INTRODUCTION AND MOTIVATION FOR RESEARCH

1.1 INTRODUCTION

The concept of *an ideal pattern* or typology in architecture dates back to the 18th century when Marc-Antoine Laugier (1711-1769), wrote *Essay sur l'Architecture* (1753), describing the prehistoric hut as an ideal model. He is quoted by Delavoy (1978):

Reconstruction de la hutte préhistorique sur le Palatin, Rome.

Fig 1A *Laugier's primitive hut as an idealistic model*

'The small rustic hut is the model upon which all the wonders of architecture have been conceived; in drawing nearer in practice to the simplicities of this first model essential faults are avoided and true perfection is attained. The pieces of wood raised vertically give the idea of columns. The horizontal pieces that surmount them give us the idea of entablature. Finally the inclined pieces that form the roof, give us the idea of pediments. This all the masters of the art have recognised.'
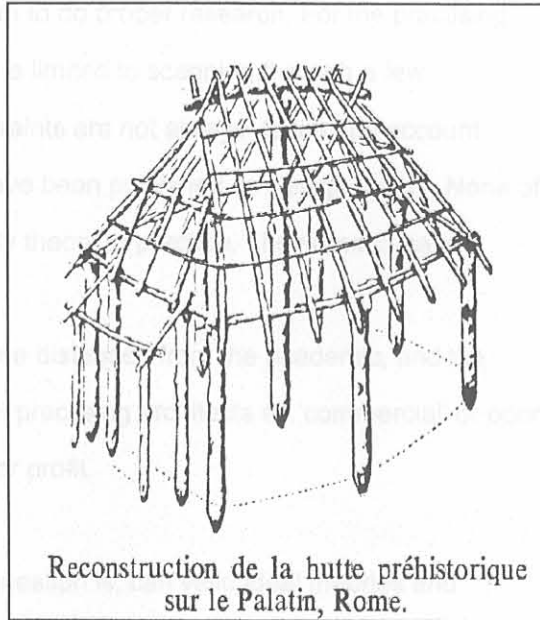
Laugier says that a simple model would bring perfection, avoid mistakes and could assist in designing, using elementary design principles.

When analysing design patterns in the wider field of architecture, each pattern should be *an excellent example* and should clearly portray that for which it is labelled. Patterns may portray design ideas from different ideologies, they may portray clear design principles, they could even portray different possibilities or alternatives. Studying the ideal model should assist the practising architect in designing projects.

Norms of perfection usually serve as a set standard to which all aspire, but there are always disparities between ideal and practice. Noble ideals (theories and principles) are taught in schools of architecture. Students are young and idealistic, ready to change the world forever. Their ideals are not always carried over to the practice of architecture. Practising architects are subject to other sets of influences and demands. They may stagnate, often compromising good design principles as a result of the realities of a demanding profession.

The following examples of these disparities may be cited:

- The issues of property development and of having to make projects successful as viable property income generating schemes, sometimes work

against valid design principles.

- When architects participate in architectural competitions, time limits often makes it impossible for them to do proper research. For the practising architect design inspiration is limited to scanning through a few periodicals. Relevant constraints are not always taken into account.
- Many books and studies have been published on design theory. None of these books can really apply theory to practice. They tend to have academic value only.
- Architects in practice become distanced from the academic, and the academics sometimes label practising architects as 'commercial' or poor designers, only practising for profit.

Arising from the above, the question is, can valid ideal theories and principles as taught at universities be reconciled with the practical realisation of design in practice? This dissertation will attempt to address the issue.

In analysing ideal patterns of design, the possibility is that architects as 'specialists' do not always have all the solutions. Modern architecture, such as Le Corbusiers' *Ville Radieuse*, (designed in 1924) had theories that were so idealistic, that they were not always beneficial to the common man. Many modern cities today resemble this early Modernists' vision, and they

have failed to recognise people's needs (see Fig1B.)

On the other hand, spontaneous patterns of building are developed by ordinary people, and are sometimes in sharp contrast to the ideals of the 'specialist' or architect. These patterns are valid and valuable to society. As social preferences they are expressed in the way buildings are 'designed' by common
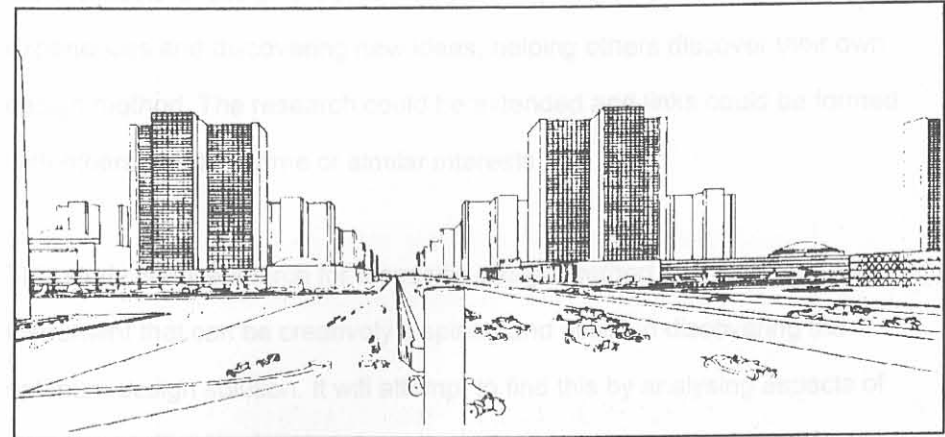

Fig 1B Le Corbusier (1887-1965): *Ville Radieuse (The Radiant City),* 1924

people, and thus are linked to a way of living. Modern lifestyles are subject to the influences of an industrialised and computerised world and some of the older patterns have become forgotten. Should these patterns be reintroduced into the design process? The question will be addressed by this study.

To analyse architectural design patterns, the use of graphic communication needs to be investigated because architects think graphically and design

graphically. Graphics serve to simplify life in many areas. In software packages, for example, simple graphic icons have become more easily recognizable than the alphabet.

A need has been identified by the author, for a soundly researched database to form a reference library for designers. This database, library or tool could well grow and expand and be linked to other information systems, but some questions arise:

- Is the computer the ideal instrument for storing and retrieving design data?
- Does the use of computers curb the creative flow in the design process?

This study will also attempt to answer these questions.

The opportunity for information technology to expand worldwide is now. We live in the age of the Internet and World Wide Web, and it has opened up endless possibilities of networking and sharing information on a global scale. The future academic and professional fields of architecture will be greatly influenced by the 'cyberspace' environment.

Current expansion in the development of information technology (the 'IT revolution') has been a substantial motivational factor for this research. It is felt by the researcher that architects should utilize the power and potential of computers more creatively.

The researcher has been in architectural practice since 1985 and was involved in the design of a wide range of different projects. Studying a field of interest - the architectural design process - may also open a way for teaching, sharing experiences and discovering new ideas, helping others discover their own design method. The research could be extended and links could be formed with others with the same or similar interests.

This study is not a search for a specific *design method* but rather for an instrument that can be creatively inspiring and assist in discovering the optimum design solution. It will attempt to find this by analysing aspects of design and allowing freedom to use *whatever* design method is preferred.

1.2 THE PROBLEM AND TWOFOLD AIM OF THE STUDY :

*To investigate **how** to develop an appropriate design tool for architects by graphically exploring, analysing and organising architectural design patterns,*

and

*To find a **way** of including patterns as part of a user-friendly instrument, to be implemented in the design process in practice.*

In order to develop an appropriate design tool, the following areas will be investigated:

- The methods of communicating patterns to the designer,
- The ways of assisting the user to select alternatives,
- The development of an appropriate delivery system or vehicle for such a tool.

So as to develop a way to implement the design patterns as part of a user-friendly instrument in the design process, the following issues will also be examined:

- How a database of patterns should assist the designer and what input it should provide to the designer,
- Design Principles as taught at schools of architecture (as ideal examples), and how the architect can use them in practice,
- Social Patterns as evolved by communities in contrast with the 'specialist' professional, and how they can be used as ideal pattern types,
- Ideologies of Architectural Movements: Should they be illustrated as patterns of Architectural Language, and if so, how?

1.3 PROPOSITIONS:

The following propositions are presented:

- *Graphics* could be an effective way of communicating with and illustrating patterns for designers. (Chapter3)
- *Computer graphics* should give the designer a wide choice of options and alternatives and allow for personal preference. (Chapter 4)
- *Software programmes or web-site type menus* may be suitable systems with which to compile a design tool. (Chapter 5)
- *The design process* analysed should indicate what type of input should be given and how design patterns can be implemented in the process. (Chapter 6)
- *Patterns of design principles* may be introduced into the typical process of design in practice, so as to assist designers and help them think through many possibilities. (Chapter 7)

- *Patterns of social preferences* focussing on the variables of human needs, could be introduced by menus to have the designer consider them. (Chapter 8)
- *Patterns of architectural language*, analysing the ideals of architectural movements, may also be expressed, organised and grouped in menus. (Chapter 9)

1.4 DELIMITATIONS:

This study is limited to:

- The typical architectural practice found in the modern global economy,
- The process of conceptual design, including deciding on and developing the design language,
- Aspects of social patterns in the western world.
- Some architectural ideologies of the twentieth century.

1.5 DEFINITIONS OF TERMS:

ARCHITECTURE:

The Concise Oxford Dictionary (1966): defines *architecture* as *'art or science of building'*. Both senses are appropriate in this study.

ASSIST:

The Concise Oxford Dictionary(1966) defines assist as: *help*. In this study it means *helping by way of providing inspiration and ideas, furnishing possibilities to investigate.*

DESIGN (AS A VERB):

'Making a preliminary sketch of a mental picture' is a way of defining design.

The term *design* as used in this study will mean: *the portrayal by any means of an idea or concept in a building or elements of it.*

DESIGN (AS A NOUN):

Design is a skill that can be taught, can be developed, can be learnt or unlearned.

5

The first three senses apply in this study.

DESIGNERS:

In this study *designers* means:

Anyone who studies, lectures on or practises architectural design.

GRAPHIC:

The Concise Oxford Dictionary (1966) defines graphic as:

'of drawing...vividly descriptive, lifelike...of diagrams or symbolic curves'.

The term *graphic* in the context of this study will mean *drawings, sketches and diagrams with annotations.*

INSTRUMENT:

The Concise Oxford Dictionary(1966) defines an instrument as 'Thing used in performing an action', which is the meaning used in this study.

MOVEMENTS:

Series of actions and endeavours of a school of architects towards a specific end.

PATTERNS:

- *The Concise Oxford Dictionary(1966) defines patterns as 'an excellent*

example', a denotation which is also used in this study.

- Other words used for *patterns* in similar studies are: *an idealistic model, typology, archetypes, arche-patterns.*

- *A 'case-study' can sometimes be regarded as a pattern in the sense of being an excellent example of a successful design being studied.*

- The term *'form'* as used by authors with regards to architectural movements, can also mean patterns but all patterns are not necessarily related to *'form'.*

PRINCIPLES :

A fundamental truth as a basis of reasoning in terms of design theory.

PROCESS:

A course of action or method of operation, in this case *the design related actions and a method of producing a design.*

PROCESSES :

In this study *processes* means: *procedures or methods as a means of producing a design.*

SOCIAL:

Concern for the mutual relations of people and the social patterns which exist in building.

1.6 ABBREVIATIONS USED:

2D: means ....*two dimensionally*

3D: means ....*three dimensionally*

CAD: means.........*computer-aided draughting and computer-aided design*

Fig. : means...........*Figure*

IT: means..............*Information Technology*

M.I.T. : means.......*Massachusetts Institute of Technology*

RIBA: means........*Royal Institute of British Architects*

UK: means...........*United Kingdom (Britain)*

USA: means.........*United States of America*

www: means.........*World Wide Web*

1.7 THE ASSUMPTIONS:

It is assumed that:

- Only some architectural design patterns can be illustrated for the purposes of this study.

- The method of organising, grouping and analysing patterns and case studies is subjective and may have been done differently by another researcher.

- The type of design patterns to be analysed will be chosen subjectively. The correct practical route may be to do research and analyse what type of design pattern is needed.

1.8 NEED FOR THE STUDY:

This study could be of both practical and academic value. Academically it addresses the design, theory and history of architecture. For architectural practice it addresses planning, design conceptualisation and design development.

The contents could benefit academics in architecture, students of architecture, architectural practices, property developers, developers of information systems and of software.

A secondary goal is to eventually publish the data of the study as a user-friendly tool. Such a manual could be subdivided into smaller components as separate volumes. The database could well grow and expand. Other research and databases could be linked. The use of web-sites with links to other relevant information to aid designers could be investigated.

The information can be updated regularly, and revised editions could be published quarterly or yearly . The instrument could be fine-tuned by users and user-group interaction.

A user-friendly design tool should fill a void in practice and build bridges between the academic and professional fields. More interaction between practices and universities or colleges can improve design quality in both fields.

 To be useful, the design tool should be open-ended and able to accommodate any design method. Architects who are not familiar with computers should also benefit. The patterns could also be illustrated in book-form with appropriate grouping/classification and indexes.

This study should contribute new ideas to the subject of design methodology and will show further avenues that can be pursued in using the computer in design.