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A PARADIGMATIC APPROACH TO ARCHITECTURAL HISTORY:

POSTMODERNISM

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A paradigmatic approach to architectural history:

postmodernism

by

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CHAPTER 1

1.   THE PROBLEM AND ITS SETTING

1.1   THE STATEMENT OF THE PROBLEM

This dissertation formulates a paradigmatic approach to architectural history and tests the approach by determining a relationship between the period termed postmodern and the Modern.

1.2   THE SUBPROBLEMS

1.2.1   Subproblem 1 is the clarification of the nature of a 'paradigm'.

1.2.2   Subproblem 2 is the formulation of a paradigmatic approach to architectural history.

1.2.3   Subproblem 3 is the clarification of the concept of postmodernism.

1.2.4   Subproblem 4 is the identification and interpretation of the unique examples of the crisis period of the Modern.

1.2.5   Subproblem 5 is the articulation of the paradigm of the period termed 'Modern'.

1.3   THE HYPOTHESES

1.3.1   Hypothesis 1 is that a paradigm is an intellectual model.

1.3.2   Hypothesis 2 is that from the understanding of the nature of a paradigm , a paradigmatic approach to architectural history can be formulated.

1.3.3   Hypothesis 3 is that postmodernism is the episode of paradigm change of the period termed 'Modern'.

1.3.4   Hypothesis 4 is that there exists a body of unique examples which provide artefactual evidence of the 'Modern' in crisis.

1.3.5   Hypothesis 5 is that, if the period termed 'Modern' has passed, the representative paradigm can be articulated.

1.4 THE DELIMITATIONS

1.4.1   The study is not concerned with the teaching of the formulated approach.

1.4.2   The study does not investigate the nature of history as a discipline.

1.4.3   The study does not extend the discussion of postmodernism in architecture beyond the inceptual writings.

1.4.4   The study does not propose any moral evaluation of the Modern or postmodernism.

1.5 THE DEFINITION OF TERMS

1.5.1   All terms have their Oxford English Dictionary meaning except where the usage and meaning is the basis of discussion in the study.

1.5.2   The term 'postmodern' and its derivatives will be used in the compound form. The hyphenated form 'post-modern' and capitalised form 'Post Modern' reflect the use of a particular author.

1.5.3   The term 'Modern' will be used in capitalised form to designate the period 1750-1950.

1.6 THE ASSUMPTIONS

1.6.1   It is assumed that there exists for history as discipline criteria for deriving truth.

1.6.2   It is assumed that as such history is a discipline of study.

1.6.3   It is assumed that architecture can be studied historically.

CHAPTER 2   THE NATURE OF A PARADIGM

SUBPROBLEM 1   The clarification of the concept of a 'para-
                 digm'.

PRÉCIS 1   In this chapter the derivation of the word
                 'paradigm' is presented, its particular usage
                 by Kuhn discussed, its usage in the literature
                 investigated, and its meaning in this disser-
                 tation defined.

2.1 INTRODUCTION

A discourse on paradigms derives from an understanding of man as a generator of ideas, which, as an intellectual tool, have survival value and as such need to be communicable and perpetuated in time. Further, that these ideas are encoded in a hierarchy of complexity and that the level of complexity at which these ideas are communicable will determine the intellectual environment of the community.

It was in his discussion of the intellectual environment as determinant of man's endeavour (in this particular instance man's scientific endeavour) that Kuhn (1970) postulated that such a shared environment existed. He coined the term "paradigm" to designate such an environment.

2.2 THE ORIGIN OF THE TERM

The term 'paradigm' was borrowed from linguistics where it is used to describe any model for word formation, for example the Latin conjugation amo, amas, amat, amamus, amatis, amant. The original word is the Greek 'paradeigma' which is literally a model. The 'paradeigma' was a "... full-scale specimen of the more elaborate elements such as capitals. From these mock-ups builders could extract detailed dimensions with callipers, thereby achieving repetition for replicas without any need for scaling up or conversions" (Porter, 1979: 3).

From this literal meaning of 'model' derived an abstract metaphorical meaning closer to 'exemplar'. The metaphorical usage suggests that the mind encodes experience into cohesive models in order that similar situations can be comprehended. Kuhn's choice in its metaphorical form implies that if one has an exemplar one can proceed by analogy without the explicit articulation of a set of rules for doing so.

2.3 THE USAGE OF THE TERM

Gregory (1984: 561-2) has found parallels between Kuhn's "paradigm" and William James' (1907) "philosophic atmosphere", Alfred Whitehead's (1925) "circumambient atmosphere" of "unchallenged and unsuspected presuppositions" and Francis Cornford's (1950) "abstract schemes of conception that escape notice". The term 'paradigm' seems useful as replacement for these unwieldy descriptive terms if their meaning is retained.

Kuhn's critics matched the term with other usages since his own usage of the term was unspecific. This was immediately seen to weaken his argument. Shapere (1964: 383-94), Buchdahl (1965: 55-69) and Masterman (1979: 59-89) all identified Kuhn's equivocal use of the term. It was seen that what he termed "paradigm" could be dismissed as "theory", "method", "model", "set of axioms" or "Weltanschauung".

He responded to his critics by appending a postscript to his 1962 opus in which he admits the ambiguity of usage:

> "... in much of the book the term 'paradigm' is used in two different senses. On the one hand, it stands by the members of a given community. On the other, it denotes one sort of element in that constellation, the concrete puzzle-solutions which, employed as models or examples, can replace explicit rules as a basis for the solution of the remaining puzzles of normal science" (Kuhn, 1970: 175).

Kuhn regards the second sense of his usage of the term as "philosophically deeper".

The first sense of the term is replaced by the term "disciplinary matrix" (1970: 182) which is what a particular community of specialists share "... that accounts for the relative fullness of their professional communication and the relative uninamity of their professional judgements".

For the second sense of the word he retains the word "paradigm", which he claims is the "... consequential knowledge of nature acquired while learning the similarity of relationships ..." (1970: 190), a learning which "... comes as one is given words together with concrete examples of how they function in use: nature and words are learned together". This he equates with Polyani's "tacit knowledge" (1970: 191).

Kuhn's problem derives from his wish to explain the conduct and events of a particular discipline, namely science, and ascribe attributes to the practitioners of that discipline. Conceptual development is an attribute not only of scientists but all mankind. It may therefore prove helpful to examine the understanding of the development of cognition before returning to the investigation of the word 'paradigm'.

2.4 THE PARADIGM IN THE HIERARCHY OF COGNITIONS

The development of cognition has been a particular concern of psychologists of the twentieth century. Piaget has termed the first cognitive unit acquired by the intellect "the schema" and it is defined as "... the internal representation of some generalised class of situations enabling the organism to act in a co-ordinated fashion over a whole range of analogous situations" (Gregory, 1987: 696). From a schema can be built an 'image' (Mussen, Conger and Kagan, 1974: 212) which is "... a detailed, elaborate and conscious representation ...". A common set of attributes among a group of schemata in turn form 'concepts' (Mussen, et al, 1974: 272). The concept is "... an abstraction or general notion that may serve as a unit (or atom) of a theory" (Gregory, 1987: 157), theory being "... systematically organised knowledge applicable in a relatively wide variety of circumstances: especially, a system of assumptions, accepted principles, and rules of procedure devised to analyse, predict or otherwise explain the nature of behaviour of a specified set of phenomena" (American, 1970).

The purpose of this simplified setting out of cognitive development is to demonstrate the connection between the internalisation of experience and the formulation of theories of the phenomenological world. It could be said that if the schemata of individuals are too divergent there is then no basis for shared theories. One can then argue that it is shared experience which makes schemata communicable as the basis of shared concepts in the theories of a society.

It is thus the set of shared schemata which constitute Kuhn's "paradigm". These are the underlying cognitions from which the model or pattern is constructed. The exchange, discussion and investigation of theories become possible through communicable analogies, metaphors and concepts. There will however be a body of schemata which are unique to the individual. Since it is individuals which constitute the members of a society there will also be disparate and unshared schemata which will not contribute to the paradigm.

That 26 different interpretations can be attached to the meaning of Kuhn's (1970) use of 'paradigm' by Masterman (1979: 59-89), rather than diminishing the validity of the term, begs the question: "Why, if the use of the term is so imprecise does it still remain both meaningful and contribute to as coherent an argument as Kuhn's is?" Insofar as his discussion is of attributes of the scientific discipline the term 'paradigm' is applied throughout the levels of the hierarchy of intellectual formulations of scientific thought. The pattern of the formulation within each tier of conceptualisation can be said to be 'modelled' on the broader intellectual pattern. Thus each formulation replicates the pattern of the broader intellectual framework wherein it is formulated.[1]

_____

1. An analogy can be drawn with the material used to capture the image of a hologram. When fractured each fragment holds the hologrammic image in its entirety and can be used to recapture the image contained in the whole. So too can the pattern reflected in the formulation of scientific thought be used to discern the pattern of the broader cognitive domain.

The 'modelling' implicit in the term 'paradigm' refers to the ways analogous phenomena are modelled intellectually according to the same pattern. However, as has now been shown, this modelling is not only at a particular level of conceptualisation but also replicates patterns of higher complexities of cognition. Thus the term chosen by Kuhn is not only apt but illuminating.

2.5 'NORMAL' ACTIVITIES

The activity which derives from a shared paradigm Kuhn terms "normal science". This entails conducting research as a problem or puzzle solving activity which is "...an attempt to force nature into the preformed and relatively inflexible box which the paradigm supplies" (Kuhn, 1970: 24). This is a conservative enterprise which comprises:

> "(1) increasing the precision of agreement between observations and calculations based on the paradigm;
> (2) extending the scope of the paradigm to cover additional phenomena;
> (3) determining the values of universal constants;
> (4) formulating quantitative laws which further articulate the paradigm; and
> (5) deciding which alternative way of applying the paradigm to a new area of interest is most satisfactory" (Lossee, 1987: 204).

There is a problem with this view of normal science and it is that it presumes some explicit formulation of the prevailing paradigm, for how else can we extend the scope of the paradigm (point 2) or further articulate the paradigm (point 4) or decide which alternative ways of applying the paradigm is most satisfactory (point 5)?

The paradigm can be seen as the systemisation of a body of schemata so as to facilitate the communications between individuals and accommodate phenomena within the communal cognition, but lies beyond the level of meta-cognition. Hence any attempt at formulation of a prevailing paradigm will exclude some tacit presupposition which is guiding the

enquiry into the nature of that paradigm and which therefore too constitutes that paradigm.

The activities conducted within a paradigm do not impose upon the paradigm but may well expose the individual to experiences which require the formation of new schemata. These schemata may lie without the set of the prevailing paradigm. Should schemata arise which are shared by a significant number of individuals they will form a new set which give rise to a new paradigm. This paradigm could be exclusive or inclusive of some or all of the schemata of a previous paradigm.

2.6 PARADIGM CHANGE

Kuhn (1970: 52) speaks of "paradigm change" and says that this change is provoked by the activities of normal science. Since the scientist is exposed by these activities to new and unexpected phenomena, such exposure will of necessity provoke the formation of new schemata. He further postulates that:

> "The decision to reject one paradigm is always simultaneously the decision to accept another, and the judgement leading to that decision involves the comparisons of both paradigms with nature and with each other" (1970: 77).

Again we have the problem here of an acceptance of complete familiarity with prevailing paradigm. If the paradigm is directing the investigation it cannot be a weighing up of paradigms per se which the researcher is involved in. It is rather the reformulation of the schemata into an internally consistent whole. This is necessitated where the consistency of schemata is disturbed by newly encountered phenomena which then provoke the formation of new schemata. Such a reformulation of schemata if shared by a significant number of persons, will provoke a paradigm shift. Hence:

> "...the transition from a paradigm in crisis to a new one from which a new tradition of normal science can emerge is far from a cumulative process, one achieved by an articulation or extension of the old paradigm. Rather it is a reconstruction of the field from new fundamentals ..." (Kuhn, 1970: 84).

This Kuhn (1970: 90) terms a "scientific revolution". When such a revolution occurs, then the paradigm changes and "...the world itself changes ..." (Kuhn 1970: 111).

In his argument Kuhn cites from the field of gestalt psychology to illustrate how the community sees things previously unobserved. This is literally true since the development of a schemata enables one to observe something which may previously have created stimuli but, without analogous schemata for the pattern recognition, remained subliminal.

2.7 THE PARADIGM AS DIRECTIVE OF ARTISTIC ENDEAVOUR

Kuhn's postulate of a paradigm was formulated as an historian attempting to explain the discontinuities of scientific 'progress'. The scientific discipline is the attempt to impose a pattern on the phenomenological world so that man can engage and exploit that world. Science is but one of man's activities and all man's common activities are directed by the shared schemata or paradigm. Hence not only science, but all man's communal undertakings are directed by the prevailing paradigm.

Man encodes his artefacts with the ideas generated within the prevailing paradigm. His art reflects such patterns of encoding and this constitutes the 'style' of the artefact. The prevailing paradigm therefore not only directs the scientific pursuit, but also the artistic endeavour. The style of artistic expression is thus a reflection of the prevailing paradigm.

Laszlo (1973: 227-9) parallels the nature of scientific endeavour with the development of artistic style.

> "Similar to science, the collective endeavour of a population of aesthetically constructing natural-cognitive systems ("artists") can be examined as the multi-individual system in which such constructions are typical ("art") ...

We can talk of "normal-art type artists" - more simply conservative artists - and of "crisis-art type artists" - or the avant garde...

'Conservative artists' (and this term is used here to include not only professional artists but all conservatively creative persons) constitute that segment of the art community which is concerned with maintaining an already established style. This style is the basis of their artistic activity; it functions analogously to a paradigm in science. Conservative artists do not seek stylistic innovations - their creativity consists of adopting the style for their own artistic purposes. Theirs is an essentially "puzzle-solving" activity. They take a style, and use their skill and ingenuity in devising new techniques and new topics for it. Thereby they extend the range of application of the aesthetic constructs proper to that style, and refine them...

A "style" in art is the functional analogue of a "paradigm" in science. Both are construct sets, lending meaning to experience and coding conative responses to it...

The world of perceptual experience is constructed as the "natural universe" in science, and as a meaningful, "felt reality" in art...

Much like scientific hypotheses, artistic styles can lose their validity when new patterns of experience supervene over the old ones. Thus a style which incorporated adequate aesthetic constructs at one time can find itself working with forms and techniques which, at a later time, appear inadequate to many artists. At such times, stylistic change is called for and is normally initiated...

Drawing our parallel with science in the framework of art as a cognitive discipline, we can say that a style which incorporates adequate aesthetic constructs in an art-orientated sub-group in culture represents the paradigm for that group. The members of the group practise the style, but do not basically revise it. The picture changes when the style is no longer felt by the members of the group to express their personal felt experiences. The conservative "normal-art" members become revolutionary "crisis-art" innovators. They are out searching for a new paradigm - a style which could map with more adequacy and greater faithfulness the patterns of felt experience in their culture. The kind of activity

undertaken by the avant-garde has much in common with the activity of scientists during a period of crisis: there is a scramble for new ideas, new ways of expression and new techniques, and in this rather haphazard activity many experiments with new styles are undertaken. In the art of this period, novelty is itself a value, and it can come to be so highly prized that it becomes a fad: it is sought for its own sake. But such "purely experimental" works normally create but a temporary stir; they seldom stand the test of time. Novelty coupled with a basic idea, which grasps in some hitherto unexplored manner what most members of the community feel and are trying to express, is what is required for an art experiment to become a lasting success. If it does, it may lead to the establishment of a new style - a new paradigm which thereafter will be imitated and explored in thousands of versions."

As the discontinuities in man's scientific formulations reflect a change in the paradigm, so do the discontinuities in the style of his artistic endeavours reflect the same change and thus these changes should be synchronous. This synchronicity within a particular discipline is well known and can be readily understood, for example the simultaneous development of Newton's "fluctions" and Leibniz's "calculus" and the subsequent controversy about priority to the discovery. Similarly Darwin's and Wallace's simultaneous formulation of theories of evolution of organisms through natural selection. More difficult to recognise is the simultaneity in development in disparate disciplines especially if communicated by differing techniques, for example the abstract language of science as opposed to the stylistic language of art.

2.8 THE PARADIGM AS A TRANS-DISCIPLINARY CONCEPT

We need not speak of 'style' in art in the sense of 'paradigm' in science, but may use the term 'paradigm' for both, since style is discernible and is employed in agreement with the tacit directive, which is the paradigm.

Not only are disparate enterprises directed by the same paradigm but these enterprises give rise to the nature of

that paradigm. The prevailing enterprises of a particular culture generate the models for drawing analogies.

It then follows that if man's enterprises dramatically change - for instance from hunter-gatherer to white-collar worker, from forest dweller to inhabiter of the concrete jungle, from noble savage to space ape - his paradigms will of necessity also change. Failing this he will be ill-equipped for his changed intellectual environment and the culture will probably fail.

2.9 SUMMARY

From the previous discussion the following observations can be made concerning the nature of a paradigm:

2.9.1 A paradigm is implicit and shared and directs the common endeavours of a community in its encountering of the phenomenological world at a particular time.

2.9.2 A paradigm is a property of man's abstract world. Its prescripts are tacit and unformulated but direct the intellectual modelling of the community. It however exists beyond the level of meta-cognition and cannot therefore be articulated by the community. It is an endlessly regressive set of schemata that cannot be determined at will.

2.9.3 The paradigm, as a shared intellectual model, directs and limits the normal activities of the community. It is however important that it is in a state of dynamic equilibrium in order that the paradigm may adapt to altered circumstances of the community.

2.9.4 The paradigm will be exclusive of certain unshared schemata. If enough of these become shared a period of crisis will prevail.

2.9.5 A paradigm changes after a period of crisis and gives rise to a new paradigm which might be partly or wholly inclusive or exclusive of the previous paradigm.

2.9.6 Kuhn's 'paradigm' in science can be extended as being also the tacit directive of 'style' in the arts.

CHAPTER 3   THE METHOD AND PURPOSE OF A PARADIGMATIC
APPROACH TO THE HISTORY OF ARCHITECTURE

SUBPROBLEM 2   The formulation of a paradigmatic approach
to architectural history.

PRÉCIS 2   The concept of a paradigm has been defined
in the previous chapter.   An understanding
of the nature of a paradigm leads to a
methodology for a paradigmatic approach to
architectural history.   This approach is
formulated and a purpose for the approach
argued.

3.1   INTRODUCTION

It has been argued in Chapter 2, that a paradigm directs the enterprises of an era. Therefore, not only is the paradigm the concern of the historian, but it is also an aid to the historical imagination. In particular it is an aid to the understanding of the change of ideas in history, since a past without change would be difficult to conceptualize as a past at all and not warrant a discipline of study.

3.2   COLLINGWOOD'S SENSE OF HISTORY

For the purposes of this dissertation Collingwood's (1986) setting out of the discipline of history is adopted. His (1986: 282-334) idea of history can be summarised as follows:

> "...the historian must re-enact the past in his own mind... This means discovering the thought which [authors of past relics] expressed by them. To discover what this thought was, the historian must think it again himself.
>
> ...historical knowledge is that special case of memory where the object of present thought is past thought, the gap between the present and the past being bridged not only by the power of present thought to think of the past, but also by the power of the past thought to reawaken itself in the present.
>
> ...Consequently the processes of nature are not historical processes and our knowledge of nature though it may resemble history in certain super-ficial ways, e.g. by being chronological, is not historical knowledge.
>
> Secondly, even experience is not as such the object of historical knowledge. In so far as it is merely immediate experience, a mere flow of consciousness consisting of sensations, feelings and the like, its process is not an historical process...
>
> Thirdly, even thought itself, in its immediacy as the unique act of thought with its unique context in the life of an individual thinker, is not the object of historical knowledge... What [the historian] is studying is a certain thought: to study it involves re-enacting it in himself; and

in order that it may take its place in the immediacy of his own thought his thought must be, as it were, pre-adapted to become its host...

This is only a way of saying the historian's thought must spring from the organic unity of his total experience, and be a function of his entire personality with its practical as well as its theoretical interests...

Historical knowledge, then, has for its proper object thought: not things thought about but the act of thinking itself..."

To summarise history must have as objects 'thoughts' which are

1. transmittable (embodied in artefacts through intent and style);
2. durable (the artefact);
3. recoverable (via interpretation).

Thoughts are transmitted as ideas, ideas are embodied into man's artefacts and recoverable through the interpretation of these.

3.3 ARCHITECTURE AS HISTORY

Architecture as discipline is founded on both science and art: science for its technologies and art for stylistic expression.

Bennett and Scott (1927: 10) have said of the study of architectural design that

"...it falls into two general divisions. Firstly, the scientific, in which we considered the utilitarian and economic considerations; and, secondly, the artistic, in which these material conditions are resolved into an orderly and beautiful building."

Collingwood (1986: 308) examines what acts become the subject of history:

"In order ...that any particular act of thought should become subject-matter for history, it must be an act not only of thought but of reflective

thought, that is, one which is being performed in the consciousness that it is being performed, and is constituted by what it is by that conscious-ness... Reflective acts may be roughly described as the acts which we do on purpose, and these are the only acts which can become the subject-matter of history".

Are the disciplines of science and art then the subject-matter of history?

Collingwood (1986: 312-3) of science:

"The scientist, ...[is] thus, no less than the practical man proceeding in [his] activities according to plans, thinking on purpose, and thus arriving at results that can be judged according to criteria derived from the plans themselves. Consequently there can be history of [this]... All that is necessary is that there should be evidence of how such thinking has been done and that the historian should be able to interpret it, that is, should be able to re-enact in his own mind the thought he is studying, envisaging the problem from which it started and reconstructing the steps by which its solution was attempted."

Collingwood (1986: 313-4) of art:

"There might seem to be a special difficulty about the case of art. The artist, even if his work can be called reflective at all, seems a great deal less reflective than the scientist or philosopher.

...the artist knows very well what he is doing and what he is trying to do. ...All that is peculiar to him is the fact that he cannot formulate his problem; if he could formulate it, he would have expressed it; and the work of art would have been achieved. ...he knows that there is a problem, and he is aware of its peculiar nature; only not reflectively aware until the work has been done.

This indeed seems to be the special character of art and its peculiar importance in the life of thought. It is the phase of that life in which the conversion from unreflective to reflective thought actually comes about. There is therefore a history of art, but no history of artistic problems."

Lethaby (1974: 1) has said in 1891:

"...building [is] but the vehicle of archi-tecture, which is the thought behind form,

embodied and realised for the purpose of its manifestation and transmission."

and Webb (1955: 537):

"Architecture is building considered as an enterprise of the imagination."

3.4 PSYCHOLOGY IN HISTORY

The formulation of the psychological context of an historical period in order to ascribe sense and meaning to artefacts and events from a particular time was undertaken by the Dutch psychiatrist Jan Hendrik van den Berg. He published his thesis in 1956 and coined the term 'Metabletics' or 'study of changes'. His subtitle 'Historical Psychology' he explains is not a study of the discipline historically, but the discovery of the psychological framework in history (Berg, 1974). His work in fact predates Kuhn's by six years.

The idea that there is an undisclosed framework for the understanding of historical context is expressed by Whitehead in 1925:

"Every philosophy is tinged with the colouring of some secret imaginitive background, which never emerges explicitly into its trains of reasoning" (1985: 9).

and

"There will be some fundamental assumptions which adherents of all the variant systems within the epoch unconsciously presuppose. Such assumptions appear so obvious that people do not know what they are assuming because no other way of putting things has ever occurred to them" (1985: 61).

Cornford, in his "Unwritten philosophy" of 1935 makes the same point when studying ancient philosophies:

"... the cultural tradition ... is a matter of intellectual climate - the atmosphere breathed in common by all members of a given civilisation, speaking the same language. We come here to

premises and assumptions which are much less likely, to be explicitly mentioned, precisely because they are the common property of all the philosophies, not points of difference such as emerge in controversy" (1950: 39).

He exposes the problem of the historian attempting to reconstruct historic philosophical thought:

"... every system of philosophy has its individual style and its place in historic tradition. Both style and place must be taken into account, whether we are trying to reconstruct the system from shattered fragments _of a vase_, or to inter-pret the expression of it in completely extant writings. In one obvious respect, we are at a serious disadvantage, as compared with the archae-ologist. Every system of philosophy is unique. The archaeologist is guided by the analogy of a score of vases of the same pattern and similar design, some from the hand of the same master. But the historian of philosophy is not helped by so much as one parallel attempt to formulate the system ..." (1950: 29-30).

The term 'paradigm' has been chosen for these unmentioned philosophic systems.

3.5 THE PARADIGMATIC APPROACH

A paradigmatic approach to architectural history aims at recovering ideas. Through an examination and encountering of both the contemporaneous artefactual and written materials, the common ideas should be able to be discerned.

The approach is placed within the phenomenological school of thought where it is postulated that truth can be revealed through directly encountering the perceivable environment. The techniques for such learning are thus heuristic, by which is understood learning through investigation and discovery. This implies that material for investigation must be readily available. The approach thus proceeds from the works of archaeologists, anthropologists and historiographers. Through modern communication technologies their discoveries can be accessed directly.

3.6 THE MATERIAL

The problem of suitability of material arises. The enterprises of the archaeologist, anthropologist and historiographer have delivered a wealth of facts and artefacts. This proliferation leads to the following requirement of a paradigmatic history:

3.6.1   A structure is placed on the selected material. It should derive from periods of paradigm shift, crisis, or change. It is assumed that, through understanding what is being challenged in a period of paradigm crisis, shift or change, one will have insight into the prevailing paradigm of the previous era.

3.6.2   The sufficient minimum of material covering the broadest number of disciplines is investigated in order to derive meaning.

3.6.3   The minimum material will be comprised of the unique artefacts.

3.7 RECOGNISING AND ISOLATING THE UNIQUE ARTEFACT

The unique artefact is that which:

3.7.1   shows change - stylistic, form, or utilisation;

3.7.2   is not predicted by the preceding artefacts;

3.7.3   provokes shocked reaction;

3.7.4   is cathartic;

3.7.5   is seminal;

3.7.6   is polemical;

3.7.7   is persistently cited.

3.8 ENCOUNTERING AND INTERPRETING THE ARTEFACTS

In ascertaining the ideas common to the disparate disciplines one can recreate the patterns of thoughts directing the enterprises and thereby gain understanding of and ascribe meaning to the period. This attempt to ascribe a pattern of

thought and thereby isolate the paradigms of a particular era from a limited range of material can be termed the synergetic activity. The term 'synergetic' is derived from synergy, a term employed by Buckminster Fuller defined as: "The behaviour of a whole system unpredicted by the behaviour of any one or any subset of its parts" (Meller, 1972: 385). The term synergetic is used in biology as "[The] Cooperative action of two or more agencies such that the total is greater than the sum of the component actions" (Lincoln, Boxshall & Clarke, 1982: 241).

Through the synergetic activity of the paradigmatic approach it is assumed that there occurs a synthesis of ideas richer than those generated by each piece of evidence if examined in isolation.

3.9 THE CONSEQUENCES OF SYNERGETIC THOUGHT

The generation of patterns of cognition through synergetic thought should enable one to do the following:

3.9.1   Reconstruct the intellectual milieu of the period wherein the artefact was produced.

3.9.2   Recognise and relegate (by inclusion and exclusion) additional material to its relevant historical period.

3.9.3   Interpret additional material and ascribe and derive meaning.

3.9.4   Make available through reconstruction thoughts and ideas from the past.

3.9.5   Recognise the existence of thought patterns different from one's own.

3.10 THE PARADIGMATIC PRINCIPLE

The formulation of an encompassing intellectual model which can be ascribed to a particular period can be termed the paradigmatic principle. By this is meant that the diverse

facts and artefacts are representative of the paradigm of a period which has been manifested by the synergetic thought, provoked by the preceeding endeavours.

3.11 TEMPORAL STRATIFICATION

A paradigmatic approach to history is therefore the stratification of intellectual time into paradigmatic episodes with periods of crisis and change at the temporal interfaces. Rather than examining the continuities chronologically one regards the discontinuities at the interfaces. The linking patterns of thought in the contemporaneous but disparate disciplines are established and the synchronous manifestation of such ideas sought out. The artefact is not only studied in terms of its utilitarian function, but is also interpreted to establish the idea encoded in its form and style.

3.12 CONTEXTUALITY

A paradigmatic approach to architectural history is the placing of the architectural artefact within the contemporaneous framework by a selection of unique examples from the broadest possible spectrum of enterprises. These are encountered heuristically in order to derive meaning. These meanings are synergised to derive an understanding of the whole of the historical time and a context determined for further investigations.

3.13 OTHER APPROACHES

A paradigmatic approach to history is thus not a study of history in terms of evolution of styles as, for example, Bannister Fletcher's (1987) perennial "A History of Architecture", or a technological progress as in Choisy's "Historie de l'Achitecture". Neither is it an apologist's appraisal for justifying certain trends as for example Giedion's (1967) "Space, Time and Architecture". Rather it is an attempt at deriving meaning from the past.

3.14 SUMMARY

A paradigmatic approach to architectural history requires:

3.14.1   the identification of episodes of crisis in the prevailing norms and theories;

3.14.2   the identification of the unique artefact within the contemporaneous disciplines;

3.14.3   the encountering and interpretation of these artefacts;

3.14.4   that these interpretations are synergized to an understanding of the whole period;

3.14.5   the retention of the wholeness or context of a period studied.

CHAPTER 4   THE CHARACTER OF POSTMODERNISM

SUBPROBLEM 3   The clarification of the concept of post-
                 modernism.

PRECIS 3   The paradigmatic approach has been outlined in
                 the previous chapter. Postmodernism will be
                 discussed and equated with the period of shift
                 of the Modern paradigm. The discipline of
                 architecture will be allied to this shift.

4.1 INTRODUCTION

The usage of the term 'postmodern' has been traced by Kirsten (1989: 135) to the late 1950's when Irving Howe and Harry Levin introduced it to the realm of literary criticism. Jencks (1978: 8) however traces the usage in an architectural context even further back to 1949 by Joseph Hadnut in an article 'The Post-Modern House'. He then elaborates on the various usages of the term in the architectural discipline. His own book 'Post-Modern Architecture' published in 1977 popularised the term and brought it to common usage within the discipline.

The term 'postmodern' pertains, by prefixing 'post' (meaning after) to 'modern', to a temporal relationship with a period termed 'modern'. It will therefore be useful to derive first an understanding of that term.

4.2 AN INTERPRETATION OF THE TERM 'MODERN'

Habermas (in Foster, 1985: 3-4) undertakes the following discussion of the term:

> "The word 'modern' in its latin form 'modernus' was used for the first time in the late 5th century in order to distinguish the present, which had become officially Christian, from the Roman and pagan past. With varying content, the term 'modern' again and again expresses the conscious- ness of an epoch that relates itself to the past of antiquity, in order to view itself as the result of a transition from the old to the new.
>
> Some writers restrict this concept of 'modernity' to the Renaissance, but this is historically too narrow. People considered themselves modern during the period of Charles the Great in the 12th Century, as well as in France of the late 17th century at the time of the famous "Querrel des Aciens et des Modernes". That is to say, the term 'modern' appeared and reappeared exactly during those periods in Europe when the consciousness of a new epoch formed itself through a renewed relationship to the ancients - whenever, moreover, antiquity was considered a model to be recovered through some kind of imitation.

The spell which the classics of the ancient world
cast upon the spirit of later times was first
dissolved with the ideals of the French Enlighten-
ment. Specifically, the idea of being 'modern' by
looking back to the ancients changed with the
belief, inspired by modern science, in the in-
finite progress of knowledge and in the infinite
advance towards social and moral betterment."

The term 'modern' has been discussed by Williams (1983:
208-9) as follows:

"Modern came into English from moderne, F, moder-
nus, IL, from rw Modo, L - just now. Its earliest
English senses were nearer our contemporary, in
the sense of something existing now, just now.
(Contemporary, or the equivalent - till mC19 -
co-temporary, was mainly used, as it is still
often used, to mean 'of the same period', includ-
ing periods in the past, rather than 'of our own
immediate time'). A conventional contrast be-
tween ancient and modern was established before
the Renaissance; a middle or MEDIEVAL period
began to be defined from C15. Modern in this
comparative and historical sense was common from
C16. Modernism, modernist and modernity followed,
in C17 and C18: the majority of pre-C19 uses were
unfavourable, when the context was comparative.
Modernize, from C18, had initial special reference
to buildings (Walpole, 1748: "the rest of the
house is all modernized"); spelling (Fielding,
1752: "I have taken the liberty to modernize the
language"); and fashions in dress and behaviour
(Richardson, 1753: "He scruples not to modernize
a little"). We can see from these examples that
there was still a clear sense of a kind of alter-
ation that needed to be justified.

The unfavourable sense of modern and its asso-
ciates has persisted, but through C19 and very
markedly in C20 there was a strong movement the
other way, until modern became virtually equiva-
lent to IMPROVED or satisfactory or efficient.
Modernism and modernist have become more special-
ized, to particular tendencies, notably to the
experimental art and writing of c. 1890 - c. 1940,
which allows a subsequent distinction between the
modernist and the (newly) modern. Modernize,
which had become general by mC19 (cf. Thackeray
(1860): "gunpowder and printing tended to moder-
nize the world"), and modernization (which in C18
had been used mainly of buildings and spelling)
have become increasingly common in C20 argument.
In relation to INSTITUTIONS or INDUSTRY they are
normally used to indicate something unquestionably

> favourable or desirable. As catchwords of par-
> ticular kinds of change the terms need scrutiny.
> It is often possible to distinguish modernizing
> and modernization from modern, if only because (as
> in many such actual programmes) the former terms
> imply some local alteration or improvement of what
> is still, basically, an old institution or system.
> Thus a modernized democracy would not necessarily
> be the same as a modern democracy."

If 'Modern' is to be characterised by contemporaneity then it is not a useful term for this discussion. However, if 'Modern' is characterised by "a belief in the infinite progress of knowledge and in the infinite advance towards social and moral betterment" it provides a period with characteristics distinct from some other, for example that of the Gothic where mankind was viewed as fallen from grace, having become morally degenerate and awaiting a day of divine judgement.

The 'Modern' period is not only the contemporaneous period but the most recent period where there exists a discernible continuity of endeavour, a common cultural pattern and system of belief, in short a shared paradigm.

4.3 THE CHARACTER OF POSTMODERNISM

The term 'postmodern' has been appropriated throughout the disciplines and has been associated, not with a stylistic movement, but rather an inherent discomfort in the relation-ship of Western man with the premises of his thinking. Palmer (1977: 21) says "... I am not talking about a 'move-ment' at all but something closer to an archaeological shift in the presuppositions of our thinking. Or putting the matter in philosophical terms: the issue is the metaphysical basis of our seeing." Lyotard (1984: xxiii) speaks of a "postmodern condition" which "...designates the state since the end of the nineteenth century, hence altered the ground rules for science, literature and the arts". He then con-trasts the "ground rules" (which could be equated with Kuhn's

"disciplinary matrix") of science with what he calls "narratives" which "... judged by the yardsticks of science', the majority of them prove to be fables". Science is "...obliged to legitimate the rules of its own game ... [through] a discourse called philosophy." This legitimation he calls a "metadiscourse" and any such discourse or "metanarrative" he terms "modern". Postmodern is "an incredulity towards metanarratives". "Thus the society of the future falls less within the province of a Newtonian anthropology (such as structuralism or systems theory) than a pragmatics of language particles" (1979: xxiv). "Postmodern knowledge is not simply a tool of the authorities; it refines our sensitivity to differences and reinforces our ability to tolerate the incommensurable. Its principle is not the expert's chronology, but the inventor's parology."

To paraphrase Lyotard, the postmodern condition is a move away from the cohesive structure of the Newtonian paradigm to a state of being which tolerates a notion that certain experiences are irreconcilable and unquantifiable. The certainty of the disciplinary matrix of the expert will give way to the generalist's own invention of an interpretation.

Toulmin (1982: 25-47) has called the abandonment of the Newtonian paradigm an abandonment of the 'modern'.

> "... if we are irremediably stuck with the existing academic divisions of historical time, we must reconcile ourselves to a paradoxical-sounding thought: namely, the thought that we no longer live in the 'modern' world. Our own natural science today is no longer 'modern' science. Instead ... it is rapidly engaged in becoming 'postmodern' science; the science of the 'postmodern' world, of 'postnationalist' politics and 'postindustrial' society - the world that has not yet discovered how to define itself in terms of what is, but only in terms of what it has just-now-ceased to be. In due course, the change from modern to postmodern science will evidently be matched by corresponding changes in philosophy and theology also; in particular, the 'postmodern' positions and methods that natural scientists are now working out will have implications, also, for

a possible reunion of natural science and natural theology."

Toulmin (1982: 264) sees this abandonment of the 'modern' as a "return to cosmology".

"The world view of ... contemporary, postmodern science is one in which practical and theoretical issues, contemplation and action, can no longer be separated; and it is one that gives us back the very unity, order and sense of proportion - all qualities embraced in the classical Greek term cosmos ...."

4.4   THE POSTMODERN IN SCIENCE

From the above even the discipline of science can be seen to have taken the 'postmodern turn'.

Toffler (in Prigogine and Stengers, 1984: xiv) states that Prigogine and Stengers have propounded a view which "... shifts attention to those aspects of reality that character-ise today's accelerated social changes: disorder, instabil-ity, diversity, disequilibrium, nonlinear relationships ... and temporality ...". They themselves echo the sentiments of Lyotard: "Today we believe that the epoch of certainties and absolute oppositions is over. Physicists have no privilege whatsoever to any kind of extraterritoriality" (Prigogine and Stengers, 1984: 299).

Gregory Bateson! has been both iconoclast and heretic to the discipline of science, and as a scientist has called for an abandonment of the programme of Cartesian dualism and New-tonian quantification. He holds that:

"... the presupposition or premises of thought upon which all our teaching is based are ancient and, I assert, obsolete.

I refer to such notions as:

a.   The Cartesian dualism separating 'mind' and 'matter'.

b.   The strange physicalism of the metaphors
       which we use to describe and explain mental
       phenomena - 'power', 'tension', 'energy',
       'social forces', etc.

c.   Our anti-aesthetic assumption, borrowed from
       the emphasis which Bacon, Locke and Newton
       long ago gave to the physical sciences, viz.
       that all phenomena (including the mental) can
       and shall be studied and evaluated in quanti-
       tive terms.

The view of the world - the latent and partly
unconscious epistomology - which such ideas
together generate is out of date in three diffe-
rent ways:

a.   Pragmatically, it is clear that these pre-
       mises and their corollaries lead to greed,
       monstrous overgrowth, war, tyranny, and
       pollution. In this sense, our premises are
       daily demonstrated false, and the students
       are half aware of this.

b.   Intellectually, the premises are obsolete in
       that systems theory, cybernetics, holistic
       medicine, ecology, and gestalt psychology
       offer demonstrably better ways of under-
       standing the world of biology and behaviour.

c.   As a base for religion, such premises as I
       have mentioned became clearly intolerable and
       therefore obsolete about 100 years ago. In
       the aftermath of Darwinian evolution, this
       was stated rather clearly by such thinkers as
       Samuel Butler and Prince Kropotkin. But
       already in the eighteenth century, William
       Blake saw that the philosophy of Locke and
       Newton could only generate 'dark Satanic
       mills'" (Bateson, 1980: 231-2).

When Bateson appeals for a "wider perspective", a "perspec-
tive about perspectives", a "larger gestalt" which will bring
about an "appropriate synchrony or harmony between rigour and
imagination" (1979: 239) he is in fact appealing for an
abandonment of the prevailing paradigm so that through
unprejudiced experience of phenomena there may emerge sche-
mata as basis for a changed paradigm - a new paradigm.

4.5 THE POSTMODERN AS PARADIGM CHANGE

All the preceding writing leads to a conclusion that the postmodern can be equated with the episode of paradigm change formulated by Kuhn. Everyone cited in this chapter characterises postmodernism as a scepticism of the tenets of science and of the Modern period.

The sharing of schemata unencompassed by the Newtonian paradigm and the realisation that the scientific endeavour discovers not <u>the</u> truth, but a truth relative to the nature and practice of that endeavour, has provoked this paradigm change.

It has been argued in Chapter 2 that a paradigm is the set of shared schemata which form the basis of the assumptions by which the phenomenological world is encountered. If these assumptions are being challenged, as has been argued, then how are these challenges articulated within the architectural discipline?

4.6 THE POSTMODERN IN ARCHITECTURE

The recognition of the reactionary nature of postmodernism towards the Modern in the discipline of architecture is overtly articulated by Jencks (in Stern, 1977: 275):

> "No doubt many architects are now as disenchanted
> with modernism as the public, and a new paradigm,
> or theory, is beginning to form. This paradigm is
> still loosely defined and it doesn't yet enjoy a
> large consensus, but the outlines of what it is
> becoming are clear, particularly to the next
> generation of architects now in their thirties.
> The next five years promise to be extremely
> interesting for architects, as the paradigm takes
> shape - but also probably confused and uncertain."

His "disenchantment with modernism" reflects an attitude to the prevailing paradigm. That the new paradigm "is still loosely defined" is the usual status of an emergent paradigm and that the immediate future will be "confused and uncertain" confirms an episode of paradigm change.

Stern (1977: 275) follows Jencks' comments by asserting that postmodernism can be characterised by three attitudes:

"Contextualism: the individual building as a fragment of a larger whole. Renouncing what Colin Rowe has called the 'object fixation' of the modern movement, post-modernism prefers incomplete or compromised geometries to pure shapes. Contextualism is a slogan of affirmation of the belief that buildings that refer and defer to the buildings around them gain strength over those that do not. Among other things contextualism holds out the possibility that the form, colour and scale of a new building may be closely related to that of an old building which it abuts.

Allusionism: architecture as an act of historical and cultural response. Allusionism is not to be confused with the simplistic eclecticism that has too often in the past substituted pat, predigested typological imagery for more incisive analysis. Allusionism suggests that there are lessons to be learned from the history of architecture as well as from engineering and behavioural science; that the history of buildings is the history of meaning in architecture. Post-modernist allusion can take many forms: the recapturing of an entire 'mood' scenographically; or the incorporation in new work of recognisable fragments from the past for semantic and/or empathetic purposes. Recognisable elements from different moments in the past can be mixed up to heighten the viewer's perceptions of an architect's and a client's intention ...

Ornamentalism: the wall as the medium of architecture meaning. Though ornament is often the handmaiden of allusionism, the decoration of the vertical plane need not be justified in historical or cultural terms; the decorated wall responds to what seems to me to be an innate human need for elaboration and an instinct of measure building-size in relation to human-size."

Stern's (1977: 275) further elaborates that:

"Post-modernism recognises that buildings are designed to mean something, that they are not hermetically sealed objects. Post-modernism accepts diversity; it prefers hybrids to pure forms:

... it encourages multiple and simultaneous readings in its effort to heighten expressive content. Borrowing from forms and strategies of

both the modern movement and the architecture that
preceded it, post-modernism declares the past-ness
of both. The layering of space charateristic of
much post-modernist architecture finds its comple-
ment in the overlay of cultural and art-historical
references in the elevations. For the post-
modernist, 'More is More'"

When contrasted with the ideologies of the Modernists "incom-
plete geometries", "historical response", "the decorated
wall" are all heresies. These ally postmodernism with the
writings of Venturi which he had conceived fifteen years
before.

4.7 COMPLEXITY IN THE POSTMODERN

"Complexity and Contradiction" was hailed by Scully (in
Venturi, 1988: 9) as "probably the most important writing on
the making of architecture since Le Corbusier's Vers une
Architecture, of 1923."

> "He is one of the very few architects whose
> thought parallels that of the Pop painters - and
> probably the first architect to perceive the
> usefulness and meaning of their forms. He has
> clearly learned a good deal from them during the
> past few years, though the major argument of (the)
> book was laid out in the late fifties and predates
> his knowledge of their work" (Scully in Venturi,
> 1977: 10).

Venturi (1988: 104) writes:

> "Some of the vivid lessons of Pop Art, involving
> contradictions of scale and context, should have
> awakened architects from prim dreams of pure
> order, which unfortunately, are imposed in the
> easy Gestalt unities of the urban renewal projects
> of establishment Modern architecture and yet,
> fortunately are really impossible to achieve at
> any great scope. And it is perhaps from the
> everyday landscape, vulgar and disdained, that we
> can draw the complex and contradictory order that
> is valid and vital for our architecture as an
> urbanistic whole."

Not only was the new psychedelic perception pervasive, but it
affected the perception of familiar environments. Hence the

hodge-podge of Main Street urbanism, which would previously
have been swept away in the Utopian vision of the Modernists
was now a source of inspiration and a unity now perceived in
what was once a chaotic diversity. It is a newly synthetised
whole.

Venturi (1988: 130):

> "Violent juxtapositions of blurred and sharp
> focuses come from levels of relationships which
> relate more or less to the whole, or in complex
> compositions, to wholes within wholes. These
> changing relationships with complex wholes make
> for complex kinds of unity some of whose immediate
> interior relationships involve distinct disunity."

A new vocabulary is brought to the architectural debate:
'play', 'pattern' (in an urban sense) 'complexity', 'contra-
diction', 'juxtaposition', 'ambiguity', 'contrast' (as it
refers to spatial definition) 'layering', 'multiple en-
closures', 'interplay', 'the difficult whole', 'inflection',
'fragmentation', 'duality', 'binders'; these are just some
of them. They are indicative of the changed perception and
acknowledgement of the growth and development of urban
communities as they stand, not of a tabula rasa upon which
the Modernists would erect their New Jerusalem. Throughout
his argument there is an appeal for a new gestalt and he ends
his argument:

> "And it is perhaps from the everyday [urban]
> landscape, vulgar and disdained, that we can draw
> the complex and contradictory order that is valid
> and vital for our architecture as an urbanistic
> whole" (Venturi, 1977: 104).

Here one senses Venturi's real concern. It is not for the
pristine isolated artefactual building and the city as the
accumulation of these. Rather it is for the growth of cities
as they are. The concern for preservation and growth of the
whole is in fact an ecological concern, and this paradoxi-
cally links Venturi's concern to the emergence of the eco-
logical movement.

4.8 THE ECOLOGICAL PARADIGM

It remains one of the modern miracles that mankind is privileged to the image of his home planet through the advancement of space travel and mass communication at exactly the time of his reaching the steep curve of the exponential growth of his population.

The space venture has provided a visual imagery that has dramatically altered man's perception of his home planet. No atlas or schoolroom globe could have prepared him for that vision. Even the analogy of the image of the moon perceived for the first time by Galileo was a ghostly and lifeless approximation. The image of the earth from space revealed it as an opalescent jewel-like orb swimming in charcoal infinity, its transluscent surface marbled with the life- nurturing oceans, cloud formations and greenery. From that distance it looks both precious and vulnerable and it is this perception which has profoundly influenced man's attitude to his own world.

Yet again man's tools gave rise to the metaphor of his understanding. The earth was now perceived as the spaceship having all creation on the passenger list. It is this metaphor which prevails and is extended. The life-support system comprises every component of the planet which is necessary for survival. The precariousness of the balance of these components is an enduring concern. Nineteenth century man's headlong pursuit of progress has become twentieth century man's nightmarish threat of extinction.

The period of the relentless pursuit of abstract factual knowledge without recourse to reintegration into a broader vision would appear to be ending. The atomist, dissective, analytical, quantifying, namegiving, reductionist activities of Newtonian science are making way to a holist, systemic, ecological, responsive and responsible attitude which is generalist by nature and trans-disciplinary by intent.

Laszlo (1987: 113-5) has ventured that the new paradigm will derive from these pursuits and have an evolutionary basis:

"It is possible - though of course unpredictable
for certain - that a grand synthesis of the
concepts of theories of evolution will provide the
basis for the next paradigm of contemporary
science.

... The search for a new paradigm is likely to be
weighed in favor of candidates that can integrate
recent breakthroughs in important scientific
fields in a coherent general conception. The
successful candidate will be simple yet abstract,
general yet adequate to describe and explain a
wide variety of phenomena. Its coming will
probably fit the overall pattern of scientific
development.

... Although individual researchers cannot cover
all aspects of nature and society within the scope
of their special competence, they can frame their
research problems and assess their finding in
light of general theories of wide multidisci-
plinary scope. A grand evolutionary synthesis
allows specialized investigators to divest them-
selves of the blindfolds that normally accompany
speciality vision and permits them to situate
their particular segment of the empirical world
within the relevant wider context."

Architecture is by its very nature a trans-disciplinary
activity. It is therefore not surprising that the post-
modern concerns are directly reflected in the activities of
the discipline. Further, architecture as discipline provides
an ideal vehicle for generating the theoretical basis of a
paradigm which is synergistic by intent.

4.9 SUMMARY

4.9.1 The term 'postmodern' bears a temporal relationship
to a period termed 'modern'.

4.9.2 That relationship is critical, reactionary and re-
visionist.

4.9.3 The tenets of science, and in particular the New-
tonian paradigm, are questioned and transformed.

4.9.4 Within the discipline of architecture there is a dis-
mantling of the pursuit of a pristine new order so as
to encompass the existing difficult whole.

4.9.5 This postmodern concern allies the discipline of
architecture with the ecological concerns of an
emergent paradigm.

CHAPTER 5   THE CRISIS OF THE MODERN

SUBPROBLEM 4   The identification and interpretation of
                   the unique artefacts of the crisis period
                   of the Modern.

PRECIS 4   The paradigmatic approach is to be
                   tested.

                   4.1 The crisis period of the Modern is
                        identified.
                   4.2 The unique artefacts are identified
                        and selected.
                   4.3 These are presented through contem-
                        poraneous writings, and meanings
                        ascribed to each example.
                   4.4 The meanings are synergised.

5.1 THE IDENTIFICATION OF THE CRISIS PERIOD OF THE MODERN

A sense of crisis in the intellectual atmosphere prevailed in the years subsequent to the Second World War. The years after 1945 have been termed "The Age of Anxiety" by Edward Lucie-Smith (179: 113-60). Huyghe (1984: 251) quotes Alain Jouffroy's observation of 1955 "Men today seem inhibited by their anxiety... The desire to impose order on the universe is replaced by a terror in the face of chaos ..."

5.2 THE SELECTED UNIQUE ARTEFACTS

Significant artefactual material was created in the early 1950's. Those which have been identified and selected are:

5.2.1 Le Corbusier's 'Notre Dame du Haut' at Ronchamp, France, 1950-5 (Appendix 1);
5.2.2 Jackson Pollock's 'Echo', 1951 (Appendix 2);
5.2.3 John Cage's 'Music of Changes', 1951 (Appendix 3);
5.2.4 Samuel Beckett's 'En attendant Godot', 1952 (Appendix 4).

5.3 THE ENCOUNTERING AND INTERPRETATION OF THESE ARTEFACTS

5.3.1 Le Corbusier's 'Notre Dame du Haut'

It is significant to have as example the work of Le Corbusier for, as the protagonist and apologist of the machine aesthetic of the Modern Movement, the sense of heresy and betrayal of the tenets of Modernism is compounded. This is illustrated by Stirling's (1956: 161) abject observation:

> "...that the Ronchamp chapel being a pure expression of poetry and the symbol of an ancient ritual, should not therefore be criticised by the rationale of the modern movement. Remembering, however, that this is a product of Europe's greatest architect, it is important to consider whether this building should influence the course of modern architecture. The sensational impact of the chapel on the visitor is significantly not

sustained for any length of time and when the
emotions subside there is little to appeal to the
intellect, and nothing to analyse or stimulate
curiosity."

This is a curious observation of a work which has been
described as a "mystifying building" (Purdy, 1977: 295)
which has not been fully explained in subsequent publications
(to paraphrase Purdy).

The betrayal of rationalism worries Stirling and like-minded
persons, and is directly stated in the subtitle "Le Corbu-
sier's chapel and the crisis of rationalism".

One comes to realise that Notre Dame du Haut is not the
monothematic metaphor of a machine aesthetic which refers to
a direct functionality but a polythematic building with meta-
phorical allusions. The richness of reference tests the
universality of the Modern Movement's aesthetic. The build-
ing is further divorced from a universal aesthetic in that
the personal experience of the designer is encoded into the
work, thereby provoking in turn a personal interpretation.

Certainly the directness of functionality required by ration-
alism is absent. Column no longer carries the entablature;
rather the "hovering effect of the roof above the southeast
buttress is only maintained by recessing the top of the pier,
so that it does not appear to touch the horizontal plane".
(Purdy, 1977: 300).

Further the ultimate crime against the rationalist programme
is perpetrated - the untruthfulness of material usage. One
can still sense Stirling's (1956: 161) disdain when he
writes:

"Basically it is not a concrete building, although
it has all the appearance of a solidifying object:
... [the] outline was filled in with masonry,
rendered over and whitewashed to the appearance of
the initial idea. The interior of the west wall
became so interrupted with openings that it was

found necessary to imbed in the masonry a concrete
frame to form around the window openings."

All this he sees as a "freedom from the correct use and
expression of materials" (1956: 161). Only in terms of the
rationalist programme does "correct" have meaning and his
phrase "whitewashed to the appearance of the initial ideas"
takes on a metaphorical significance and a condemnatory tone.

The requisite progress is also ignored. "Old" and "New
World" convey more than just geographical connotations. In
Stirling's critique le Corbusier's material usage is con-
trasted with that of "the New World where the exploitation of
materials and the development of new techniques continues to
expand the architectural vocabulary" (1956: 161). This
failure to respond to the need for progress is also high-
lighted by Purdy (1977: 300-11); "For the presentday student
of theology ... Ronchamp is something of an anachronism".

The final disappointment to the Modernist is the spacial
quality of the building. Architecture as the manipulation of
space was the pride of the Modernist and seen as his contri-
bution to the architectural repertoire. Purdy (1977: 299) is
explicit:

> "Le Corbusier's handling of space and volume in
> tangible and symbolic terms has been one of his
> greatest contributions to architecture : extern-
> ally the chapel at Ronchamp captures this magical
> essence, but the inside is spatially disappoint-
> ing. So vacuous is the interior that it raises
> the suspicion that le Corbusier was more con-
> cerned with the sculptural nature of the enclos-
> ing surfaces than with the volume they surround-
> ed."

Pevsner feels the achievements of the Modern Movement so
threatened by the building of Ronchamp that he resorts to
sermonising the values of rationalism and warning against
those who would emulate le Corbusier: "... woe to him who
succumbs to the temptation of reproducing the same effect in
another building..." (Pevsner, 1972: 429). One can imagine

his chagrin at having even to address the issue. Far rather would he as historian and apologist for the Modern Movement have ended his history expounding the uninterrupted rise of the Modern aesthetic. The work of any lesser architect could have been dismissed as aberrant. Le Corbusier can however not be ignored, but while taken into account his Ronchamp project is termed the "monument of a new irrationalism" (1972: 429), and Pevsner (1972: 435) ends his book patronisingly:

> "Let us be grateful by all means if the individual genius is given a chance, as Le Corbusier was at Ronchamp... but let us beware of little geniuses trying to provide for our daily needs."

5.3.2 Jackson Pollock's 'Echo'

Jackson Pollock's 'Echo' illustrates the artist's approach:

> "My painting does not come from the easel. I hardly ever stretch my canvas before painting. I prefer to tack the unstretched canvas to the hard wall or the floor. I need the resistance of a hard surface. On the floor I am more at ease. I feel nearer, more a part of the painting, since this way I can walk around it, work from the four sides and literally be in the painting. This is akin to he method of the Indian sand painters of the West.
>
> I continue to get further away from the usual painter's tools such as easel, palette, brushes, etc. I prefer sticks, trowels, knives, and dripping fluid paint or a heavy impasto with sand, broken glass, and other foreign matter added.
>
> When I am in my painting, I'm not aware of what I'm doing. It is only after a sort of "get acquainted" period that I see what I have been about. I have no fears about making changes, destroying the image, etc., because the painting has a life of its own. I try to let it come through. It is only when I lose contact with the painting that the result is a mess. Otherwise there is pure harmony, an easy give and take, and the painting comes out well" (Pollock, in Chipp, 1968:546-7).

Greenberg's (1961: 157) interpretation of the "all-over" action painting is that it is deliberately antiaesthetic:

>""all-over" pictures seem to succeed precisely by
> virtue of their uniformity, their sheer monotony.
> The dissolution of the pictorial into sheer tex-
> ture, into apparently sheer sensation, into an
> accumulation of repetitions, seems to speak for and
> answer something profound in contemporary sensibil-
> ity. ... The "all-over" may answer the feeling
> that all hierarchical distinctions have been,
> literally, exhausted and invalidated; that no area
> or order of experience is intrinsically superior,
> on any final scale of values to any other area or
> order of experience. It may express a monist
> naturalism for which there are neither first nor
> last things, and which recognizes as the only
> ultimate distinction that between the immediate and
> the un-immediate. But for the time being, all we
> can conclude is that the future of the easel
> picture as a vehicle of ambitious art has become
> problematical. In using this convention as they do
> - and cannot help doing - artists like Pollock are
> on the way to destroying it."

The artefact is not created as direct medium of communication but as the record of the action of the perpetrator, the artist, much as an animal might leave footprints on the muddy river bank.

5.3.3 John Cage's 'Music of Changes'

John Cage's aleatory musical compositions, by contrast, are the ephemeral product of the circumstance of the performance.

In his article "Composition", John Cage (1968: 57-9) describes the method of composition of his 'Music of Changes'. This is 'composed' according to charts representing the variable aspects of composition which are determined by the tossing of coins as in the Chinese I Ching hexagrams (Appendix 3).

The purpose of such a technique for composition is to free the composer:

> "It is thus possible to make a musical composition
> the continuity of which is free of individual taste
> and memory (psychology) and also of the literature
> and "traditions" of the art. The sounds enter the
> time-space centered within themselves, unimpeded by
> service to any abstraction, their 360 degrees of
> circumference free for an infinite play of inter-
> penetration.

> Value judgments are not in the nature of this work
> as regards either composition, performance, or
> listening. The idea of relation (the idea: 2)
> being absent, anything (the idea: 1) may happen. A
> "mistake" is beside the point, for once anything
> happens it authentically is" (Cage, 1968: 59).

Therefore there does not exist only one artefactual repre-
sentative of the composition but the possibility of as many
permutations of the work as there are possibilities of
combinations of compositional charts and flipping of the
three coins.

5.3.4 Samuel Beckett's 'Waiting for Godot'

The final unique artefact selected is 'Waiting for Godot' of
Samuel Beckett, written initially in French in 1951 and first
performed at Theâtre de Babylone, Paris, 5 January 1953.

Kenneth Tynan (in Graver and Federman, 1979: 95) in the
'Observer' commented:

> "It has no plot, no climax, no dénouement; no
> beginning, no middle, and no end. Unavoidably, it
> has a situation, and it might be accused of having
> suspense, since it deals with the impatience of two
> tramps, waiting beneath a tree for a cryptic Mr
> Godot to keep his appointment with them; but the
> situation is never developed, and a glance at the
> programme shows that Mr Godot is not going to
> arrive. 'Waiting for Godot' frankly jettisons
> everything by which we recognise theatre."

Styan (1968) has remarked

> "... purposelessness, waiting, solitude and silence
> are all the very opposites of drama. To depict
> them on the stage must invite theatrical bore-
> dom ...."

It is obvious that the work can be interpreted on two levels:
one, the exploitation of the medium by using 'undramatic'
means to achieve a theatricality, the other, the actual
content of the text with its seeming obscurity.

There is an episode in 'Waiting for Godot' where expletives
are exchanged:

```
"Vladimir   :   Moron!
 Estragon   :   Vermin!
 Vladimir   :   Abortion!
 Estragon   :   Morpion!
 Vladimir   :   Sewer-rat!
 Estragon   :   Curate!
 Vladimir   :   Cretin!
 Estragon   :   (with finality) Critic!
 Vladimir   :   Oh!
              He wilts, vanquished and turns away"
                                (Beckett, 1986: 75).
```

The term "Critic" becomes the ultimate expletive which terminates any possibility of further expression. That may then explain Beckett's statement:

"We have no elucidation to offer of mysteries that are all of [the critics'] making. My work is a matter of fundamental sounds (no joke intended) made as fully as possible, and I accept responsibility for nothing else. If people want to have headaches among the overtones, let them. And provide their own aspirin" (Beckett, 1982: 2)

and why persons whose views are acquired wisdoms are personified by Beckett in Lucky as manifested in his monologue:

"But in Lucky's long speech - the most terrifyingly effective single sustained episode in the play - he stands for a contemporary reality, composite, perhaps, but when presented to us immediately recognizable. He stands for halfbaked knowledge, undigested knowledge, the plain man's naïve belief in a Goddess called Science, his muddled appeals to unreal authorities:

... but not so fast for reasons unknown that as result of the public works of Puncher and Wattman it is established beyond all doubt that in view of the labours of Popov and Belcher left unfinished for reasons unknown of Testew and Cunard left unfinished it is established what many deny that man in Possy of Testew and Cunard that man in Essy that man in short that man in brief in spite of the progress of alimentation and defecation wastes and pines wastes and pines and concurrently simultaneously what is more for

> reasons unknown in spite of the strides of
> physical culture the practice of sports such as
> tennis football running cycling swimming flying
> floating...
>
> And so on to the length of almost two complete
> pages! Lucky's speech is the great bravura piece
> of writing in the play. Mr. Beckett has never been
> more brilliantly unreadable; not only Didi, Gogo,
> and Pozzo but the audience want to scream. What is
> dismissed in Lucky's speech is perhaps Liberalism,
> Progress, Popular Education, what Thomas Love
> Peacock used to call, sardonically, 'the March of
> Mind'" (Fraser in Graver & Federman, 1979: 103-4).

Beckett's play can also be read as an indictment of man for
being a passive observer "waiting for Godot".

5.4 THE SYNERGISING OF MEANING

When confronted with the artefactual evidence of the unique
examples - 'Ronchamp's "vacuity", the 'Echo's "sheer mono-
tony", "lack of eventfulness" of 'Music of Changes' and
'Godot's "fundamental sounds" - one is immediately struck by
the perversion of the accepted form of the medium of the dis-
cipline. The creator of the artefact is therefore attempt-
ing, through alienation, to provoke in the observer a direct
response. This is further illustrated by each explanation
given by each author to the critic.

Le Corbusier (in Purdy, 1977: 293) when asked for an archi-
tect's statement for the opening of the Ronchamp project said

> "I have no more complete explanation to give _than
> appears in 'Oeuvre complète' volume 5_ since the
> Chapel will be before the very eyes of those who
> buy the booklet. That is better than the most
> eloquent speech."

John Cage provided the following for use in the programme
booklet of Julian Beck and Judith Malima for their perform-
ance at Cherry Lane Theatre, Greenwich Village, New York:

```
"written in response
to a request for
a manifesto on       instantaneous              and unpredictable
music, 1952

                    nothing is accomplished by       our ears are
                    "writing" a piece of music
                    nothing is accomplished by              now
                    "hearing" a piece of music
                    nothing is accomplished by       in excellent con-
                    "playing" a piece of music       dition

                                                   - JOHN CAGE"
                                          (Cage, 1968: xii).
```

'Waiting for Godot' suffers the same degree of paucity of elucidation by the author:

> "The arguments that have surrounded Godot, the outstanding example of dramatic nightmare, have arisen partly because in this play Beckett has refused to make a definitive statement of his purpose. He has, instead, used the medium to portray a common attitude, whether or not we care to acknowledge its universality"(Styan, 1968: 220).

Pollock's break with tradition is articulated by Sandler (1970: 102):

> "The "drip" pictures shocked most people who saw them when they were first shown in 1948. Pollock's departure from traditional techniques did violence to conventional notions of what art was supposed to be; typical was one critic's characterization of Pollock as Jack the Dripper."

Each - the architect, composer, author and painter, - is involved in an attempt to embue the artefact with elements that provoke a direct response and interpretation. The critic is deliberately thwarted in his attempt to objectify the encoded meanings:

> "I am faced with the difficulty of fulfilling the primary duty of the critic, which, as everyone knows, is to explain and narrate a play to people who have neither seen it nor read it... the sensation is infinitely agreeable" (Lemarchand in Graver and Federman, 1979: 90).

and

> "... when the emotions subside there is little to
> appeal to the intellect, and nothing to analyse or
> stimulate curiosity" (Stirling, 1956: 161).

The critic is the 'scientist' of the arts in that it is he
who objectifies the reality and rationalises the content of
the artefact. Greenberg (1965: 208) states that this is a
reason for painting to "work out its modernisms" for "...
conventions are overhauled, not for revolutionary effect but
in order to maintain the irreplaceability and renew the
vitality of art in the face of a society bent in principle on
rationalizing everything", a poignant admission by one whose
task it is to offer just such rationalisations.

Pollock, Cage and Le Corbusier affirm man's place in his
world as an active participator, through 'action' and
'change' and newfound spirituality, Beckett through indicting
the observer for his inaction.

All direct the individual's attention to the possibility of
the individual's own life as a work of art, and, through
living their life as such, becoming the artist. If meaning
is to be found in life it is not to be acquired by accepting
the objectified truth of scientist or critic alone. Meaning
is acquired rather through the active participation of the
individual in a world which is dynamic and changeable and
which needs to be experienced and interpreted directly.

The crisis of Modernism is the failure of objectified know-
ledge and truths acquired through rational principles to have
subjective meaning for the individual. The Modern was an age
of material progress achieved by the rigor of Rationalism but
its failure was the loss of individual meaning and purpose
within that world of progress.

5.5 SUMMARY

Four unique artefactual examples from the disparate disci-
plines of architecture, art, music, and drama have been
selected, presented and a meaning ascribed; namely

5.5.1 Le Corbusier's (1887-1965) 'Notre Dame du Haut' at
       Ronchamp, France, 1950-5;

5.5.2 Jackson Pollock's (1912-56) 'Echo', 1951;

5.5.3 John Cage's (1912-) 'Music of Changes', 1951;

5.5.4 Samuel Beckett's (1906-   ) 'Waiting for Godot', 1952
       (first published in French as "En attendant Godot").

The crisis of Modernism has been interpreted as the loss of
individual meaning in a world encountered on Rational prin-
ciples.

CHAPTER 6   THE PARADIGM OF THE MODERN

SUBPROBLEM 5   The articulation of the paradigm of the period
                 termed 'Modern'.

PRECIS 5   The Modern period in crisis has been identi-
                 fied . The paradigm of the Modern period can
                 therefore be discerned and articulated. The
                 Modern will be characterised as the period of
                 scientific endeavour. The dimensions of
                 reality which that endeavour engenders will be
                 applied to the discipline of architecture.

6.1   INTRODUCTION

In Chapter 2 a paradigm is defined as a shared temporal intellectual model which directs and limits the normal activities of a community and after a crisis period can undergo change thereby giving rise to a new paradigm.

Chalmers (1967: 87) states that a paradigm by nature defies definition. This is understood to be that of the prevailing paradigm. The further distanced a period is in time the more precise the articulation of the nature of that period becomes. Hence a time once termed 'Renaissance' has been further refined into periods of 'Mannerism' and 'Baroque'. It is significant that the naming of a period is usually ex post facto and conditional to the identification of the particular character of its intellectual environment as manifested in the associated artefacts. If the shared intellectual model by which the communal endeavours were directed can be discerned then the paradigm can be said to have been identified. The historical nature of a paradigm passed allows for the objectification of the directing cognitions and hence the articulation of the intellectual environment in which a particular community conducted its affairs.

6.2   THE NEWTONIAN PARADIGM

It has been argued in Chapter 4 that postmodernism heralds a period of paradigm change and is self-distanced from the Modern period. It should therefore be possible to discern the characteristics of the intellectual environment of the Modern period and thus the paradigm.

The postmodern period is the revolt against the Newtonian nature of the Modern. Therefore if the nature of the Newtonian directives can be formulated then it can be said that the paradigm of the Modern has been articulated.

Newton's "Philosophiae Naturalis Principia Mathematica" was published in 1687. It for the first time in man's existence elegantly encapsulated all observable phenomena of motion in one abstract mathematical formulation. Prigogine and Stengers (1975: 59) write that

> "...the triumph of Newtonian science is the discovery that a single force, gravity, determines both the motion of planets and comets in the sky and the motion of falling bodies towards the earth. Whatever pair of material bodies is considered, the Newtonian system implies that they are linked by the same force of attraction. The definition of the law of gravity that describes how masses tend to approach one another contains no reference to the scale of the phenomena. It can be applied equally well to the motion of ... the planets, or of the stars in a galaxy. Every body, whatever its size, has a mass and acts as a source of the Newtonian forces of interaction."

The appeal to the intellect of the reduction of the variety of phenomena to essential simple formulations was immensely powerful and became the directive of Western man's endeavour - the scientific endeavour. The rewards of this enterprise were immediate and profound - man's mastery over his physical world - and this was readily acknowledged as due reward for applying the rigorous discipline of reason.

Not only were the discoveries of Newton's research made available but also the rigour by which it was derived and formulated.

He not only propounded the theories of the new vision, he also invented its mathematics (calculus, which he termed "fluctions") and incorporated into the 'Principia' regulative principles to direct fruitful research, namely that:

> "I. We are to admit no more causes of natural things than such as are both true and sufficient to explain their appearances.
>
> II. Therefore to the same natural effects we must, as far as possible, assign the same causes.

III. The qualities of bodies, which admit neither intensification nor remission of degrees, and, which are found to belong to all bodies within the reach of our experiments, are to be esteemed the universal qualities of all bodies whatsoever.

IV. In experimental philosophy we are to look upon propositions inferred by general induction from phenomena as accurately or very nearly true, notwithstanding any contrary hypotheses that may be imagined, till such time as other phenomena occur, by which they may either be made more accurate, or liable to exceptions" (Newton in Lossee, 1980: 92).

6.3 THE POSTULATES OF SCIENCE

Cohen and Manion (1984: 15-6) have formulated the following as being the postulates of science:

6.3.1 Determinism, which means "... that events have causes, that events are determined by other circum- stances."

6.3.2 Empiricism, which holds "... that certain kinds of reliable knowledge can only originate in experience ... [and therefore] that the tenability of a theory or hypothesis depends on the nature of the empirical evidence for its support."

6.3.3 The principle of parsimony, which requires that phenomena should be explained in the most economical way possible.

6.3.4 Generality, which is that by "Beginning with observa- tions of the particular, the scientist sets out to generalise his findings to the world at large."

As the basic assumptions of the scientific discipline these principles can then also be held to be those of the paradigm of the world encountered on scientific principles, the Modern world. For the sake of convenience this will be termed the Newtonian paradigm, and the Newtonian paradigm said to be the paradigm of the period known as Modern.

6.4 THE MODERN IN ARCHITECTURE

Modern architecture has been identified by Collins (1965: 15) as having originated in the mid-eighteenth century:

> "... it can hardly be disputed that radical changes took place in the middle of the eighteenth century which so profoundly altered subsequent theories of architecture as to make the ideals of architects differ henceforth quite markedly from what they were before.
>
> From 1750 onwards, architects were motivated by a number of notions which had previously played little or no part in the formation of their ideals, and these new notions did not simply succeed one another as an evolutionary sequence; they were to recur continually, in various combinations and with various expressions, during the whole of the following two centuries. The fondness of late eighteenth century architects for historical allusions, for analogical justifications, for asymmetrical landscaping, for brutal detailing, for oriental prototypes, and for pictorial techniques does not simply cut them off from the tradition of earlier centuries; it relates them intimately to the architects of today, and it is this which gives unity to the period 1750-1950, and allows us to treat it as a single architectural age."

Collin's identification of the 1750's as heralding the Modern in architecture is the identification of a time contemporaneous with the publication of Laugier's "Essai sur l'Architecture" in 1753 (first anonymously, and then in 1755 under his own name). His manuscript appeals for an architecture of reason and a rejection of the prevailing (later termed Baroque) excesses.

Laugier (1977: 1):

> "It seems to me that in those arts which are not purely mechanical it is not sufficient to know how to work: it is above all important to learn to think. An artist should be able to explain to himself everything he does, and for this he needs firm principles to determine his judgments and justify his choice so that he can tell whether a thing is good or bad, not simply by instinct but by reasoning and as a man experienced in the way of beauty."

6.5   THE RATIONALISM OF MODERN ARCHITECTURE

The regulation of architecture by reasoned principles places the discipline within the rationalist school of thought. This is the basis of the scientific imagination and is an attempt to divorce architecture from arbitrariness or slavish following of precedent. Collins (1965: 198) paraphrases César Daly to derive a definition of Rationalism:

> "The best definition of Rationalism is to be found in an article written by César Daly in 1864, and published in translation in <u>The Builder</u> in the same year. In this article, devoted to the subject in general, he defined it as the belief, held in common by all French Gothicists, Classicists and Eclectics, to the effect that architecture was ornamental or ornamented construction ... but more specifically as the belief that architectural forms not only required rational justification, but could only be so justified if they derived their laws from science."

Greene (1976: 177-84) talks of a tradition of European thought in the Modern world which he terms the "Cartesian tradition":

> "The Cartesian reliance on the verbalization of conscious ideas about supposedly independent substances, to the exclusion of other ways of knowing, formed a background against which the "rational" expressions of cognition, logic, and structure could be taken as the primary fact of nature itself.
>
> The Cartesian separation of essential attributes has come to foster the visual neutrality favored by many modern designers. Since emotional experience is derived from the private world of sensation, it is subjective. It cannot meet the requirement of being measured in a perfectly definite manner. Intrusions into design that seem emotional, spontaneous, or incongruous do not meet the Cartesian requirements of rational thought; the same could be said of any experiential metaphor or any subjective projection of an emotion. But machines are considered products of rational forces, and designers have begun to feel secure in using forms based on their appearance and on models of their functions...

The rational mind believes that it can construct functional models based on the operational and the instrumental and that it can coordinate them with the requirements of physical structure and the "engineering" of social behavior. These beliefs have been transformed into design goals by the rationalist progressives. The visual forms that express these aims are thought to be universals, free of subjectivity" (Greene, 1976: 180).

Palmer (1977: 22-4) sees the Modern world arising from the discovery and formulation of perspectival space:

"The combination of the abstractness of numbers as symbols that measure, with perspective, a way of relating those numbers to the visual world, leads to a sense of space as measured, as extending outward from a given point; ultimately the world is measurable. Galileo's maxim, "To measure everything measurable and to make what is not measurable capable of being measured!" epitomizes modern spatialized thinking.

Thus, the spatialization of vision has ramifications that extend beyond the world of art. It has metaphysical and epistemological implications. Modern man begins to dream of reducing everything to measurable terms, of making everything visualizable, i.e. spatial. And the mind, with its armory of mathematical symbols - better and more reliable than any ordinary language - nominates man as the absolute monarch of the world ...

The perspectival sense of space, then, is more significant than it might at first appear. The voyages of discovery show man exploring and claiming the surface of the earth in a quite new way, a way made possible by his new mensural-spatial consciousness and his sense of centered selfhood. The frenzy to measure everything and, by extension, to control and to lay claim to everything that is measured, ushers in a new scientific era predicated on the quest for systematic and verifiable knowledge. The methodology of perspective and the measuring eye furnish the means for taking control of the world and for assembling a single body of coherent ... knowledge about it. And they lay the basis, as we have seen, for the machine age. They lead to the spatializing of time and to the "visualizing" of everything possible - conceptual knowledge takes center stage. The sense of the sacred and the mythic attitude toward man as a part of the whole give way to man's secular project of controlling

the world through reason. The "new world" is the
new world of spatialized perception - with its
attendant ego-centered and materializing view of
the world - that arises with perspective."

6.6 THE DIMENSIONS OF MODERN REALITY

The Modern world as a coherent system of conceptual knowl-
edge, derives from a paradigm characterised by a particular
sense of reality. Palmer (1977: 24-5) has identified as
dimensions of reality the following: time, space, matter,
language, person and truth. His characterisations of these
dimensions of the Modern[2] period will be cited. Each will be
allied to the discipline of architecture.

6.6.1 Time

"Time is a linear continuum in which processes of
change can be abstractly measured and symbolized
(time seen in spatial terms)" (Palmer, 1977:24).

Modern architecture became the medium for the verification of
historical time. An appeal to first principles, for example
Laugier's primitive hut and le Cobusier's domino house (in
other words a return to the principles of the earliest time
of man's building activities) brackets the period of eclecti-
cism where every historical period recorded reappears in the
living museum of style revivals. The museum as building type
also emerges in the Modern period and, as a shrine to the
temporal achievements of man, has replaced the cathedral as
the place of congregation. The awareness of the significance
of time has led to the utopian inventions for the future (for
example the works of Archigram and Paolo Soleri (1919)) as
well as the reinvention of the built past (for example the
Gothic works of Sir George Gilbert Scott (1811-78) or Eugène-
Emanuel Viollet-le-Duc (1814-79) or the reconstruction by
Evans of Knossos.) The architectural sense of times both
inspired and directed the search for past works and the
a-historicism of the Bauhaus curriculum.

———
2. In the published version the titles of 'Modern' and
    'Pre-Modern' are assumed to be reversed and a typeset-
    ting error.

While stylistic and a-stylistic concerns allied architecture
to historical and therefore sequential time, the ability to
dematerialise buildings by applying the materials of new
technologies emphasised the synchronous experiencing of
internal and external space. The sublime discovery of
repetitive columns of ruined temples as illustrated by
Piranesi's depictions of Paestum became the design rationale
of the Modern movement epitomised by Le Corbusier in his plan
libre. The architectural response to the spatial experience
of time was to embody the experience in the design. The
measurement of time was thus not only in terms of stylistic
progression but also through the changing of one's vantage
point so as to make manifest the spatial relationship of
time.

6.6.2   Space

> "Space is the central dimension in which we think;
> spatial extension is the measure of what is real"
> (Palmer, 1977: 24).

The dimensional aspect of space as a medium of architectural
expression was only articulated later in the Modern period
because the word initially meant 'vacant' as in the unadorned
area between decoration or open area of land (Collins, 1965:
285).

The introduction of an understanding of 'space' as a three
dimensional reality came to the English and French through
Wolffin's development of the writing of Hegel (Collins, 1965)
where in his 'Philosophy of Art' of 1820 he uses the term
"raumgestaltung", literally the 'room creation' and also
'space realization'. Once however conceptualised the sense
of three dimensional space as a reality became the overriding
concern of the Modern movement and the contribution to the
designer's vocabulary.

Giedion (1967, lvii) explains that the Modern conceptuali-
sation of space is not just the hollowed occupiable space
within a building but also that which derives from the
interplay of volumes in free space.

The understanding of the architectural concept of space is however confused by the attempt to link it to the sense of time and create a unitary idea 'space-time' (Giedion, 1967) thereby attempting to create a fourth dimension for architecture, the dimension of the observer in movement (Zevi, 1957) or the simultaneous experiencing of internal and external space. What is however clear is that space is the dimension of architectural reality, described by both surfaces of the building, interior and exterior. Loos's 'ornament is a crime' can be understood because ornament interferes with the direct experiencing of the plane of interaction of solid and void.

Martiennsen (1968: 1) formulates as requirements for a spacial definition of architecture:

> "The first is the satisfaction of the claims of order and system, of a recognizable and measurable arrangement that will demarcate the activities of man from the existing surroundings in which he plans to lead his life. The second condition is the formulation of a structural vocabulary that will enable him to give practical expression to such space concepts as he postulates for the creation of shaped surroundings."

Existential space is thus the need, the building the medium and architecture the interaction of the two.

6.6.3 Matter

> "Matter is basically inert; organic process is autonomous; there is no "spirit" in or behind nature" (Palmer, 1977: 24).

As inert and despiritualised the animistic principle of design gave way to the rationalist principle of Modern design. Through understanding the nature of material by qualifying its constituents and quantifying its structural properties it could be optimally employed. The realisation that material comprised of inert matter, not to be transformed alchemically but analysed and understood, lead to the professional division between architect and engineer - he who

was to employ matter for creative intent, and he who was to rationalise its employment through understanding of its material properties and optimisation of the utilisation of those properties.

> "[Engineering] has taken over from architecture much of its classical territory and most of its pursuit of Science ... Today, engineering and architecture confront one another as estranged members of a once-united family" (Hodgkinson, 1976: 11+12).[3]

The exploitation of inert material by the designer then infused the artefact with the genius of its creator and so simultaneously the designer gained a creative power once only ascribed to God and inert material became the vehicle for the display of creativity. It is noteworthy that the modern sense of 'creative' arises simultaneously with the modern idea of matter as inert:

> "... during C18 (create and creation) acquired a conscious association with art ..., a word which was itself changing in a complementary direction. It was in relation to this, in C18, that creative was coined. Since the word evidently denotes a faculty, it has to wait on general acceptance of create and creation as human actions, without necessary reference to past divine events" (Williams, 1981: 83).

By aspiring to the virtuosity of creator the architect had however to deal with the virtues of this exalted status. The 'honest' employment of material thus became an overriding concern for the Modernists.

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3.   This loss of scientific status is remarkable particularly when borne in mind that Sir Christopher Wren (1632-1723) and Robert Hooke (1635-1703), both architects, sat with Newton at meetings of the recently inaugurated Royal Society (Hodgkinson, 1976: 11).

6.6.4 Language

"The word is a label or sign; it is a man-invented designation which can be changed at will; its connection with what is named is conventional" (Palmer, 1977: 25).

Language in architecture acquired four respective significances:

firstly as the medium for formulation of architectural theory freed from classical precedent;

secondly for the coining of terminology to describe elements and styles not included in the classical canon (as Linnaeus set about a nomenclature of the natural world);

thirdly as medium for the discipline of critique where the critic intervened and objectified the artefact as a scientist objectified the natural world; and

fourthly as medium for analogous interpretation of architecture as a parallel of literary construction and comprehension.

Once acknowledged that the classical repetoire of styling was manmade and therefore not a canon of God-inspired elements and rules of application, architects were free to invent new assignations for their application or abandon their employment altogether.

Modern architecture drew analogies from literature and Boullée (1807) spoke of the "poetry of architecture" and "architecture parlante." There developed other analogous notions of grammar, syntax and, taken to extremes, in ideas of punctuation, inflection, and such like (Collins, 1965: 179-82).

The significance in the Modern movement of the linguistic analogy was that architecture, as a means of communication, was to be employed morally. The use of elements was however not prescriptive since the elementary language could be of the architect's own invention and the designations changed to suit the employment.

6.6.5 Person

> "A person is an autonomous living being of unde-
> fined origin, a combination of mind and matter; a
> 'subject'" (Palmer, 1977: 25).

In the Modern movement the patron of the architect became the individual user, an autonomous being, born free and equal to all others, having democratic rights and statistically determinable.

The democratisation of architecture has been an overriding concern in the Modern period. Housing the worker according to his needs occupied even the time of Victoria's Prince Albert.

Anthropometric and ergonomic data was assembled to enable the architect to satisfy the physical requirements of an anony-mous client. This client was defined, for example, by means of 'Neufert's Data' (1980) and 'New Metric Handbook' (Tutt and Adler, 1985) and idealised (as the height chosen was not derived statistically but that required for a London bobby although its application was meant to provide a universal scale of measurements universally applicable) in Le Corbu-sier's (1973) 'Modulor'.

The democratic ideal was also advocated by Laugier (1977: 14) in Article 1(2) that the "...column must be free standing so that its origin and purpose are expressed in a natural way". This anthropomorphic representation is also one of Le Cor-busier's requirements in his plan libre. Not only was the autonomous person determinant of modern architecture's programme but he was also symbolically represented in its execution.

6.6.6 Truth

> "Truth is the agreement between a secular fact and
> a statement about it; it is a verifiable proposi-
> tion" (Palmer, 1977: 25).

The secular fact of a building was all that which was stated as required in terms of its programme - its type, proposed function, and the materials employed to that end - and the verification, the truthfulness in execution. Hence there develops a moral sense in architecture founded in material expression: the form should follow the function, the build-ing type be directly expressed, the material directly em-ployed without disguise, the planning related to time and motion, the space allocation in proportion to degree of use.

Two terms apply, one 'truth', the other 'sincerity'.

> "Truth is what we owe to others, whereas sincerity
> is what we owe to ourselves. The sincere archi-
> tect is the architect who designs a building the
> way he believes it should be designed, and not
> just the way his client or the public will most
> readily accept it" (Collins, 1967: 248-9).

There exist then two criteria for truth, the demonstrable honesty through execution of the design brief, and the sincerity of belief in the response to the programme. The second makes a virtue of the intuitive response of the designer and novelty of approach.

6.7 SUMMARY

The Modern period can be termed Newtonian, Cartesian or Perspectival but each has the same basis of Rationalism as guiding principle. A world encountered on this principle must be knowable, qualifiable, quantifiable and possess an objective truth. Artefacts produced within such an intel-lectual framework must, not only reflect these qualities, but be critically accessible on these terms. The Scientific imagination and postulates form the basis of the paradigm of the Modern. The dimensions of reality of time, space, matter, language, person and truth acquire a particular character in the Modern paradigm. This can be discerned within the architectural discipline, and the discipline thereby allied to the Modern or Newtonian paradigm.

CHAPTER 7

7.   RECAPITAULATION, CONCLUSIONS AND RECOMMENDATIONS

7.1   RECAPITULATION

The problem was the formulation and testing of a paradigmatic approach to architectural history through relating the postmodern to the Modern.

In Chapter 2 the hypothesis that the paradigm was an intellectual model was explored. A paradigm was defined as a shared temporal intellectual model which directs and limits the normal activities of a community and after a crisis period can undergo change thereby giving rise to a new paradigm. In this way the initial hypothesis was confirmed.

In Chapter 3 the hypothesis that through the understanding of the nature of a paradigm a paradigmatic approach to architectural history could be formulated, was investigated. The paradigmatic approach to architectural history requires that through the stratification of history into paradigmatic episodes and the heuristic encountering of the representative unique artefacts of a period of crisis, meaning can be ascribed, synergised, and thereby the paradigm of the preceding period ascertained. A context can be established for further historical study. The hypothesis that a paradigmatic understanding could lead to a formulation of an approach to architectural history is supported.

In Chapter 4 the investigation of writings associated with the attempt to articulate the status of postmodernism lent credence to the hypothesis that post-modernism is an episode of paradigm change. This is manifested in a temporal, critical, reactionary and revisionist relationship to the Newtonian paradigm of the Modern. These attitudes have also been detected in the discipline of architecture.

In Chapter 5 a crisis period of the Modern was readily identified as occurring in the early 1950's. The hypothesis that such a period would deliver unique examples of artefactual evidence of the crisis was supported by the identification of:

the architect Le Corbusier's (1887-1965) chapel of 'Notre Dame du Haut' at Ronchamp, France, 1950-5;

the painter Jackson Pollock's (1912-56) action painting entitled 'Echo', 1951;

the composer John Cage's (1912-) aleatory composition 'Music of Changes', 1951;

the dramatist Samuel Beckett's (1906-) play in the genre of the theatre of the absurd 'En attendant Godot', 1952.

These were interpreted as indicating the loss of individual meaning in a world encountered on Rational principles.

In Chapter 6 the Rational basis of the scientific endeavour was investigated and said to characterise the Modern period. By identifying the postulates of science the paradigm of the Modern was articulated. The hypothesis that a representative paradigm for the Modern could be articulated was thus supported. The character of the dimension of reality of the Modern period (as proposed by Palmer, 1977) was allied to the discipline of architecture thereby locating the discipline within the ariculated paradigm.

7.2   CONCLUSIONS

In testing the postmodern paradigmatically and articulating the paradigm of the Modern it becomes evident that the approach itself is postmodern in that it proposes a technique for deriving personal meaning from factual and artefactual material. The study takes on a reflexive quality in that it

examines and artefactually becomes representative of that same period. This reflexive quality is also in its turn characteristic of the postmodern.

Herein lies both the strength and weakness of the paradigmatic approach. It assumes a tradition of factual and artefactual collection, documentation, description and presentation as well as a ready availability and accessibility of such material. It therefore does not foster direct research into the recovery of such material.

The approach assumes a grounding at the lower cognitive levels; that is a good grasp of facts, dates, chronologies and vocabulary. It is therefore an enterprise for the well informed and mature student.

It is possible that the personal interpretation of and meaning ascribed to the artefacts studied will remove the student from the mainstream of academic thought. This could lead to an impoverishment of the academic tradition of the discipline.

In that the approach enriches the meaning of the world encountered by the student it enriches the personal life of the student. An enrichment of life is reward in excess for any endeavour and herein lies the greatest strength of the approach.

What is considered a contribution by the study is:

7.2.1   the direct linking of a paradigm as an intellectual model to the hierachy of cognitions;

7.2.2   the broadening of the usage of the term paradigm to the arts;

7.2.3   the formulation of the paradigmatic approach to history, in this case architectural history;

7.2.4 the articulation of the dimensions of reality of the discipline of architecture within the Newtonian paradigm.

7.3 RECOMMENDATIONS

7.3.1 It is recommended that a study be made of the place of the paradigmatic approach in the curriculum of architectural teaching. The paradigm as an intellectual model in the cognitive hierarchy could be allied to the hierarchy of cognitive development, and this understanding explored for the teaching of paradigmatic thought.

7.3.2 On a level which parallels this study various episodes of paradigmatic change can be isolated and the unique artefacts identified and interpreted.

7.3.3 The articulation of paradigms through the study of artefacts from alien cultures could be attempted, based on the articulation of paradigms of one's own culture, which could in turn lead to a comparative study of paradigms. This might indicate patterns of systemic development which could lead to the formulation of an ecology of ideas.

The possibilities presented by paradigmatic understanding appear limitless at this early stage of research and investigation.

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APPENDIX 1

1.1 THE ARCHITECT

LE CORBUSIER (Charles-Edouard Jeanneret) (1887-1966). Le Corbusier was born 1887 at La Chaux-de-fonds in French Switzerland. He worked in Perret's office in Paris in 1908-9, then for a short time in that of Behrens in Berlin. The most influential and the most brilliant of C20 architects, of a fertility of formal invention to be compared only with Picasso's, he is restless and an embarrassingly superb salesman of his own ideas. It is no doubt relevant to an understanding of his mind and his work that he was and is an abstract or semi-abstract painter, comparable in some ways to Léger.

In Le Corbusier's early work three strains can be followed, continually interacting. One is the mass-production of housing (Dom-ino, 1914-15, Citrohan House, 1921; the abortive housing estate of Pessac, 1925). The second is town planning. Le Corbusier has published and publicized a number of total plans for cities with a centre of identical sky-scrapers, symmetrically arranged in a park setting, with lower building and complex traffic routes between. They are less realistic than Garnier's Cité Industrielle of 1901, but far more dazzling (Ville Contemporaine, 1922; Plan Voisin, 1925; Ville Radieuse, 1935; plan for Algiers, 1930). The third strain of Le Corbusier's early thought tends towards a new type of private house, white, cubist, wholly or partly on Pilotis, with rooms flowing into each other. The earliest is the villa at Vaucresson (1922). Many followed, including the exhibition pavilion of the Esprit Nouveau at the Paris Exhibition of 1925, with a tree growing through the building. The most stimulating and influential villas were probably those at Garches (1927) and Poissy (1929-31). In the same years Le Corbusier did some designs for major buildings: for the League of Nations at Geneva (1927; not executed) and the Centrosojus in Moscow (1928). The designs had a great effect

on progressive architects everywhere. Of major buildings actually erected two must be referred to: the Salvation Army Hostel in Paris (begun 1929) with its long curtain wall; and the Swiss House in the Paris Cité Universitaire (1930-2), introducing a random-rubble baffle wall to contrast with the usual white-rendered concrete. In 1936 Le Corbusier was called to Rio de Janeiro to advise on the new building of the Ministry of Education which was subsequently executed by Costa, Niemeyer, Reidy and others. Their contribution has never been fully distinguished from his. In 1947 Le Corbusier was one of the group of architects to come to terms with the programme of the United Nations Headquarters in New York, and the Secretariat building, a sheer glass slab with solid, windowless end walls, is essentially his design.

At the same time, however, Le Corbusier began to abandon this rational smooth glass-and-metal style which until then he had been instrumental in propagating, and turned to a new anti-rational, violently sculptural, aggressive style which was soon to be just as influential. The first example is the Unité d'Habitation at Marseille (1947-52), with its heavy exposed concrete members and its fantastic roofscape. The proportions are worked out to a complicated system, called Modulor, which Le Corbusier invented and pleads for. The Unité was followed by another at Nantes (1953-5) and a third at Berlin (for the Interbau-Exhibition, 1956-8). Le Corbusier's most revolutionary work in his anti-rational style is the pilgrimage chapel of Ronchamp not far from Belfort (1950-4), eminently expressive, with its silo-like white tower, its brown concrete roof like the top of a mushroom, and its wall pierced by small windows of arbitrary shapes in arbitrary positions. In his villas the new style is represented by the Jaoul Houses (1954-6), whose shallow concrete tunnel vaults soon became an international cliché. Of yet later buildings the Philips Pavilion at the Brussels Exhibition of 1958 had a Hyperbolic paraboloid roof, a form pioneered by M. Novitzki and the engineer Deitrich in the stadium at Raleigh, North Carolina (1950-3). At Chandigarh

Le Corbusier laid out the town and built the extremely powerful Law Courts and Secretariat (1951-6), the influence of which proved to be strongest in Japan. At the same time he did some houses at Ahmedabad (1954-6) which, like the buildings of Chandigarh, are of extremely heavy, chunky concrete members. In 1957 Le Corbusier designed the Museum of Modern Art for Tokyo and the Dominican Friary of La Tourette (1957-60), a ruthlessly hard block of immense force.

His last important building was the Carpenter Art Centre at Harvard. (Fleming, Honour & Pevsner, 1983)

1.2 THE CLIENT

The Catholic church undertook to rebuild the war-shattered shrine of Our Lady on its hilltop setting above the Saône Valley in 1950. Le Corbusier was persuaded by a combination of personal requests, the most influential being that made by Father Pierre Marie Alain Couturier, the Dominican priest who had such a marked influence on his liturgical understanding. Father Couturier, who died in 1954 at the age of 56, had been trained as an artist particularly interested in stained glass, before joining the Order of Preachers. In 1937, he became codirector of the magazine L'Art Sacré, which had been founded two years previously.

Couturier considered that a revival of Christian art and architecture would occur if the most talented artists of the day were employed, irrespective of their personal beliefs. He had been a friend of Le Corbusier's for some years and was to support him over both Ronchamp and La Tourette. Elsewhere he was instrumental in bringing together a whole series of artists, among the Pierre Bonnard, Marc Chagall, Fernand Léger, Henri Matisse, and Georges Rouault, to adorn the Church of Notre-Dame-de-Toute-Grâce in Assy, and he also supported the commission of Matisse to decorate the Chapel at Vence.

Couturier's policy was perhaps the antithesis of the more liberal understanding of the program theory. Excellence and artistic sincerity were to come not only before faith and piety, but also before what might be described as liturgical empathy. Unfortunately, he lived to see neither Ronchamp nor La Tourette, but both buildings stand as apt memorials to his philosophy.

(Purdy, 1977: 292-3)

1.3 THE BRIEF

"Ronchamp. Totally free architecture. No subject other than the mass service, one of the oldest human institutions."

"To give here to the Mother of God a stone house safe against the assaults of the centuries and to situate the volume of this strong chamber in such a way that a spirit emanates from it, imposing by a mysterious relationship of forms and colours the respect of each, silence upon mouths, and opening only the urge to pray and lips to canticles in the rhythm of the reserved lights."

(Le Corbusier in Hervé, 1970: 20)

1.4 THE SITE

FIGURE 1. THE SITE AT RONCHAMP

The chapel is constructed on the last bastion of the Vosges falling away to the plain of the Saône below, on a hill which is called a "high place".

(Boesinger, 1966: 72.)

When Le Corbusier first visited the site in 1950, he was quick to grasp the many layers of memory in the place. The Romans and, before them, sun-worshippers had held the Ronchamp hill sacred. In the Middle Ages a cult of the Virgin had developed around an effigy with supposed miraculous powers. During the Refromation these powers were credited with stopping heresy from spreading from the east... In 1944 the hill was bombarded in the German withdrawal from France. Ronchamp was associated with the Free French Forces and with the Liberation. The rebuilding of the church was not without patriotic overtones. ... it was the genius loci itself, the sacredness of the spot and its special relationship to the surrounding landscape which dominated his imagination: particularly the resonance which he sensed between the hilltop and the distant ridges of the horizon. ... There was a little water on the site and a collecting device was necessary (the eventual sluice roof responded to this need); and the difficult climb made it sensible to re-use the rubble of the old church.

(Curtis, 1986: 179.)

1.5 THE CONCEPT

In the brain the idea is born, indefinite it wanders and develops. On the hill I had meticulously drawn the four horizons. There are only four: to the east, the Ballons d'Alsace; to the south, the last spurs leave a vale; to the west the plain of the Saône; to the north, a small valley and a village. These drawings are missing or lost, it is they which unlocked, architecturally, the echo, the visual echo in the realm of shape. On the 4th June 1950 ... Give me charcoal and some paper...

(Le Corbusier in Baker, 1984: 211)

"Ronchamp? Contact with a site, situation in a place, eloquence of the place, speech addressed to the place."

"The chapel? A vase of silence of sweetness. A desire: Yes! by the language of architecture to reach the sentiments here evoked. Yes, architecture alone!"

"Considering the effect of an architecture in a site, I shall show that here too the outside is still an inside."

"It is a kind of sculpture "of an acoustical nature," that is to say projecting afar the effect of its forms and, in return, receiving the pressure of the surrounding spaces."

(Le Corbusier in Hervé, 1970: 20-7)

1.6   THE ACCOMMODATION

The chapel is oriented in the traditional manner with the altar to the east. The nave (13m wide and 25m long) can accommodate 200 people. Most of the congregation remains standing, while some benches are provided on one side of the nave. Three small chapels, completely separated from the nave, afford simultaneous services.

... The main altar is situated in the nave (the axis of which is delineated in the flooring by a simple concrete band) where the ceiling is the highest, being 10m high at the mid-point of the altar wall and only 4,78m high at its lowest point.

(Boesiger, 1970: 21)

1.7   THE STRUCTURE

"The shell of a crab picked up on Long Island near New York in 1946 is lying on my drawing board. It will become the roof of the chapel: two membranes of concrete six centimetres thick and 2m 26cm apart. The shell will lie on walls of the salvaged stones ..."

(Le Corbusier in Baker, 1984: 211)

The main part of the structure consists of two concrete membranes separated by a space of 2.26 meters forming a shell which constitutes the roof of the building.

Watertightness is effected by a built-up roofing with an exterior cladding of aluminium.

This roof both insulating and water-tight, rests on top of short struts which form part of a vertical surface of con-crete covered with "gunnite" and which, in addition, brace the walls of old Vosges stone provided by the former chapel which was destroyed by the war-time bombings. These walls which are without buttresses follow, in plan, the curvilinear forms calculated to provide stability to this rough masonry. There is a space of several centimeters between the shell of the roof and walls. The towers are constructed of stone masonry and are capped by cement domes. The vertical ele-ments of the Chapel are surfaced with mortar sprayed on with a cement gun and then white washed - both on the interior and exterior. The concrete shell of the roof is left rough, just as it comes from the formwork. The floor is constructed of a cement paving poured in place between battens, the design of which is dictated by the Modulor.

(Boesiger, 1970: 18)

1.8 THE INTERIOR

"The key is light and light illuminates shapes and shapes have emotional power. By the play of proportions by the play of relationships unex-pected, amazing..."

(Le Corbusier in Baker, 1984: 211)

The main door for processions (9m²) pivoted in its middle, is covered on each face with eight panels of sheet steel enamel-led in vivid colors at 760°C. This is the first time that this technique has been applied in architecture. The door opening eastward into the platform for open-air ceremonies is of cast concrete, with a bronze handle.

Daylighting is furnished by a system of openings covered with clear glass, and, in places, with colored glass. This has no connection to stained glass; Le Corbusier considers that this form of illumination is too closely bound to old architectural notions, particularly to Romanesque and Gothic art. Therefore here there is no stained glass, but glazing through which one can see the clouds, or the movements of the foliage and even passers-by.

The interior of one of the three chapels is painted in intense red while a little further on the wall leading to the sacristy is painted in violet.

These three chapels have a very special natural illumination; they are covered with half domes rising to heights of 15 and 22 meters, receiving light from three directions. The light falling vertically on the altars is very different from that of the nave (which is lower in intensity) and serves to accentuate these unorthodox forms.

The Chapel (as are all of Le Corbusier's structures) is laid out by means of the Modulor. It has therefore been possible to reduce the whole to ridiculously small dimensions, in places, without making the spectator aware of them. Le Corbusier acknowledges the fact that here is manifested the plastic issue which he has termed "ineffable space".

The space between the roof and the vertical envelope of the walls furnishes a significant entry for daylight. The floor of the Chapel follows the natural slope of the hill down towards the altar. ... Certain parts, in particular those upon which the interior and exterior altars rest, are of beautiful white stones from Bourgogne, as are the altars themselves.

(Boesiger, 1970: 18 & 21)

APPENDIX 2

2.1 THE ARTIST

POLLOCK, JACKSON (1912-56). American painter, the commanding figure of the Abstract Expressionist movement. He began to study painting in 1920 at the Art Students' League, New York under the Regionalist painter Thomas Hart Benton. During the 1930's he worked in the manner of the Regionalists, being influenced also by the Mexican muralist painters and by certain aspects of Surrealism. From 1938 to 1942 he worked for the Federal Art Project. By the mid 1940's he was painting in a completely abstract manner, and the 'drip and splash' style for which he is best known emerged with some abruptness in 1947. Instead of using the traditional easel he affixed his canvas to the floor or the wall and poured and dripped his paint from a can; instead of using brushes he manipulated it with 'sticks, trowels or knives' (to use his own words), sometime obtaining a heavy impasto by an admixture of 'sand, broken glass or other foreign matter'. This manner of Action painting had in common with Surrealist theories of automatism that it was supposed by artists and critics alike to result in a direct expression or revelation of the unconscious moods of the artist. Pollock's name is also associated with the introduction of the All-over style of painting which avoids any points of emphasis or identifiable parts within the whole canvas and therefore abandons the traditional idea of composition in terms of relations among parts. The design of his painting had no relation to the shape or size of the canvas - indeed in the finished work the canvas was sometimes docked or trimmed to suit the image. Pollock also introduced a novel form of picture space, the calligraphic or scribbled paint marks seeming to lie a very little way behind the picture surface and movement being set up not into the canvas in depth but laterally across the canvas towards a centre.

All these characteristics were important for the new American painting which matured in the late 1940's and early 1950's.

During the 1950's Pollock continued to produce figurative or quasi-figurative black and white works and delicately modulated paintings in rich impasto as well as the paintings in the new all-over style. He was strongly supported by advanced critics, particularly Harold Rosenberg, but was also subject to much criticism as the leader of a still little comprehended style. By the 1960's he was generally recognized as the most important figure in the most important movement of this century in American painting, but a movement from which artists were already in reaction. His unhappy personal life (he was an alcoholic) and his premature death in a car crash contributed to his legendary status. Pollock's work is represented in many major American museums, and there are examples in the Tate Gallery.

In 1944 Pollock married Lee Krasner (1911-84), who was an Abstract Expressionist painter of some distinction, although it was only after her husband's death that she received serious critical recognition. (Chilvers and Osborne: 1988)

2.2 GLOSSARY OF TERMS

2.2.1 Abstract Expressionism

A term which came into common use for c.1950 to describe a movement in abstract art that developed in New York in the 1940's. The term had originally been applied to some of Kandinsky's early abstract paintings, but first came into vogue when applied to the work of Arshile Gorky and Jackson Pollock. It was soon extended to the work of other New York painters, even when it was neither abstract (de Kooning, Gottlieb) nor Expressionist (Rothko, Kline). The painters embraced by the term shared a similarity of outlook rather than of style - an outlook characterized by a spirit of

revolt against affiliations with traditional styles or prescribed technical procedures, renunciation of the ideal of a finished art product subject to traditional aesthetic canons, an aggressive spirit of self-determination, and a strong demand for spontaneous freedom of expression. This spontaneity is seen most clearly in the Action painting made famous by Pollock. The movement has affinities with Tachisme and made a strong impact in several European countries during the late 1950's and 1960's - the first American movement to do so. (Chilvers and Osborne: 1988)

2.2.2 Action Painting

Term describing a technique and style of painting - made famous by Jackson Pollock - in which paint is dribbled, splashed, and poured over the canvas. The term, which was first used in 1952 by the art critic Harold Rosenberg, emphasized the view - popular at that time - that a picture should be not merely a finished product but a record of the process of its creation, i.e. the actions of the artist in painting it. It is sometimes used as an alternative name for Abstract Expressionism, but such usage is inexact, as Action painting represents only one form of Abstract Expressionism. (Chilvers and Osborne: 1988)

2.2.3 All-over Painting

A term used for a style of painting in which the whole surface of the canvas is treated in a relatively uniform manner and traditional ideas of composition - of the picture having a top, bottom, or centre - are abandoned. First used of the 'drip' painting of Jackson Pollock, the term has since been applied to painting of other artists where the overall treatment of the canvas is relatively uniform, whether relying on texture or on 'scribbled' material as with Cy Twombly or on colour as with the Colour Field painters. The German term is Streu-Komposition. (Chilvers and Osborne: 1988)

APPENDIX 3

3.1 THE COMPOSER

Cage, John (Los Angeles, 5 Sept 1912). American composer. He left Pomona College early to travel in Europe (1930-31), then studied with Cowell in New York (1933-4) and Schoenberg in Los Angeles (1934): his first published compositions, in a rigorous atonal system of his own, date from this period. In 1937 he moved to Seattle to work as a dance accompanist, and there in 1938 he founded a percussion orchestra; his music now concerned with filling units of time with ostinatos (First Construction (in Metal), 1939). He also began to use electronic devices (variable-speed turntables in Imaginary Landscape no.1, 1939) and invented the 'prepared piano', placing diverse objects between the strings of a grand piano in order to create an effective percussion orchestra under the control of two hands. He moved to San Francisco in 1939, to Chicago in 1941 and back to New York in 1942, all the time writing music for dance companies, nearly always for prepared piano or percussion ensemble. There were also major concert works for the new instrument: A Book of Music (1944) and Three Dances (1945) for two prepared pianos, and the Sonatas and Interludes (1948) for one.

During this period Cage became interested in Eastern philoso- phies, especially in Zen, from which he gained a treasuring of non-intention. Working to remove creative choice from composition, he used coin tosses to determine events (Music of Changes for piano, 1951), wrote for 12 radios (Imaginary Landscape no. 4, also 1951) and introduced other interdeter- minate techniques. His 4'33" (1952) has no sound added to that of the environment in which it is performed; the Concert for Piano and Orchestra (1958) is an encyclopedia of indeterminate notations. Yet other works show his growing interest in the theatre of musical performance (Water Music, 1952, for pianist with a variety of non-standard equipment)

and in electronics (Imaginary Landscape no.5 for randomly mixed recordings, 1952; Cartridge Music for small sounds amplified in live performance, 1960), culminating in various large-scale events staged as jamborees of haphazardness (HPSCHD for harpsichords, tapes etc (1969). The later output is various, including indeterminate works, others fully notated within a very limited range of material, and pieces for natural resources (plants, shells). Cage has also appeared widely in Europe and the USA as a lecturer and performer, having an enormous influence on younger musicians and artists, and has written several books. (Sadie and Latham, 1988)

3.2 TERMINOLOGY

3.2.1 Aleatory

Term applied to music in which certain choices in composition or realisation are, to a greater or lesser extent, left to chance or to whim. Typical aleatory devices include giving the performer a choice in the order of sections; using random or chance elements; or using indeterminate symbolic, graphic, textual or other notations which the performer may interpret as he wishes. John Cage is the leading composer of aleatory music but many others, including Boulez, Stock-hausen, Globokar and La Monte Young, have used aleatory techniques; more conservative ones, like Henze, Lutoslawski and Maxwell Davies, have used aleatory passages in otherwise determined works. (Sadie and Latham, 1988)

3.2.2 I Ching

I Ching n. an ancient Chinese book of divination and a source of Confucian and Taoist philosophy. Answers to questions and advice may be obtained by referring to the text accompanying one of 64 hexagrams, selected at random. Also called 'Book of Changes'. (Collins, 1979)

3.2.2 Hexagram

Hexagram n. a group of six broken or unbroken lines which may be combined into 64 different patterns, as used in the I Ching. (Collins, 1979)

3.3 NOTE

Of interest is the contemporaneous development by Jannis Xenakis (1922-), an architect, mathematician and composer, who worked in Le Corbusier's office from 1948-59 of 'stochastic' music. This is a form of composition:

> "... where overall sound contours are determined but inner details are left to chance or worked out mathematically by composer or by computer." (Kennedy, 1980)

He was probably the inspiration for Le Corbusier's "visual acoustics of the landscape" for the Ronchamp project.

3.4 AN EXAMPLE OF AN ALEATORY SCORE

... in 1951 Morton Feldman in the U.S.A. had ... written for orchestra in the following extraordinary manner:

Feldman: *Intersection I*
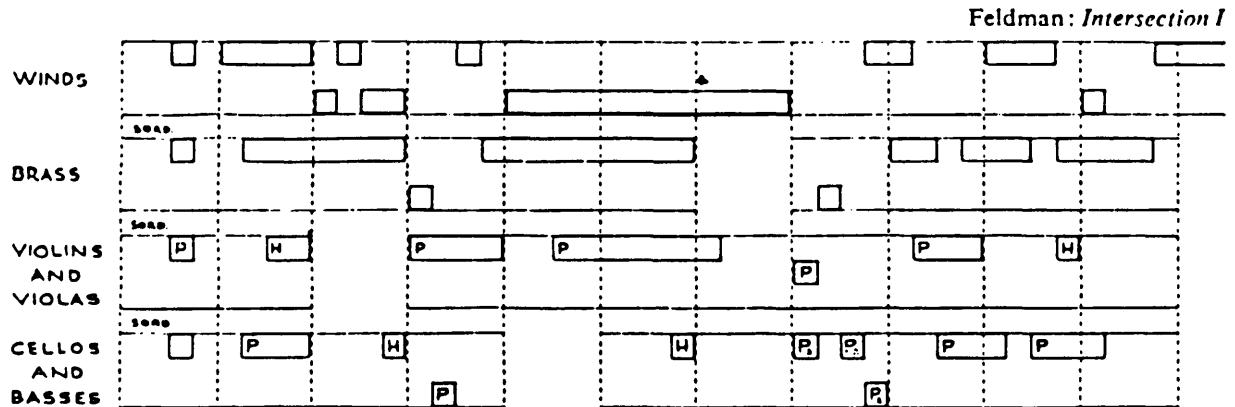
In this fifteen-page score, there is not a single note of defined pitch. Instruments can play any note within the high, middle, and low ranges indicated. In fact Feldman's instructions are so refreshingly brief they can be quoted in full:

> "The performer may make his entrance on or within each given time duration. Relative pitch (high, middle, low) is indicated: High; II Middle;
> Low. Any tone within the ranges indicated may be sounded. The limits of these ranges may be freely chosen by the performer. Duration is indicated by the amount of space taken up by the square or rectangle, each bos (   ) being poten-tially 4 icti. The single ictus or pulse is at the tempo 72 or thereabouts. The dynamics are also freely chosen by all players but once established, must be sustained at the same level to the end of the given time duration. A minimum of vibrato should be used throughout by all instruments.
>
> For strings: P = pont.; H = har.; Pz = pizz. The absence of any symbol means arco."

It will be seen that in <u>Intersection I</u> there are several
other indeterminate parameters as well as pitch: players can
choose their own dynamics as long as notes are sustained at
the same volume, and may enter at any time during a given
period. With pizzicato strings, especially, this is bound to
create an effect of movement which is not apparent in the
score. It seems obvious, however, that all fifteen pages of
the score are bound to sound very much the same. Thus this,
music, in spite of its adventurous conception, offers little
variety of sound texture, musical event, or emotive
expression. (This lack of eventfulness was exactly what
Feldman desired, ...)

<div align="right">(Brindle, 1988: 67)</div>

APPENDIX 4

4.1 THE PLAYWRIGHT

BECKETT, Samuel (Barclay). Irish. Born near Dublin, 13 April 1906. Educated at Portora Royal School, County Fermanagh; Trinity College, Dublin, B.A. in French and Italian 1927, M.A. 1931. Worked at the Irish Red Cross Hospital, St. Lô, France, 1945. Married Suzanne Dechevaux-Dumesnil in 1948. French teacher, Campbell College, Belfast, 1928; Lecturer in English, Ecole Normale Supérieure, Paris, 1928-30; Lecturer in French, Trinity College, Dublin, 1930-31. Closely associated with James Joyce in Paris in the late 1920's and the 1930's. Settled in Paris in 1938, and has written chiefly in French since 1945; translates his own work into English. Recipient: Evening Standard award, 1955; Obie Award, 1958, 1960, 1962, 1964; Italia Prize, 1959; International Publishers Prize, 1961; Prix Filmcritice, 1965; Tours Film Prize, 1966; Nobel Prize for Literature, 1969; Grand Prix National du Théâtre, 1975. D. Litt: Dublin University, 1959. (Vinson, 1982)

4.2 SYNOPSIS OF THE PLAY

Waiting for Godot is divided into two acts, and the second seems to repeat the first: at dusk Gogo and Didi meet to wait for Godot. Pozzo and Lucky arrive, stop a while, and then leave. As night falls, a boy announces that Godot will come not today but tomorrow. This "tragi-comedy" rests on the account of the crucifixion in the gospel of St. Luke, as summarized by St. Augustine: "Do not despair: one of the thieves was saved. Do not presume: one of the thieves was damned." The two thieves are Didi and Gogo; the two thieves are Pozzo and Lucky. And each spectator wonders whether he is saved thief or damned thief.

The four nationalities evoked by the characters' names - Slavic Vladimir, French Estragon, Italian Pozzo, English Lucky - suggest a composite portrait of an international Everyman. Though the printed text does not specify their costumes, Vladimir and Estragon wear the black suit and derby of music hall or silent films, and their antics arouse sympathetic laughter. The other couple, Pozzo and Lucky, wear elaborate but dated clothes, and their actions arouse horror as well as laughter. Grotesque Pozzo and Lucky confront endearing Didi and Gogo; for all the volumes of exegesis that have been written about the play, its theatricality rests on this confrontation of two couples during the endless wait for the mysterious Godot. While the two friends wait, their activities accumulate into a life, which mirrors and criticizes the activities of most lives. What is distinctively new about Godot is the inextricable union of its method and its madness; stage words and gestures are comically and excruciatingly concrete; stage words and gestures are metaphysically meaningful, through perhaps the play's main meaning is that life has no meaning. (Vinson, 1982)

4.3 THE SCRIPT AND FIRST PERFORMANCES

Written in French as 'En attendant Godot'; first performed at Théâtre de Babylone, Paris, 5 January 1953; first performed London, Arts Theatre Club, 3 August 1955; first American performance, Coconut Grove Playhouse, Miami, Florida, 3 January 1956; published by Editions de Minuit, Paris, 17 October 1952; translated into English by Beckett; published by Grove Press, New York, September 1954, and by Faber & Faber, London, February 1956. (A. and Federman, 1979: 88).

4.4 TERMINOLOGY

Absurd, Theatre of the, a term used to characterize the work of a number of European and American dramatists of the 1950's

and early 1960's. As the term suggests, the function of such theatre is to give dramatic expression to the philosophical notion of the 'absurd', a notion that had received widespread diffusion following the publication of Camus's essay 'Le Mythe de Sisyphe' in 1942. To define the world as absurd is to recognize its fundamentally indecipherable nature, and this recognition is frequently associated with feelings of loss, purposelessness, and bewilderment. To such feelings, the Theatre of the Absurd gives ample expression, often leaving the observer baffled in the face of disjointed, meaningless, or repetitious dialogues, incomprehensible behaviour, and plots which deny all notion of logical or 'realistic' development. The recognition of the absurd nature of human existence provided dramatists with a rich source of comedy, well illustrated in two early absurd plays, Ionesco's 'La Cantatrice chauve', written in 1948 (English trans., 'The Bald Prima Donna' 1958), and Beckett's 'En attendant Godot' (1952; trans. by the author, 'Waiting for Godot', 1954). Amongst the dramatists associated with the Theatre of the Absurd are Arthur Adamov (1908-70), Albee, Beckett, Camus, Jean Genet (1910-86), Eugène Ionesco (1912-), Alfred Jarry (1873-1907), Pinter and Boris Vian (1920-59). (Drabble and Stringer, 1987)

APPENDIX 5

5.1 THE SLIDES

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SUMMARY

A paradigmatic approach to architectural history: post-modernism

by

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The study proposes an approach to (architectural) history derived from an understanding of Thomas Kuhn's term 'paradigm'. A paradigm is defined as a shared temporal intellectual model which directs and limits the normal activities of a community and after a crisis period can undergo change thereby giving rise to a new paradigm.

A paradigmatic approach involves the identification of episodes of crisis, the identification and interpretation of the unique artefacts (criteria are given to which these should comply), and the synergising of understanding to a representative paradigm which provides a context for the historical period and whereby further facts and artefacts can be investigated.

Postmodernism is taken as a testing case. It is characterised as the period of change, and the crisis period of the Modern revealed. The associated contemporaneous artefacts are identified from the fields of architecture, painting, literature and music, and interpreted. A meaning is given to the whole Modern period through articulating the dimensions of reality of the discipline of architecture within the Newtonian paradigm.

SAMEVATTING

'n Paradigmatiese benadering tot die argitektuurgeskiedenis: postmodernisme

deur

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Hierdie studie bied 'n benadering aan tot die argitektuur-geskiedenis wat ontleen is van 'n begrip vir Thomas Kuhn se term 'paradigma'. 'n Paradigma word definieer as 'n gedeelde tydgebonde intellektuele model wat die gewone werksaamhede van 'n gemeenskap rig en perk en wat na 'n krisisperiode verandering kan ondergaan waaruit 'n nuwe paradigma verrys. 'n Paradigmatiese benadering beteken die identifisering van krisisvoorvalle, die uitkenning en interpretasie van unieke artefakte - waarvoor kenmerkende kriteria gegee word - die sinergering van begrip tot 'n verteenwoordigende paradigma wat 'n konteks vir die historiese periode verskaf en waardeur verdere feite en artefakte ondersoek kan word.

Hierdie benadering word aan postmodernisme getoets. Post-modernisme word tipeer as die periode van verandering, en dat dit die krisis periode van die Moderne openbaar. Verteen-woordegende tydgenootlike artefakte in die velde van die argitektuur, skilderkuns, letterkunde en die musiek word identifiseer en interpreteer. Deur artikulering van werklik-heidsdimensies van die argitektuurdissipline binne die Newtoniese paradigma, word 'n sin aan die hele Moderne periode verleen.