did not do, that deserves some attention.

Firstly, as was repeatedly stressed in the study, what is needed is a different formation of the terms and their relations as they exist in the S-R problematic. In this way, the study does not prescribe an alternative way in which practitioners of a site should (or should not) handle a "site". For, it is argued that contrary to the general conception of site analysis, what the practitioners work with is not

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[2]Here, it must not be mixed up with the alternative definition on a site, since, we did not really give a completely new definition of the subject, rather a different formation.

Table 9-1 Comparison of general model situation among FengShui, Lynch's system and GMS

	FengShui	Lynch	GMS
original object	natural landscape	built & natural	built & natural
original subject	men (dead and alive	human being	human being
model subject	men (8 *Trigrams, Yin-Yang,* 5 *Elements*)	users, user groups, designer	user, designer, commissioner, contractor
model object	landform (*Shan, Shui, Xue, Sha*) in *FengShui* diagrams	mapping of landscape in verbal and graphic representation	universal classification of site phenomena
original interaction	*Heaven - Man - Earth*	site - user	physical setting - human condition - contextual formation
subject inner-interaction	diviner - customer	designer - user	designer - user - commissioner - contractor
model interaction	*FengShui* compass	absent	category theory
functional relation	implicit	explicit	explicit
analog relation	pictorial representation	mapping based on geographical survey	categorization of site components
objectives	ritual, aesthetic, conventional	economic, aesthetic, political, conventional	holistic, ecological

an *abstract* "site" but complex sets of objects and relations whose physical existence as well as theoretical conception are socially determined.

The main reasons for the particular level of analysis, its degree of generality and its conscious refusal to deal with the specific problems of a site have been made clear. It must be said on this occasion that this is no way an escape from

specific analysis. Due mainly to the theoretical conjuncture in which they were produced such specific studies could not be done - primarily for theoretical reasons. Nor could they be done in a way that would have satisfied the present author. Finally, the function of a theoretical analysis is fundamentally different from that of practical activities or empirical studies. The latter are to be considered with particular caution as long as their theoretical status cannot be explicitly maintained.

The question of *what* this study did and did not do invokes that of *how*. Yet, as this question has already been examined in different chapters, we may only look at those issues that are directly relevant to an understanding of the contribution which is being described here.
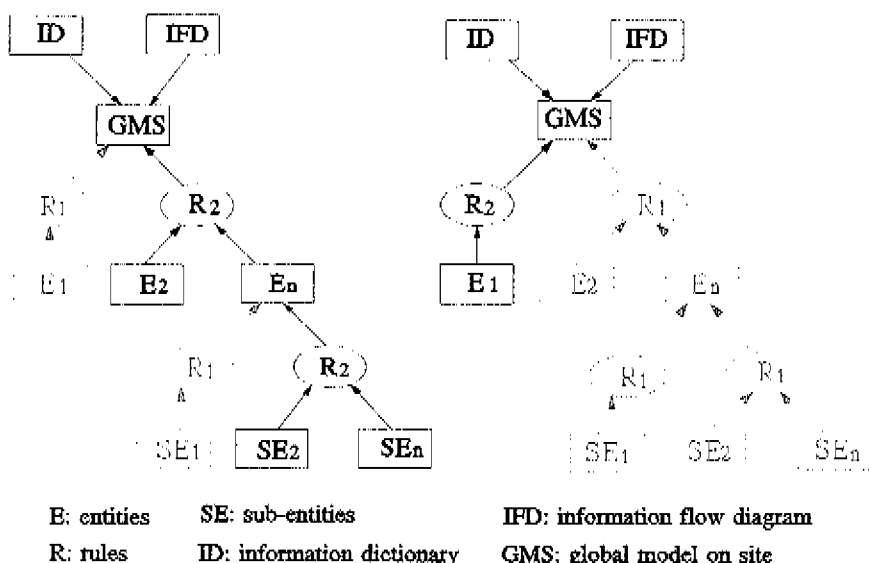
As has already been remarked this study was made possible by a shift of attention from given answers to radical questions[3]. This was partly a reaction to the abundance of easy and specific, yet also vague and undisputed answers to the unasked questions, or to questions which carried their own answers with them. Secondly, the study has attempted a shift of attention from entities and things to relations and discursive objects[4]. This enabled the analysis to free itself from the limitations imposed by the preconception of *things*. But this has no indication to impair the development of a material, empirical, detailed analysis of site. On the contrary, only by refusing to recognize the cosmological conceptions of its object could site analysis be treated as a formation whose objects, structure, operations and performances are its constitutive components. This approach implied the requirement that objects, phenomena and problems become objects of analysis only when they are theoretically identifiable unities.

An example of how the new approach proposed in this study can be applied to aid the decision-maker of site activity will be appropriate now. In analyzing a given site situation, a top-down strategy (figure 9-1) is suggested in the

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[3]We asked the same questions of what, how, whom, and why with both *FengShui* and Kevin Lynch in their analysis of site.

[4]This attempt was explained explicitly in the very beginning of the study. We are not trying to offer answers to concrete, empirical questions to particular site situations, but fundamental, universal questions to site phenomena as a holistic entity.

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E: entities   SE: sub-entities   IFD: information flow diagram

R: rules   ID: information dictionary   GMS: global model on site

Figure 9-1 A top-down strategy of modelling process of site information

modelling process of the information of that site. It (the system of site) is first
partitioned into manageable smaller ones and organizing the details into an
understandable structure by utilizing the top-down approach, i.e. employing
functional or hierarchical decomposition to what ever level of details is required.
For example, the element 'user' (one of the site components) can be divided into
items as: age, popullation, family structure, custom, social position and so on.
Each of the items is defined with one or more attributes which is represented in
the *Information Dictionary* (refer to P.193). Some items may be further divided
when more detailed information is needed. The different elements and items are
then connected with each other in either horizontal (same level) or vertical
(different level) dimensions. A rule system to connect the elements and items is
defined according to a certain criteria such as, economic, political, ecological,
aesthetic conventional and social. In such a way, The decision-maker of site
activity can always move from the general, holistic picture of a site to the very
detailed information display of that site.

Validity of the study

One more point which has to be made clear is how the general theory of site analysis of the present study can be verified. "The key to verification of theories," John Kemeny has stated, "is that you never verify them. What you do verify are logical consequences of the theory. Verification is the process of seeing whether something predicated is really so. Since we can only observe particular facts, we must verify particular consequences of a theory, not the general theory itself." (John G. Kemeny, 1959) Then the question will be, what facts did we observe? And, how do we understand the theoretical implications of empirical observation? The answers to those questions are provided by the so-called "rules of interpretation"[5] (R. Holt & J. Turner, 1970, P.2) we defined in chapter 5 which can be found in all the concept analyses in cases studies, concept syntheses with comparisons and other "instrumentations" (ibid).

The methodological prescriptions we offered are still more on the primary level of *principle* than at an advanced level of *proven technique*. However, we are sufficiently convinced of the necessity and the potential utility of such a holistic approach to the analysis of complex phenomena of a site.

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[5]The concept was argued by Robert T. Holt and John E. Turner (1970) to be one of the methods that involves any sciences. When they illustrate how rules of interpretation are involved in any research in which empirical observations are to be given theoretically relevant interpretation, they suppose that "the researcher wants to test a hypothesis derived from a theory of voting behaviour, and he conducts a survey of a random sample of eligible voters. The very use of the survey research instrument involves a set of assumptions concerning the relationship between what people say about how they vote (or how they have voted) and how they actually cast their ballots in the secrecy of the voting booth. We are not questioning whether such assumptions are valid. We are merely pointing out that the use of the survey research instrument in this case involves a specific rule of interpretation, which carries the researcher from the "facts" he observes to the different "facts" that are involved in checking the predictions of a given theory. In other words, the commitment to the rule of instrument necessarily carries with it a commitment to the rule of interpretation." (R. Holt & Turner, J. 1970, P.2)

Effects on the field of site study

Finally, there is the question of effects that the present study might have on the field of site studies. Having analyzed the various problems with the field of site analysis, it should not be an excessive claim to suggest that the very identification of these problems is likely to be the major effect of this study.

The study assumed that even if the objects of site analysis are vague, ideological, often confusing, and incapable of theoretical production, it is still justifiable to study it for reasons that are both internal and external to it. As to the internal reason, this study and its extensions can perhaps evoke the need for self-criticism within the field - since any field which does not, or can not, question its own assumptions, its own problematic, its own modes of expression and its own connections, is doomed either to unforgivable failures, or to eventual redundancy in the face of complex problems. It is with this background that this study believes to have prepared the ground for several potential lines of development:

- it expects to generate some starting points for detailed (and if necessary empirical) studies on the subject.
- it suggests an approach to the understanding of the relationship between theoretical work and professional practices.
- it puts forwards the conception that "site" analysis is not reducible either to its physical products or to its ideological self images. Instead, they are complex entities that are constituted by internal and external elements ranging from cultural to purely technical, from aesthetic to economic, from measurable to unmeasurable, from physical to spiritual, and from spatial to conceptual, instances and levels.

A final point that has to be made is that all the interventions in the present study should not be taken as a finished statement, a blueprint, or a model, but as an example, an attitude and at best, as a perspective. The purpose of pointing this out again is not, however, to emphasize any modesty on the part of the author, but to assert one of the fundamental requirements of theoretical work: the present

study on site analysis cannot have the right to claim absolute validity or applicability. But, at the same time, the author does have the right, on the basis of his own experience and achievement, to assert that the attitude, the perspective or the mode of analysis that the present study represents are indicative of the way in which theoretical work is, and should be done. Furthermore, the present study may produce more questions than answers, more problems than solutions. Thus it carries with it the implicit requirements of openness to development.

Appendix I

In addition to what has already been said regarding the definition of a site in Chapter 1, a collection of definitions and statements on sites are listed here as references. Since we argued before that site has been approached through various disciplines, we thus did not give an alternative definition in the study, rather a different formation of the concept of a site. The following statements on sites will give a wide view on the subject.

This certainly is not meant to be an exhaustive survey of existing (or possible) statements on the subject. Such a project is not believed to be possible or necessary. Nor is it meant to constitute any *unity* other than a collection of statements, hence, there is no deliberate classification, order or evaluation of the statements.

The interchangeable definitions and statements between "site" and other terms "place", "region", "environment", and "area" (by author's opinion) are also included.

"Site is a context and means for human interaction in its own right" (Habraken, 1982, P.78).

"The essence of the site is, however, that the interactions we engage in by the selection and distribution of elements and spaces, cannot be translated into any language" (Ibid P.78)

"The physical context of our action we call the site" (Ibid P.9).

"The term 'site' is normally used to indicate the physical environment in a special way. The term suggests that we look at the environment with the intention to act upon it or to observe an act on it. To say that we observe 'the site' is to say that we observe our physical environment as the theatre for human intervention" (Ibid P.8).

"Every site, natural or man-made, is to some degree unique, a connected web of things and activities" (Lynch. K. 1984, P.5).

"We may not be able to define the word 'environment', but we can still perceive its limits more or less clearly: we do not confine its use just to the physical universe, but include the social universe and the universe of ideas in our meaning" (Jardine, B. 1971, P.38).

"To the geographer, the environment (as well as the site) is a range of conditions, without reference to any specific creatures",... "To the biologist, 'cell or matter external to any micro or macro structure, from extra-nucleic matter of the cell to geographical or climatic conditions in which an entire species exists"..."To a psychologist it is a combination of social/economic/religious/-political influences" (Wells, B.W.P 1965 b).

"Architecture of a far more acceptable bind with an inbuilt sense of place, of identity, of environment (of site) for people with the human connotations" (Broadbent, G. 1975, P.416).

"The 5 definitions he (D. Watson) proposes are of the:
1) environment (site) as bounded process,
2) as a field of human activity,
3) as a field of message cue,
4) as a set of limited resources,
5) as a means of structuring communities..." (quoted in Barbey, G. & Gelber, C. (eds) 1973, P. 323).

"Site quality comprises the twin aspects of character and amenity. Amenity is concerned with the nature of appearance, and character with the distinguishing features of areas, places or objects. High site quality exists where distinction and delight combine..." (G.L.C. Dept. of Arch. & civic Design, 1968).

"An open system is such that its relationship to a supersystem is indispensable to its survival. There is an ongoing exchange of matter - energy and information between them" (Wilden, A. 1972, P. 203).

"The term 'environment' (as well as site) implies two things: that there is a set of phenomena, facts or things, and that they are experienced. In the built environment we have on the one hand a set of physical facts (a physical system); on the other, a system of human experience of them (an experience system)" (Hillier, B. 1970, P. 27).

"The physical world may be described as an aggregation of locally differentiated spaces, each determined by a perceived invariance in sensory pattern in a given sensory mood. Thus we have visual, olfactory, auditory, thermal, and tactile space. Scene may be defined as the combination of all the multi-model spaces coexisting at a given point; at a given moment" (Thiel, P. 1973, P. 377).

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Appendix II

FengShui Compass (source: He, Xiao-Xin, *The Source of FengShui*, 1990, P.159)
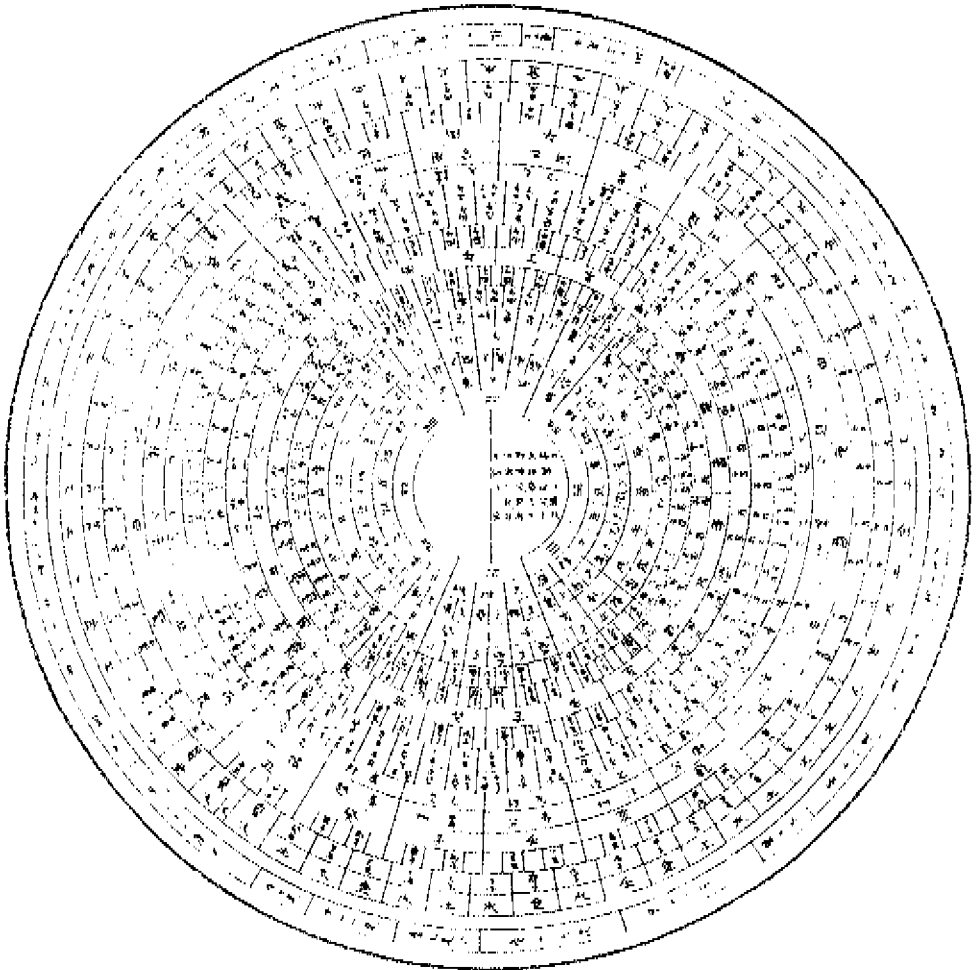
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Photographic reproduction in Taipei, 1982.

Samenvatting

Bij de analyse van de locatie of de bouwplaats worden verschillende disciplines en benaderingswijzen betrokken. Het feit dat enige overeenkomst om bij de analyse met alle aspecten van de locatie rekening te houden, ontbreekt, is een duidelijk probleem.

Het voorliggend promotieonderzoek bekijkt de verschillende soorten elementen en structuren van de locatie, gegeven door alle mogelijke soorten attributen, als een holistische studie van het object, om uit te vinden hoe een situatie onderkend, getransformeerd en gerepresenteerd kan worden. Met referentie naar het Nederlandse Nationale Milieubeleidsplan van 1989 werd het onderzoek ondermeer in termen van voorwaarden, bijverschijnselen en gevolgen uitgevoerd, waarbij de korte en de lange termijn alsmede de locale, regionale en globale dimensies in de context betrokken worden.

Bij de uitwerking van de studie, werd vooral de methode van de vergelijking van twee gevalstudies toegepast. Deze werkwijze werd gekozen, omdat de complexiteit van de verschijnselen op en in relatie met de locatie en de directe observatie met betrekking tot de reele bouwplaats nogal moeilijk is. Twee bestaande systemen van situatie- of bouwplaatsanalyse werden parallel doorgrond: een traditioneel Aziatisch en een hedendaags Westers systeem.

De Chinese FengShui theorie, een uniek systeem, dat in China en andere Aziatische landen sinds de 4e eeuw voor onze tijdrekening praktisch wordt beoefend, werd om twee redenen gekozen: Ten eerste is de leer van de FengShui zowel van geschreven teksten als ook geillustreerde documenten van verschillende aard voorzien en ten tweede biedt FengShui een voorbeeld van hoe een algemene systeemtheorie in alle verschijnselen (fenomenen) teruggevonden danwel vertaald kan worden.

Voor het moderne, westerse systeem werd Kevin Lynch's systeem voor de situatie gekozen. Dit systeem heeft reeds meer dan twee decennia zijn actualiteit behouden en is nog steeds de meest omvattende bron van informatie en een erkend systeem voor wat betreft de principiele activiteiten en aangelegenheden

ten behoeve van de inrichting van of inplanting op de bouwplaats of situatie.

Door vergelijking van de twee systemen met elkaar, werd een poging gedaan, om die aspecten te classificeren, die enerzijds als "universeel" en anderzijds als "systeemspecifiek" gerangschikt kunnen worden. Het resultaat van deze vergelijking biedt een gemeenschappelijke basis, die tot het vormen van een nieuw concept/model leidt.

Met referentie aan de algemene theorie van categorieen, werd een kader van een universeel classificatie-systeem voor en op de situatie gegenereerd, ontleend aan de vergelijking van de FengShui en Lynch's systeem. Dit werd vervolgens verder ontwikkeld tot een globaal model voor de locatie GML dat als algemene richtlijn voor de planning en het ontwerp, voor de lay-out op de situatie of bouwplaats inclusief de te ontwikkelen bouwwijze kan dienen.

Het ligt in de verwachting dat het hier en nu afgesloten onderzoek nieuwe mogelijkheden opent voor planners, ontwerpers, architecten, ingeniours, aannemers en de overige participanten en niet alleen een bijdrage tot een specifiek stereotype van bouwplaatsen blijft.

Zusammenfassung

Eine bauplatz-oder situations-analyse umfasst verschiedene arten von disziplinien und naeherungsweisen. Die tatsache, dass es keine uebereinkuenfte gibt (und auch keine gemeinsame 'sprache'), die alle aspekte der situation beruecksichtigt, ist offensichtlich.

Die vorliegende promotionsarbeit beinhaltet eine annaeherung an die verschiedenen sorten von situations-elementen und strukturen, die durch alle moeglichen arten von attributen gebildet werden, als ein objekt einer ganzheitlich orientierten studie, um zu untersuchen, wie eine situation erkannt, veraendert und dargestellt werden kann. Unter hinweis auf den Niederlaendischen Umweltschutzplan aus 1989 wurde die forschung im hinblick auf die vorbedingungen, nebenwirkungen und folgen sowohl kurz wie langfristing als auch in lokalem, regionalen und weltweitem kontext ausgefuehrt.

Bei der ausarbeitung der untersuchungen wurde ein methodischer vergleich von zwei fallstudien angewendet. Diese arbeitsweise wurde gewaehlt, weil die beobachtung der komplexitaet der phaenomene in, auf und um die reale situation aeusserst schwierig ist. Zwei bestehende systeme von situation-analyse wurden parallel einer pruefung unterzongen: ein traditionelles, asiatisches und ein zeitgenoessisches, westliches.

Das traditionelle asiatische, die chinesische FengShui theorie, ein einzigartige system, das bereits seit dem 4 jahrhundert vor der zeitrechnung in China und mehreren anderen landern des orients praktiziert wird, wurde aus zwei gruenden gewaehlt: 1. FengShui verfugt ueber eine ueberlieferung sowohl in form geschriebener texte als auch bildlicher darstellungen fuer viele arten von bauplaetzen oder situationen. 2. FengShui bietet ein vorbild an, wie eine allgemeine system theorie in alle arten von situativen phaenomenen uebersetzt werden kann.

Fuer das moderne, westliche system wurde Kevin Lynch's situations-system selektiert. Dieses blieb schon seit mehr als zwei jahrzehnten bis auf den heutigen

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tag die umfassendste quelle der information und ist ein anerkanntes system hinsichtlich der prinzipiellen aktivitaeten und gegenstaende bei der gestaltung und bebauung der situation.

Durch den vergleich zwischen den beiden systemen, wurde der versunch unternommen, jene aspekte zu klassifizieren, die einerseits 'universell' und andrerseits systemspezifisch sind. Das ergebnis des vergleichs ergibt eine gemeinsame basis, die zur bildung neuer konzepte fuehrt.

Mit referenz an die allgemeine theorie der kategorien, wurde rahmen eines universellen situations-klassifikations-systems, basierend auf dem vergleich zwischen FengShui und Lynch's system generiert. Dieses wurde danach weiter entwickelt zu einem globalen modell der situation - GMS, welches eine allgemeine leitline fuer die planung und die einrichtung der situation einschliesslich einer adaequaten konzeption von bauarten bietet, die folgerichtig zu einer verbesserung und sogar erhaltung unseres gesamten landes beitragen kann.

Die dissertation soll neben ihren beitrag zu einer spezifischen situations-stereotypie vorallem planern und entwerfern, architekten und ingenieuren, unternehmern und anderen beteiligten am bauproces neue moeglichkeiten eroeffnen.

Abstract

Site analysis involves various kinds of disciplines and approaches. The fact, that a correspondence which takes all site aspects into consideration has been missing in site analysis, is an obvious concern.

This research approaches the different kinds of site elements and structure, formed by all kinds of attributes, as a holistic object of study, to explore how a site is recognized, transformed, and represented. With reference to the Dutch Environmental Policy Plan (1989), the study is carried out in terms of conditions, side-effects and consequences of short and long terms in local as well as regional and even global context.

In carrying out the study, a methodology of comparative study is applied. This strategy is made because of the complexity of site phenomena that direct observation from real site is difficult. Two existing systems on site analysis are pursued in a parallel manner: a traditional asiatic one and a contemporary western one. The traditional (asiatic) one, Chinese *FengShui* theory, a unique system which has been practising in China and other Asian countries since the fourth century B.C. is the theory used for two reasons: 1. *FengShui* provides both written and pictorial documentation on various kinds of sites; 2. *FengShui* offers an example of how a general system theory can be translated into all sorts of site phenomena. For the modern (western) one, we selected Kevin Lynch's system of sites. It has remained (for over two decades) and still is the most comprehensive source of information and recognized system on all the principal activities and concerns of arranging a site. By comparison between the two systems, attempt is made to classify those aspects which are 'universal' and those which are system-specified. The results of comparison provide a common ground which leads to the formation of new concepts.

With reference to the general category theory, a framework of universal

classification system on a site is derived from the comparison between *FengShui* and Lynch's system. This is further developed into GMS (Global Model on a Site) which will be offered as a general guide for planning, arranging the site, and subsequently improving and even conserving our land.

The study is expected to open new possibilities for designers, contractors, engineers and other participants, rather than leaving them with specific site stereotypes.

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Definitions or Explanations of Important Concepts

Xiaodong Li was born and educated in China and received his diploma in architectural engineering from Tsinghua University in Beijing. In 1984, he started working as an assistant Professor in School of Architecture, Tsinghua University. From 1984-1989, he gave lectures on architectural design and rendering to the second and fifth year students of architecture. During this period of time, he was also involved in a series of medium and large scale design projects in Beijing and in other locations in China, among which, the design of Cloudy Valley Hotel in Anhui Province has won a very high reputation in China; the design for 'Great World' of Baoding shopping complex, won the first prize in a nation-wide design competition. His experience with TaiJi and Zen meditation which started long time ago influenced his personality and his approach towards scientific research.

Since July, 1989, he started working as an assistant-in-training in the Faculty of Architecture, Eindhoven University of Technology in the Netherlands. From September, 1989 - September, 1991, he participated in a postgraduate training programme organized by Delft University of Technology and Eindhoven University of Technology. During this time, he finished the research project on 'Architecture of Sincerity' under the supervision of Professor Peter Schmid. In September, 1991, he joined the BPU (Building Production and Construction) group in Faculty of Architecture and Building Sciences, Eindhoven University of Technology, and the AKS (Architectural Knowledge System) group in Faculty of Architecture, Delft University of Technology, where he worked with Professor Peter Schmid and Professor Alexander Tzonis and resulted in this thesis. Currently, he is working in de Architekten Cie in Amsterdam.

STELLINGEN

behorende bij het proefschrijft

MEANING OF THE SITE

Xiaodong Li

Eindhoven University of Technology, September 1993

I

The weakest point of *FengShui* in application to site practice is its involvement of personal interpretation of landscape elements.

II

Lynch's system on site practice is failed in providing a convincing structure in taking the site elements into consideration, which makes it an open-ended, unmaintainable system.

III

One important reason of the environmental problems in our modern society is the lack of holistic means of representation (of knowledge of the world).

IV

The comparative case-study enables in-depth multifaceted investigation and holistic studies of complex phenomenon.

V

Habraken's definition on site ("The site is space and material" (1982, P.4)) is one-sided in the sense that it is based merely on the explicit functions sites have for us which ignores the profound and complex aspect of man's experience of the site.

VI

The fact that site practice involves various kinds of disciplines and approaches calls for a holistic means of representation of site knowledge which takes elements and the relations among elements into a structured wholeness.

VII

With natural sincerity, one hits upon what is right without effort and achieves one's objectives without thinking. The man who is spontaneous and natural in this way is a sage.

VIII

"Life is like a dream." This is the lamented utterance of the ancients for their undesirable and short lives. As a matter of fact, our human beings still stay at

this dream-like semi-sleep state. In dreams, thinking is out of control, leaving the information stored in the brain to collide, group and develop at random. Although human beings have undergone three million years of development, the intelligent level remains just as low and has not been elevated from the dreamy state. There is an urgent need for our human beings to wake up from this dream-like semi-sleep state. The way to arrive this goal is through the optimal control of mental-field streams. Only those who can optimally control their mental-field streams can be regarded as one with genuine great intelligent.

IX

Human beings have just experienced the first big leap since the beginning of their history, that is the emancipation of the human body through the replacement and extension of human organs by the invented tools in conquering the nature at the same time creating a corresponding human society as it is now. It is the time now for the human being to go through another leap, a leap in emancipating and tapping out intelligent potentialities, through which, a brand new human race with great intelligence and a complete new world with great prosperity will emerge on the earth.

X

The analytical mentality which is dominated in western world is appropriate for developing, while the synthetic way of thinking which is the main character of the eastern is suitable for balancing. The complementary cooperation of the two is thus inevitable for our own benefit.

XI

He who is able to fulfil his own nature completely will be able to fulfil completely the nature of all men; he who is able to fulfil completely the nature of all men will be able to fulfil completely the nature of all things; he who is able to fulfil completely the nature of all things will be able to assist the transforming and nourishing powers of Heaven and Earth.

XII

Where there is form, there is evidence; where there is evidence, there is manifestation; where there is manifestation, there is activity; where there is activity, there is change.