THE PRODUCTION OF BUILT FORM:
Some notes on dialectical materialism, methodology and an associative/projective architecture.

by
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Abstract

THE PRODUCTION OF BUILT FORM
Some notes on dialectical materialism, methodology and an associative/projective architecture.

Brent T. Hinrichs

Submitted to the Department of Architecture on January 18 1989, in partial fulfillment of the requirements for the degree of Master of Architecture.

This thesis is the beginning of a parallel study of dialectical materialism and built form, with the objective of understanding how our observation of, association with, and construction of the material world is conditioned by social practice and production. I am convinced that we must produce non-reductive and non-deterministic forms as part of the continuing process of transforming existing social and economic relations and structures. Therefore we need a non-reductive and non-deterministic critical working method, to understand the range of consequences of any particular form(al) phenomena in order to make informed selections in the production of new, transformed and intensified physical definitions for our use now. Within the condition of making an informed selection is the question of: informed by what? This thesis will focus on the groundwork for a continuing study of the dialectical exchanges between built use-form/territorial definitions and the dynamic social/economic relationships in a society.
The work will consist of three topics:

- Dialectical Materialism
- Form
- Production

The first two topics will examine and make explicit a general understanding of dialectical materialism and built form. The relationships between them as both independent and interdependent aspects of the material world, and of our associative and social relationships to the material world will be outlined. The explication of these two topics will rely on the critical readings of, and assemblage of selections from, the relevant works (written and built) both historic and contemporary.

The third topic will focus on generative work. A transformational design study of an existing early 20th century housing project will be used to clarify a projective methodology.

Thesis Supervisor

Maurice K. Smith
Professor of Architecture
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The Production of Built Form

The definitions of production and built form as used in this thesis need to be clear from the start.

Production refers to the range of "making" activities.

...production is at once both a general category and one with definite social and historical characteristics... But it would be a mistake to see Marx's or Marxism's understanding of production as being exclusively preoccupied with material production... Marx is clear that society produces its political, ideological as well as its economic relations... The same is true in the realm of ideas that are produced by the activities in which we are involved as much as, if not more than, by the act of thinking itself. (Fine, 1983, p.396-397)

Built refers not only to a quantitative description of the constructive processes of form making; as in actual building, by man-made assemblage of material and/or the geological and biological processes that transform material through physical action, but also the qualitative formal description of the results of such processes.
Form is material. It refers to the physical definitions or organizational arrangements of matter. What we use as form and can recognise as formal principles are the general phenomena and organizations of matter.

Preface

We too have our own intellectual preconceptions. If we differ from most scientists, it is in our deliberate attempt to make these preconceptions explicit where we can... [in]... the conflict between the materialist dialectics of our conscious commitment and the mechanistic, reductionist, and positivist ideology that dominated our academic education and that pervades our intellectual environment.


A thesis is not a debate but an emphatic, hopefully lucid, exploration of a proposition advanced and maintained by the presentation of factual references. I am convinced that we must produce non-reductionist and non-deterministic form/use definitions, as part of the continuing process of our practical transformation.
of existing social and economic relations and structures. Therefore we need a non-reductionist and non-deterministic critical working method to understand the range of consequences of any particular form(al) phenomena in order to make informed selections in the production of new, transformed and intensified physical definitions for our use now.

The focus of this thesis comes from working in, reading about and observing material over several disciplines and recognizing similar analytical methods and critical understandings of the material world. This dialectical materialist focus is to be found over a range of disciplines including history, economics, the physical sciences, the natural sciences, the social sciences, the arts and urban studies; all fields of enquiry in which the complex dialectical and material relationships between individuals/populations and
changing social, economic or physical environments are the basis for critical analysis. However, these studies, useful in indicating a methodological approach, did not have a specifically formal/architectural focus. What I have found lacking in these disciplines, is a discussion of the material world as an actual physical definition in terms of an explanation of the qualitative and quantitative formal phenomena.

Generally, in those disciplines where there was some discussion, analysis or understanding of formal/spatial organizations, the relationship of form to the dynamics of social, economic and political structures remained implicit or unexamined. What became evident was that there was no direct understanding of the interaction of formal/spatial organizations, of the built material conditions, with social/economic structures. I think that this is due, in general, to the fact that the
dominant methods of description of the material and social world, at this time, place and stage of social development, are alienated and idealist: in a capitalistic society the dominant methods of analysis, of the physical and social world, are moulded by capitalistic social and economic relationships.

It then seemed useful to make explicit a general understanding of dialectical materialism, as part of an analytical working method, in parallel to an explication of form as a physical definition of the material world. As a first step we must understand the general propositions and principles involved, before we can make practical use of these theories in relation to material reality.

...one of the most essential principles of Marxism [is] ... that the purpose of theory is to guide the analysis of reality... (Sweezey, 1981, p.31)

I think that in order to understand the historic social relationships to built form, we must have an
understanding of form as material phenomena. This understanding can only come from the recognition that the world is material, and that form is the physical definition or arrangement of that material. In order to understand and to make practical use of our observations of material phenomena, we need a descriptive taxonomy of form(s) and use. If we understand that generic formal principles can be abstracted from the observation of all material phenomena, then we recognise that our observations need not be limited to the present, or even to our use, and that formal phenomena can be studied from over a wide range of particular times and places, and sizes.

There is a choice to be made between the acceptance of the current ideologically constructed alienation from the material and social world, or the conscious rejection of alienated production in the struggle to construct collectively an active engagement with the
world in all of its aspects. This thesis is not directly about land ownership, the changing relations of capital to labor or developments in production. Rather the intent is to produce an outline for a continuing study of theory and practice, in both form and politics. These notes are an attempt to explicate form[al] theory, as a practical tool; this is an attempt to understand what exchange there is between a dialectical materialist approach and an understanding of the material world as form[al] phenomena in the context of our historical and changing understanding of reality.

Men make their own history but they do not make it just as they please; they do not make it under circumstances chosen by themselves, but under circumstances directly encountered, given and transmitted by the past.

Karl Marx,
18th Brumaire.

The sub-title of this thesis should be understood directly; these are 'some notes'. My working method will rely on the presentation of references in each main section with the addition of my working notes.
The village of Balscott (Oxfordshire) in 1768, with the common land farmed in small strips (from T. Sharp, *English Panorama*).

The same village, after the enclosure of the common land (from Sharp).

The number of references to the extent of my notes is variable over each section. Therefore the result of this ongoing process will be that some sections will,
perhaps, be not yet fully developed, and, certainly, contradictory.

... whenever I consider the relations between country and city, and between birth and learning, I find this history active and continuous: the relations are not only of ideas and experiences, but of rent and interest, of situation and power; a wider system. This is then where I am, and as I settle to work I find I have to resolve, step by slow step, experiences and questions that once moved like light. The life of country and city is moving and present: moving in time, through the history of a family and a people; moving in feeling and ideas, through a network of relationships and decisions. (Williams, 1973, p.p.7-8)
Dialectical:
*Dialectique*, oF [Old French], *dialectica*, L [Latin], *dialektike*, Gk [Greek], were all, in their primary senses, the art of discussion and debate, and then, by derivation, the investigation of truth by discussion... There was then a special and influential use of dialectic in German idealist philosophy. This extended the notion of contradiction in the course of discussion or dispute to a notion of contradictions in reality... It was then in Marxism that the sense of dialectic to indicate a progressive unification through the contradiction of opposites was given a specific reference in what Engels called *dialectical materialism.* (Williams, 1976, p.92)

Materialism:
The central word, *matter*, has a suitably material primary meaning. It came into English, in varying forms, from *matere*, oF [Old French], from *materia*, L [Latin] - a building material, usually *timber*...; thence, by extension, any physical substance considered generally, and, again by extension, the substance of anything. (Williams, 1976, p.164)

**Dialectical Materialism**

Dialectical materialism as a methodology is explicit in its recognition of change as a material condition which results in an understanding of change as a process of multiple contradictions that are variably resolved over time. The world is not static and dialectical materialism is not a static view of the world, but an
active view, conscious of change as a fact, that seeks to understand and guide our practical activities.

Dialectical materialism is not, and never has been, a programatic method for solving particular physical problems. Rather, dialectical analysis provides an overview and a set of warning signs against particular forms of dogmatism and narrowness of thought...

To attempt to try to distinguish competing theories of physical events or to discredit a physical theory by contradiction is a hopeless task. (Levins, Lewontin, 1985, p.191-192)

...one of the most essential principles of Marxism [is] ... that the purpose of theory is to guide the analysis of reality... (Sweezey, 1981, p.31)

The purpose of analyzing reality is to critically inform our work in the practical transformation of reality. In this sense Marxism is:

... a philosophy of political praxis which enabled people to work out not what would happen, but what needed to be done in order to create the kind of future we wanted for humanity... (Worsley, 1984, p.23)

Dialectical materialism is actively projective (what needs to be done), in trying to understand the potential of our actions to direct change, it is not passively contemplative or deterministic.

It should be borne in mind that historical materialism does not pretend to explain every last detail of history. From its
broad purview, many historical events, and certainly the specific forms they take are accidental. Nor does the theory seek to explain scientifically individual behaviour, though it attempts to situate that behaviour within historical confines. In so far as there are ineluctable tendencies in history, these result from, not despite, the choices of individuals. The explanatory ambitions of historical materialism as a social-scientific theory do not commit it to philosophical determinism. (Shaw, 1985, p.210)

Critical explanation is not determinism. Analysis of material reality is not of necessity deterministic, unless it is reductively alienated from the dynamics of the reality we are trying to understand.

... the particular character of Marx's explanations is such that they take the form of an explanatory critique of an object of inquiry which is revealed, on those explanations, to be dialectically contradictory. (Bhaskar, 1983, p.255)

Materialism and Idealism

Materialism is certainly not a new understanding of the world and its dynamics. But the recognition of the ontological (how things are in themselves) and epistemic (how we come to know about how things are in themselves) nature of the materialist position
has developed and been transformed over time.

When we reflect on nature, or on the history of mankind, or our own intellectual activity, the first picture presented to us is of an endless maze of relations and interactions, in which nothing remains what, where and as it was, but everything moves, changes, comes into being and passes out of existence. This primitive, naive, yet intrinsically correct conception of the world was that of ancient Greek philosophy, and was first clearly formulated by Heraclitus: everything is and is also not, for everything is in flux, is constantly changing, constantly coming into being and passing away. But this conception, correctly as it covers the general character of the picture of phenomena as a whole, is yet inadequate to explain the details of which this total picture is composed; and so long as we do not understand these, we also have no clear idea of the picture as a whole. In order to understand these details, we must detach them from their natural or historical connections and examine each one separately as to its nature, its special causes and effects, etc. (Engels, 1878)

If we are trying to understand the world from our observation of material reality, we need to abstract some particular aspects of the phenomena that we are seeking to understand. However if we do not realize that these abstractions are singular facets of a multi-dimensional world, we will understand them only in isolated alienation. We need to understand these abstractions, in themselves, as aspects of the full
range of the dynamic relations with other phenomena of the material world. We also need to understand these abstractions as being mental production (ideas) taking place both within the material world and within a particular social and economic formation.

To the metaphysician, things and their mental images, ideas, are isolated, to be considered one after the other apart from each other, rigid, fixed objects of investigation given once for all. He thinks in absolutely discontinuous antithesis... For him a thing either exists, or it does not exist; it is equally impossible for a thing to be itself and at the same time something else. Positive and negative absolutely exclude one another; cause and effect stand in equally rigid antithesis one to the other. At first sight this this mode of thought seems to us extremely plausible because it is the mode of thought of common sense. But sound common sense, respectable fellow as he is within the homely precincts of his own four walls, has the most wonderful adventures as soon as he ventures out into the wide world of scientific research. Here the metaphysical mode of outlook,justifiable and even necessary as it is in domains whose extent varies according to the nature of the object under investigation, nevertheless sooner or later always reaches a limit beyond which it becomes one-sided, limited, abstract, and loses its way in insoluble contradictions. And this is so because in considering individual things it loses sight of their connections; in contemplating their existence it forgets their coming into being and passing away; in looking at them at rest it leaves their motion out of account; because it cannot see the woods for the trees. (Engels,1878)
Marx sets himself... in favour of the real world, conceived as structured, differentiated and developing and, given that we exist, a possible object of knowledge for us. (Bhaskar, 1983, p.256)

The basic materialist understanding comes from the recognition of the reality of our existence as part of the material of the material world, and that the material world (including ourselves) exists independently of our recognition or comprehension of it. However we can and do have knowledge of the material world, and of ourselves, through mental production. The idealist position would hold that our thoughts and ideas transcend and are separate from the material world and are only relative, because our understanding of the world exists only in our individual minds. The materialist recognition is that the mind too is material, so that the mental production of ideas is also material at its base, both in the sense that thoughts and ideas are dependent on material (chemical and electrical) processes in the brain that
are common to all humans, and in that we think in languages, which are both physiological and historic/social in nature and production.

By materialism we understand above all acknowledgement of the priority of nature over 'mind', or if you like, of the physical level over the biological level; both in the sense of chronological priority (the very long time that supervened before life appeared on earth, and between the origin of life and the origin of man), and in the sense of the conditioning which nature still exercises on man and will continue to exercise at least for the foreseeable future, Cognitively, therefore, the materialist maintains that experience cannot be reduced either to a production of reality by a subject (however such production is conceived) or to a reciprocal implication of subject and object. We cannot, in other words, deny or evade the element of passivity in experience: the external situation which we do not create but which imposes itself on us.... This emphasis on the passive element in experience certainly does not claim to be a theory of knowledge - something which in any case can be constructed only by experimental research on the physiology of the brain and sense organs, and not by merely conceptual or philosophical exercises. But it is the preliminary condition for any theory of knowledge which is not content with verbalistic and illusory solutions. (Timpanaro, 1980, p.34)

For Marx and Engels materialism... is simply the obverse and alternative to idealism. It holds that ideas do not have an independent or primary existence; that they emanate from humanity and society; and that humanity and society are integral parts of a nature that existed before there was (terrestrial) life, including human life, and will continue to exist after it has become extinct. Dualities such as matter vs. spirit or mind vs. body are thus pseudo-problems; the infinite

For many years Ponge has affirmed that the world, full of natural autonomous objects, must exist. Words, too, are objects that impinge on the senses, demand notice, provoke... His abiding concern for language begins at its source... in sound. The sense and musical quality are perceived together in an exploration of the natural history or "gene-analogy" of language. In practical terms, it is a question of disrupting the accustomed use of words, of bringing back into the light older meanings, with their sound values emphasized. Successive meanings, for Ponge, give words their *epaisseur*, a physical density but particularly a semantic depth. This *epaisseur* constitutes a materiality that makes words directly exchangeable with things as similars, and not as arbitrary signs that descendents of the linguist Saussure would have them. Once they are recognized as different from their names, objects and words must be freshly coupled. (Fahnestock, 1979, p.10)
variety of nature is a manifestation of different modes and levels of organization of the ultimate building blocks of the universe. There is thus no unbridgeable divide between nature and society, nor, as a consequence, between natural and social sciences. Every science has as its object to understand/explain some aspect of reality; but since all aspects of reality have special problems and characteristics, it follows that each science has at least in some measure to devise its own methods and procedures, and that the ease and extent to which reliable knowledge can be attained vary widely from one to the other. This, however, is no reason for reserving the term "science" for the more successful ones and denying it to those with less tractable subject matters. (Sweezey, 1981, p.16)

Marx is never seriously disposed to doubt simple material object realism, the idea that material objects exist independently of their cognition; but his commitment to scientific realism, the idea that the objects of scientific thought are real structures, mechanisms or relations ontologically irreducible to, normally out of phase with and perhaps in opposition to the phenomenal forms, appearances or events they generate, is arrived at only gradually, unevenly and relatively late. (Bhaskar, 1983, p.255)

The above is simply an extension of the recognition that the material world exist independently of our cognition, in that 'objects of scientific thought' exist though they may not be directly visible or sensible to us because of our physiological limitations. If we are to understand these objects of scientific thought as the
'different modes and levels of organization of the ultimate building blocks of the universe', we need to recognise that the results, of the relations of these deep structure phenomena, will probably not be a direct reflection of these phenomena.

When Marxists affirm the 'decisive primacy' of economic and social structures, and therefore designate this level and not the biological level underlying it as the 'base' of human society and culture, they are right in the relation to the great transformations and differentiations of society, which arise fundamentally as consequences of changes in economic structures and not of the geographical environment or physical constitution of man. The division of humanity into social classes explains history far better than its divisions into races or peoples; and although, as a given fact, racial hatreds and national conflicts have existed and continue to exist, and although the ambiguous and composite concepts of nation and of homeland always have a racist component, there is nevertheless no doubt that these conflicts, at least from the end of prehistory onwards, are fundamentally disguised or diverted economic and social conflicts...

By comparison with the evolutionary pace of economic and social structures (and of the superstructures determined by them) nature, including man as a biological entity, also changes, as evolutionism has taught us, but at an immensely slower tempo... If therefore we are studying even a very long period of human history to examine the transformations of society, we may legitimately pass over the physical and biological level, inasmuch as relative to that period it is a constant... it would be naive to think that each single superstructural fact was the repercussion of a change in the infrastructure. (Timpanaro, 1980, p.43)
Marx's and Engels's materialism is... not the denial of the importance of ideas, concepts, and values for people, ... but an assertion that ideas ultimately have a material origin in the real conditions of existence, a history which consists in a complicated interplay and conflict of different factors, some directly material, some mental (though material in origin). This interplay and this conflict are the driving forces of history; they are the process which Marx referred to by the word 'dialectic'... the term 'dialectic' means that the process of movement which characterizes human history is not a smooth development but a development caused by conflicts and contradictions which lead to temporary resolutions... It is by this process of conflict and contradiction, caused by a multiplicity of factors all arising from the natural conditions of existence, that history proceeds to the human condition and human ideas current at a particular moment. (Bloch, 1983, p.28-29)

**Dialectics and Reductionism**

The combination of materialism with dialectics transforms both. Properly understood, the materialism of dialectical materialism is not, like its traditional ancestor, reductive. It does not reduce ideas to matter, asserting their ultimate identity. It holds, dialectically, that the material and the ideal are different, in fact opposites, but within a unity in which the material is basic or primary. Matter can exist without mind, but not vice versa, and mind was historically emergent from matter and remains dependent on it. (Edgley, 1983, p.120)

Dialectic refers to both the quantitative results of the processes of change by which conflicting or divergent forces are provisionally resolved in time, and the
qualitative dynamics of the nature of such processes, with the understanding that these are processes occurring in time, and thus have a history.

Dialectical explanations attempt to provide a coherent, unitary, but non-reductionist account of the material universe. For dialectics the universe is unitary but always in change; the phenomena we can see at any instance are parts of processes, processes with histories and futures whose paths are not uniquely determined by their constituent units. Wholes are composed of units whose properties may be described, but the interaction of these units in the construction of the wholes generates complexities that result in products qualitatively different from the component parts....In a world in which such complex developmental interactions are always occurring, history becomes of paramount importance. Where and how an organism is now is not merely dependent upon its composition at this time but upon a past that imposes contingencies on the present and future interaction of its components.

(Lewontin, Rose, Kamin, 1984, p.11)

... in the dialectical world view, things are assumed from the beginning to be internally heterogeneous at every level. And this heterogeneity does not mean that the object or system is composed of fixed natural units. Rather the "correct" division of the whole into parts varies, depending upon the particular aspect of the whole that is in question... It is a matter of simple logic that parts can be parts only when there is a whole for them to be parts of. Part implies whole, and whole implies part. Yet the reductionist practice ignores this relationship, isolating parts as preexisting units of which wholes are then composed. In the dialectical world the logical
dialectical relation between part and whole is taken seriously. Part makes whole, and whole makes part. (Levins, Lewontin, 1985, p.272)

Reductionism as a methodology recognises the world only in the isolation of specific phenomena from the multiple phenomenal processes of which they are parts and wholes. Thus complex processes are broken down and analyzed in separation from their context, reducing the multiple relationships to singular 'one-way' connections of cause and effect.

The dominant mode of analysis of the physical and biological world and by extension the social world,... has been Cartesian reductionism. This Cartesian mode is characterized by four ontological commitments, which then put their stamp on the process of creating knowledge:

1. There is a natural set of units or parts of which any whole system is made.
2. These units are homogenous within themselves, at least insofar as they affect the whole of which they are parts.
3. The parts are ontologically prior to the whole; that is, the parts exist in isolation and come together to make wholes. The parts have intrinsic properties, which they possess in isolation and which they lend to the whole...
4. Causes are separate from effects, causes being the properties of subjects, and effects being the properties of objects. While causes may respond to information
coming from the effects (so-called "feedback loops"), there is no ambiguity about which is causing subject and which is caused object...

We characterize the world described by these principles as the alienated world, the world in which the parts are separated from wholes and reified as things in themselves, causes separated from effects, subjects separated from objects. It is the physical world that mirrors the structure of the alienated social world in which it was conceived...

The alienated world is both ideological and real. Clearly, the claim that the social order is the natural result of the adjustments of demands and interests of competing groups is an ideological formation meant to make the structure seem inevitable, but it also reflects the reality that has been constructed...

In a like manner, the alienated physical world is not only a structure of knowledge, but a physical structure imposed on the world. Which one of a chain of intersecting causes becomes the cause of a given effect is determined in part by social practise. (Levins, Lewontin, 1985, p.269-270)

It is in this manner that reductionism can claim to be the method of 'common sense' in that it is the result of an alienated, inequitable and exploitative social and economic system. Reductionism in social practise is an ideology that limits the field of questions asked to those where it is a self-evident methodology.
No way of thinking about the world of phenomena can provide a total description of the infinitely complex set of interacting causes of all events. It is our contention that the alienated world view captures a particularly impoverished shadow of the actual relations among phenomena of the world, concerning itself only with the projections of multidimensional objects on fixed planes of low dimensionality. Indeed, it is an explicit objective of Cartesian reductionism to find a very small set of independent causal pathways or "factors" that can be used to reconstruct a large domain of phenomena. An elementary exercise in design courses is to make an object that is circular in one projection square in a second projection and triangular in the third. (We leave the solution as an exercise for the reader.) Alienated science deals with the alienated world of these projections, while a dialectical view attempts to understand the object in its full dimensionality. Of course, some objects, like spheres, are the same in all projections, so the reductionist strategy succeeds.

The error of reductionism as a general point of view is that it supposes the higher-dimensional object is somehow "composed" of its lower-dimensional projections, which have ontological primacy and which exist in isolation, the "natural" parts of which the whole is composed. In the alienated world things are at base homogeneous; indeed, the object of reductionist science is to find those smallest units that are internally homogeneous, the natural units of which the world is made. (Levins, Lewontin, 1985, p.271)

What... dialectics asserts is that concrete reality is not a static substance in undifferentiated unity but a unity that is differentiated and specifically contradictory... (Edgley, 1983, p.120)

In other words dialectics maintains that material
reality is not homogenous (undifferentiated) but heterogenous (differentiated), and not constant or static but in the process of changing at variable rates over time.

**Dialectical Principles**

Formalizations of the dialectic have a way of seeming rigid and dogmatic in a way that contradicts the fluidity and historicity of the Marxian world view. A dialectical view of dialectics would emphasize that the principles and vocabulary taken over from the philosophers have been transformed and invoked polemically in opposition to, as a negation of, the prevailing ideological framework of bourgeois science, the Cartesian reductionist perspective. The value of the dialectic is as a conscious challenge to the major sources of error of the present, and our description of dialectical principles is specifically designed to help solve the problems we work with both in our scientific and our political lives. (Levins, Lewontin, 1985, p.268)

In contrast to the ontological commitments of the Cartesian reductionist world view, there are dialectical principles that are understood as a result of the ontological nature of the material world.

In the dialectical world, since all elements (being both subject and object) are changing, constants and variables are...
not distinct classes of values... The difference between the reductionist and the dialectician is that the former regards constancy as the normal condition, to be proven otherwise, while the latter expects change but accepts apparent constancy. (Levins, Lewontin, 1985, p.276-278)

The first principle of the dialectical view, is that the whole is a relation of heterogeneous parts that have no prior independent existence as parts.

The second principle, is that, in general, the properties of parts have no prior alienated existence but are acquired by being parts of a particular whole... the parts have properties that are characteristic of them only as they are parts of wholes; the properties come into existence in the interaction that makes the whole.... In the dialectical approach the "wholes" are not inherently balanced or harmonious, their identity is not fixed. They are the loci of internal opposing processes, and the outcome of these oppositions is balanced only temporarily.

A third dialectical principle, ... is that the interpenetration of parts and wholes is a consequence of the interchangibility of the subject and object, of cause and effect. In the alienated world objects are the passive, caused elements of other active, causal subjects...

[The fourth dialectical principle is that] ...because elements recreate each other by interacting and are recreated by the wholes of which they are parts, change is a characteristic of all systems and all aspects of all systems. (Levins, Lewontin, 1985, p.273-275)

What characterizes the dialectical world, in all its aspects, as we have described it is that it is constantly in motion. Constants become variables, causes become effects, and systems develop, destroying the conditions that gave rise to
them... Yet the motion is not unconstrained and uniform...
The development of systems through time, then, seems to be the consequence of opposing forces and opposing motions.

This appearance of opposing forces has given rise to the most debated and difficult, yet most central, concept in dialectical thought, the principle of contradiction. For some, contradiction is an epistemic principle only. It describes how we come to understand the world by a history of antithetical theories that, in contradiction to each other and in contradiction to observed phenomena, lead to a new view of nature... For others, contradiction is not only epistemic but political as well, the contradiction between classes being the motive power of history. Thus contradiction becomes an ontological property at least of human social existence. For us, contradiction is not only epistemic and political, but ontological in the broadest sense. Contradictions between forces are everywhere in nature, not only in human social institutions. (Levins, Lewontin, 1985, p.279)

Contradictions, dialectically understood would, of course, also be contradictory. Therefore, they are not of any particular singular nature or kind. It would follow then that the nature and kinds of oppositions would also be variable, for example in the work of Mao you will find discussion of:

... a series of distinctions - between antagonistic and non-antagonistic contradictions, principal and secondary contradictions, the principle and secondary aspects of a contradiction... (Bhaskar, 1983, p.128)
Production and Reproduction

Production and reproduction are fundamental to our biological and mental existence, and are the basis of our individual and social existence. As a species we have developed the social organizations and means to change our relationship to the resources of nature, from one of mere sustenance to one of exploitation and surplus.

...every society has to produce what it consumes, and it has to consume in order to reproduce itself, to survive, and to carry on the myriad activities that together define it as a recognizable historical entity. Production is therefore fundamental in an universal and unique sense, and a scientific approach to the understanding of history has to take this as its starting point. Furthermore, it is obvious that the possibilities of production at any given time and place establish narrow, though certainly not rigidly defined, limits and constraints on what a particular society can actually accomplish. (Sweezey, 1981, p.23)

The label 'mode of production', though, is a misnomer, since production never takes place except as part of a wider set of extra-economic institutions and relationships. A mode of production, that is, is never just a mode of production. It is always a mode of production and appropriation. The economy is always a political economy. More than that, it is always contained within - and dependent on - a matrix of structured social relations, of which the institutions governing property are the most important for the economy, and from which the
economy can only be abstracted by an analytical act. There is no real-life economy-in-itself. (Worsley, 1984, p.35)

Thus society can be understood in an analysis of the relations of production, reproduction and appropriation, and in analysis of which classes control or own the means and methods of production and appropriation.

Society viewed as a system for production and distribution, conceived of independently of the actors representations or justifications of the system, is what was later called the "social formation". Only after the social formation had been constructed could the evaluation of the role of institutions and values be undertaken in terms of the place of these consciously-realized phenomena in its working. The significance of using this starting point, outside of the actors' consciousness, cannot be exaggerated, because it set Marx, Engels, and other Marxists on an analytical course which was fundamentally different from other social analysts of their time, and which to a certain extent still distinguishes Marxist analyses from many others. (Bloch, 1983, p.23)

Though the social development of production has had a varied course and pace in different parts of the world at different times, in general we can identify patterns of production ranging from
hunting-gathering to agricultural and industrial production. Each of these categories is the result of different relationships both between people and the natural resources, and between people within the society itself. These categories are of course not mutually exclusive and aspects of each may be found in most social formations.

What [Marx] considered essential was the systematic relationship between the organization of production, the development of classes, and the type of property... not any particular version of human history. (Bloch, 1983, p.37)

Marx conceives [of] fundamental structural contradictions as themselves a historical legacy of the separation of the immediate producers from the means and materials of production, each other, and hence the nexus of social relations within which their action on (and reaction to) nature takes place. (Bhaskar, 1983, p.125-126)

The productive forces... include not just the means of production (tools, machines, factories and so on), but labour power - the skills, knowledge, experience, and other human faculties used in work. The productive forces represent the powers society has at its command in material production. (Shaw, 1985, p.207)

Therefore production includes not just the
construction or assemblage of man-made or manufactured form, or the physical transformations and intensifications of man-made and natural resources or material phenomena, but also the knowledge and understanding of the man-made as well as the naturally occurring physical phenomena. Thus production, as an aspect of the practical transformation of reality, requires both knowledge of and action upon the material world.

... praxis is practice informed by theory and also, less emphatically, theory informed by practice, as distinct both from practice uninformed by or unconcerned with theory and from theory which remains theory and is not put to the test of practice... In effect it is a word intended to unite theory with the strongest sense of practical (but not conventional or customary) activity: practice as action. (Williams, 1976, p.268)

... it is necessary first of all to show that a reference to praxis can have quite different meanings, according to whether one is declaring the inability of pure thought to make men happy and free,... or declaring that knowledge itself is praxis tout court. In the latter case, since to know reality is to already to transform it, one retrogresses from Marxism to idealism - i.e., to a philosophy of thought as praxis, which makes action seem superfluous. In the first case, however, although one may not have abandoned the idea of enlarging the dimensions of knowledge's 'active side', and although one
may not make any absolute distinction between knowing and doing, it is acknowledged that knowledge by itself does not provide a complete domination of reality. True liberation can be attained only through the practical transformation of reality. (Timpanaro, 1980, p. 56-57)

Production of Ideas/Theory of Knowledge

The historical development of dialectical materialism from Hegelian idealism directly transformed the idealist understanding of the production of ideas.

A new theory will always set out to save most of the phenomena successfully explained by theories it is seeking to supersede. But in saving the phenomena theoretically Marx radically transforms their descriptions, and in locating the phenomena in a new critical-explanatory ambit, he contributes to the process of their practical transformation. (Bhaskar, 1983, p.126)

The dialectical materialist understanding lead to a recognition of the production of ideas and knowledge as occurring within the conditions of particular social and economic relationships. This results in:
... conception of knowledge in which the emphasis is on the practice of the production of knowledge. This materialist theory of knowledge rejects the empiricists' subject/object split and its bias towards contemplation, which removes knowledge to a detached, passive and purely mental (idealistic) realm. Thus, in simple terms, Marx asserts that knowledge is not "found" by a thinking subject contemplation of objects but rather is produced in the practice of material interaction between men, women, and things. (MacBean, 1975, p.5)

In this sense knowledge, and mental production, are a part of the larger social relationships of production and reproduction. The dialectical materialist understanding is concerned with:

...how the beliefs and values which organise our society are produced by the history of the social formation. The starting point of this philosophical discussion (of the production of ideas in history) is a rejection of the theories which saw ideas and institutions as the source of history, as though these existed apart from the natural processes of human production and reproduction. Marx and Engels argued that we must understand ideas as products of people engaged in this natural process and see the production of ideas as an aspect of the general enterprise of making a living from nature. This is the position known as materialism; it is opposed to idealism which, in a broad sense, sees the basis of human existence as abstract spiritual concepts whose origin cannot be explained by natural circumstances. Marx and Engels rejection of idealism, however, is qualified in that they also reject the crude materialism which they saw in the work of such writers as the German socialist Feuerbach. If it is the natural conditions of existence which...
are the basis of human history, this does not mean that human society and concepts are simply an automatic product or reflection of physical existence...(Bloch, 1983, p.27)

The reason that human society is not the direct reflection of physical existence, is because human society lives (produces and reproduces) in a dialectical relationship to the material conditions of existence. This dialectical relationship is conditioned historically, to some extent, by the social production of ideas about the material world.

...at any particular time people apprehend natural material circumstances through their ideas, and they therefore act in terms of those ideas, beliefs and values. Therefore, in history, it is not nature and technology which makes human society but man himself, who in terms of his already existing ideas and values, makes his own history, as he encounters nature and the problems it poses. These already existing ideas and values are, however, themselves products of previous encounters and answers to the challenge of nature. This means that the relation of ideas and practical problems can only be understood as part of the process of history. Ideas and concepts held by people are not therefore simply a reflection of how nature is at a particular time; they are the historical product of the need to organise society so that human beings in society can produce and reproduce. Ideas and concepts may thus be in fact misleading as to the real condition of existence; they are not the reflection of the economic system but the product of a complex historical process of changing adaptation. (Bloch, 1983, p.27-28.)
In fact ideas are produced that reinforce the economic and social systems and relationships that the ideas are a historical product of.

Ideas of cause and effect, subject and object, part and whole form an intellectual frame that delimits our construction of reality, although we are barely aware of its existence or, if we are, we affirm it as a self-evident reality which must constrain all thought. We do not and cannot begin at square one every time we think about the world. Knowledge is socially constructed because our minds are socially constructed and because individual thought only becomes knowledge by a process of being accepted into social currency. So dominant ideologies set the tone for theoretical investigation of phenomena, which then becomes a reinforcing practice for the ideology itself.

Inevitably some problems of understanding the world cannot be solved in the commonly accepted ideological framework. These are either considered "fundamentally" undecidable or (are) discreetly ignored... (Levins, Lewontin, 1985, p.268-269)

Consciousness... refers to the system of meaning through which we apprehend the world, as well as the ideas, opinions, and beliefs which we are aware of holding... we apprehend the world through a system of meaning which we have learned from others and of which language is an essential part. This does not mean that ideas and language come first."Life is not determined by consciousness but consciousness by life"[Marx, Engels, 1848]. Consciousness, which is indissolubly linked to language, is itself a social product. It is moulded by the interaction of men together in history and by their dealings with nature... (Bloch, 1983, p.29)
If we are trying to be explicitly conscious of theory as a guide to the analysis of a reality that in itself continues to develop and change, our production of knowledge must also be a dynamic and developing (and therefore contradictory) process.

Certainly Marxism has not solved all the theoretical problems that are constantly being posed: it is not a schema, but a perspective. This means that one is committed to developing it unceasingly, proposing new concepts, rectifying laws that prove to be incorrect, using it as a tool instead of repeating it as a dogma. That is why the only justification of the propositions advanced... is the fruitfulness of the empirical research they give rise to... The main thing is not so much to prove a point from the outset as to give rise to a dynamic that gradually opens up a new field of research that responds to the questions that are now being put to us by increasingly explosive... contradictions. (Castells, 1977, p.ix)

It is also true that in this process of the production of knowledge mistakes and misunderstandings will occur, and these may not be self-evident. Thus knowledge is provisional in the sense that change continues, and in that our recognitions may be in error or out of phase with the phenomenal events we are seeking to understand.
an ideological misunderstanding/recognition can be superseded, and therefore interpreted, only by a theoretical analysis; this is the only way of avoiding the ... dangers encountered by any theoretical practice.

Such an undertaking requires the use of certain theoretical tools in order to transform, through a process of labour, a raw material, both theoretical and ideological, and to obtain a product (which remains provisional), in which the theoretico-ideological field is modified in the direction of a development of its theoretical elements. The process becomes more complicated in so far as, for us, there is a production of knowledge, in the strict sense of the term, only in connection with the analysis of a concrete situation. This means that the product of research is, at least, twofold: there is the effect of specific knowledge of the situation studied, and there is the knowledge of this situation, obtained with the help of more general theoretical tools, linked with the general context of historical materialism. (Castells, 1977, p.2-3)

The production of knowledge does not proceed from the establishment of a system, but through the creation of a series of theoretical tools that are never validated by their coherence, but by their fruitfulness in the analysis of concrete situations. (Castells, 1977, p.5)

A system of any kind involves relationships between component elements such that change in one part necessarily leads to changes in the rest. Systems of ideas are no different. But the degree to which all elements necessarily change together and to the same degree varies considerably... Marxism, then, like any other system of ideas, is not a thing. It is constantly changing. Any system of ideas, too, deals in general propositions that have to be glossed before they can be applied to concrete situations...

The variety of Marxisms, however, derives from a further set of social considerations; that like all theories, though they
exist in peoples minds, they are intersubjective modes of thought, shared by people who have common attributes and purposes. To understand theories we have to locate them socially: to understand the kinds of people, in different kinds of society and cultural conditions who use them for distinct purposes. (Worsley, 1984, p.p.26-27)

**Ideology**

Scientists, like other intellectuals, come to their work with a world view, a set of preconceptions that provides a framework for their analysis of the world. These preconceptions enter at both an explicit and an implicit level, but even when invoked explicitly, unexamined and unexpressed assumptions underlie them. The attempt to analyze evolution as an interaction between internal genetic causes and external environmental causes makes the distinction between organism and environment explicit. Yet underlying that distinction is the unexamined and implicit principle that organism and environment are indeed separate systems with their own autonomous properties. (Levins, Lewontin, 1985, p.267)

There are actual and real differences, oppositions and contradictions between things within the natural world and within the social world, just as there are dynamic and dialectical relations between them.

It is... The polar antagonisms put forward as irreconcilable and insoluble, the forcibly fixed lines of demarcation and
distinctions between classes, which have given modern theoretical natural science its restricted and metaphysical character. The recognition that these antagonisms and distinctions are in fact to be found in nature, but only with relative validity, and that on the other hand their imagined rigidity and absoluteness have been introduced into nature only by our minds- this recognition is the kernal of the dialectical conception of nature. (Engels, 1885)

The 'rigidity and absoluteness' stems from contradictions within the social and economic relations of the social formation, and within the relationship of a society to the material world and the conditions of its existence.

The ideas of the ruling class are in every epoch the ruling ideas, i.e. the class which is the ruling material force of society is at the same time its ruling intellectual force. The class which has the means of material production at its disposal has control at the same time over the means of mental production, so that thereby, generally speaking, the ideas of those who lack the means of mental production are subject to it. The ruling ideas are nothing more than the ideal expression of the dominate material relationships...

(Marx, Engels, 1846 p.44)

Ideology, then, in class society is above all a weapon used by the ruling class to inculcate in the masses the acceptance as a given of the existing relations of production which privilege one class at the expense of another. Ideology serves to suppress the asking of fundamental questions about society.
and its relations of production and to assure that what few questions that do get asked are questions of how rather than why, of reform rather than revolution, of how to accommodate ourselves to "reality" rather than why a particular system should exist at all, much less be elevated to the status of reality and accepted as a given.
(MacBean, 1975, p.321)

...people do not have to be conscious of the system of production as such. They do have to make the system work, of course, but in order to do this, they do not have to be conscious of its nature. Indeed, Marx argued that in most cases, because the social system is based on exploitation, people have to be consciously unaware of the basis of society if they are to continue working it. Because of this, a Marxist theoretical construction of the social system implied that one should start by ignoring people's beliefs and ideas and by looking at who produces what and who gets what is produced. This is completely different from what people might believe are the contributions made to production by different groups in society and what people might believe are the principles of distribution. (Bloch, 1983, p.23)

...the ruling class's fundamental ideological task,...is to pass off as reality - and thereby raise to the status of a metaphysical essence - a system of social and economic relations that is not objective, as they would have us believe, but partisan (in their favor); not inevitable but arbitrary (and arbitrarily imposed); and, above all, not immutable, as they would like to have us think, but capable of being transformed in a revolutionary way. (MacBean, 1975, p.325)
Marx sets himself... in favour of the real world, conceived as structured, differentiated and developing and, given that we exist, a possible object of knowledge for us.
(Bhaskar, 1983, p.256)

Now that, with the passage of years, I have stopped brooding over the chain of infamy and ill-luck that had caused my imprisonment, I have come to understand one thing: the only way to escape the prisoner's state is to know how the prison is built.

Italo Calvino, Marcovaldo

Form

Form is material, it is a physical reality. The recognition that form is material and not a platonic ideal, carries with it some consequences for areas of production that work with form[al] phenomena. In the historical development of literary criticism there is a definition of form that I think is applicable to an understanding of material conditions:

...[a] notion of form as a shaping principle, either in its widest sense or in its most specific sense, where it was a discoverable organizing principle within a work. With this sense of form, different questions could be asked about the real formation of a work, which requires specific analysis
of its elements in a particular organization.
(Williams, 1976, p.114-115)

A materialist understanding of form comes from an analysis of organizing principles to be identified from our observations of the form phenomena; these phenomena include all aspects of matter.

Everything that is everything in the world that has a form, whatever it may be, is a product of some force, a vestige of some energy and a symptom of some activity. In this sense, everything has been made...

Ortega y Gasset

Everything in the material world has been made either by natural forces or by man's transformational productive processes, which range from 'stone age' to 'modern' tools or technologies.

**Form and Matter**

*Matter* is simply the name for what exists objectively, with the one proviso that mind, thought, consciousness are its products. All further questions as to the nature of matter, its structure or composition, the relation of mass, energy, space, time, etc., are not primarily philosophical, but are to be resolved by the natural sciences themselves.

(Selsam, Martel, 1963, p.45)
Every form of matter has a history or, rather, it is its history. This proposition does not solve the problem of the knowledge of a given reality; on the contrary, it poses that problem. For, to read this history, to discover the laws of its structuring and transformation, one must break down, by theoretical analysis, what is given in a practical synthesis. (Castells, 1977, p.7)

It is a matter of describing 'a complex'. This 'complex' and its parts... must be described and talked about as both objects and subjects. What I mean is that I cannot avoid the fact that all things exist both from the inside and the outside. (Godard, 1986, p.239)

In any discussion of form I think it is reasonable to say that we must start with the physical reality of the world. Our understandings (conscious mental production) of physical realities are conditioned by the social/economic realities within which we live. Our use of form is a social reality, interdependent with the physical reality, which is constructed by a range of material and social conditions. So any reasonable understanding must deal with, congruently, both the facts of form as a material condition and with the facts of our physical and socially constructed association with the formal phenomena.
Form is material, specifically, what we recognise as form(s) are the operational arrangements and/or organizations of matter.

Let us take the term wedge. What shape is a wedge?... Whatever else such terms refer to they do not refer to individual shapes. They are in fact terms referring to a class of arrangement of the matter within single things. A solid single thing, after all, is merely a slice of space with a few billion separate particles of this kind and that tottering about inside it. When we say a wedge we are indicating something about the way they are arranged...
The only way of closely defining the kind of arrangement of matter which we call a wedge or a hook would be by referring to the way it transmits forces. A hook will pull. A not-hook won't pull. Shape, individuality, doesn't come into it...
The essential principle which [the designer] must embody in the device he is designing sets limits merely to the extent that if the principle requires 'a hook' then not-hooks are excluded. But there is precisely an infinite range of possible shapes for a hook. (Pye, 1969, p.22-23)

When we understand that the material world is a physical reality independent of us, our perception or use, we can also understand that form is a material/physical fact that is likewise independent. I think it is reasonable to expect of any work to further our direct understanding of the formal phenomena.
and the physical realities of construction, through the assemblage of space/light and matter/dark, in the generation of physical definitions for our daily life.

Since the end of the 19th century physics has recognized that all that we know in our daily lives as solid matter is, at a subatomic size, a 'fog' of electrical charges (particles or waves). Thus, our basic understanding of matter as an object of scientific thought has changed. We can no longer understand matter as the combinations and transformations of the four elements of ancient physics: air, earth, fire and water, once we recognize matter as the spatial arrangements of electrical charges.

The difference between what we in our daily lives recognise as a gas, liquid or solid is only a 'matter' of density, arrangement and energy activity - with all material states potentially transformable with
temperature (energy level) changes. Gases become
liquid or solid, liquids become gases or solids, and
solids change to liquids and gases. What we can think
of as relatively stable arrangements of material are
actually just the arrangements of matter at a
particular situation or circumstance in a full range of
potential physical states "...all that is solid melts into
air...".

In our daily life things and materials are understood
to exist within the range of a normal state of things.
Water can vaporise or freeze solid, and can condense
or melt, within natural environmental temperature
ranges and we are not surprised. However, many
aspects of the various manufacturing and
industrialized production processes make use of
energy levels outside of the natural environmental
temperature ranges. This is of course, the only reason
these increased or decreased levels are of any
practical use: to make something that will be
relatively stable outside of the energy level of its making.

In the physical world there are changing states of energy and therefore constant transformation. In general, we can use an understanding of light and dark to describe material (energy activity) that is sensible/visible to us. Thus the useful everyday range of matter is understood as being somewhere between space (light) and mass (dark). So we can say that the form of space is light, and that the form of mass is dark. There are, of course, masses, such as crystalline formations or glass, that are transluscent and thus can have some of the formal qualities of light. Other mass definitions are not translucent but are reflective, and so can have some other form qualities of light. Our observation of all material relies on the electro-magnetically reflective and absorptive qualities of the material, within the visual range of our eyes.
It is with the spatial assemblage of matter, some of which we can optionally move through or use (light), and some of which we cannot move through (mass), that we physically build the formal definitions of use and movement.

Form[all]Phenomena and Form[all] Principles

I maintain, in addition, that painting is an essentially concrete art and can only consist of the representation of real and existing things. It is a completely physical language, the words of which consist of all visible objects; an object which is abstract, not visible, non-existent, is not within the realm of painting...

Gustave Courbet

All you can do in cinema is observe and try and put in order that which one has seen if one has been able to see well.

(Godard, 1984, p.17)

Behavior: to act in a specific/particular way.

Phenomenon: is an observable actuality/fact, an outward sign of work.
Principle: generic facts of nature underlying the observable workings.

It is the physical arrangements and organizations of material that we recognise as form(al) phenomena. In linguistics and anthropology there is the concept of deep structure to describe underlying relations and organizations:

Deep structures are not directly visible or observable realities but levels of reality which exist beyond man's visible relations and whose functioning constitutes the deeper logic of the social system.

Maurice Godelier, 1977, 
_Perspectives in Marxist Anthropology_

When dealing with material phenomena that are directly observable in terms of our use and association, we must be able to discern the differences between the deep structure, operational and/or organizational, aspects of the formal phenomena from those that are specific or particular.
Formal organizations are not a 'pattern language' of specific determinative isolated factors, but rather the deep structure understanding of the formal and spatial phenomena of the material. The deep structure can be understood from an analysis of the methods and manners of functioning or action that underlie the directly observable phenomena.

Although in many fields designers quite frequently make inventions, designing and inventing are different in kind. Invention is the process of discovering a principle. Design is the process of applying that principle. The inventor discovers a class of system - a generalization - and the designer prescribes a particular embodiment of it to suit the particular result, objects, and source of energy he is concerned with. The facts which inventors discover are facts about the nature of the world just as much as the fact that gold amalgamates with mercury. Every useful invention is a discovery about the way things and energy can behave. The inventor does not make them behave as they do. (Pye, 1969, p.19)

Thus form principles are the recognition, through the mental production that Pye calls 'invention', of phenomena as behaviors of the material. This materialist understanding of formal principles must
be made explicit in order for them to be shared and applied as a reasonable method of analysis and projection, and because if left implicit, these principles could be considered personal or idiosyncratic. It is important to remember that if there are actual principles to be observed at work then "the inventor does not make them behave as they do"

We need to understand what the deep structure of the relationship[s] of the elements/aspects of form are. The question of the relation of phenomena and principles is not just a matter of understanding what the formal structure/organization is, but also the 'why' and 'how' of its development, and why or what to continue or what to change, transform, or intensify now.
II: BEHAVIOUR / ORGANIZATION SYSTEMS

1. Field Organization:
   Three Variable Territorial “Packings”
   A: DIRECTIONAL
   B: MULTIDIRECTIONAL
   C: UNIFORM

2. Territorial Control:
   Three References, Intensifications
   A: CENTERS: Points + Lines
   B: EDGES: 1. Registration
             2. Mirroring
             3. Lateral Displacement
   C: OPEN FIELD: (Containments Deployment)
      “Rocks-in-the-Sand”

3. Alternations / Self-Stability:
   Five Methods:
   Three ACTIVE A: DIMENSIONAL EQUALITY:
     Directions “NORMAL,”
     Form “in-COMPLETE”
   B: RECIPROCITY: Directional EDGES Displaced
   C: LIGHT-DARK REVERSALS
   Two PASSIVE D: PROPORTION: Fractals, Golden Mean
   E: BALANCE: “Composition,” Resolved “Weight”

The most habitable / associative (built) environments in II:
BEHAVIOUR / ORGANIZATION include / exemplify 1A, 2B+2C, 3A,
3B, 3C.

(Smith, 1988)

There will be exchanges, continuities, partial
completions and collages of the above form[al]
relationships in any specific formation of a materially
reasonable building or organizational system.
Field Organizations

Directional
Multidirectional

0062
Territorial References

Centers
Edges: Registration

0 0 6 6
Edges: Lateral Displacement
Edges: Mirroring
Alternations / Self-Stabilities

Dimensional Equality
Light-Dark Reversals
**Associative Built Use/Form**

Association is the result of our cognitive relationship to the material world, our association (mental and physical) with the actual landscape is the ground for association with the intensified and transformed landscapes.

I think that association is dialectical, in that we associate some material phenomena through direct abstraction to another material phenomena (concrete--> abstract--> concrete), so association is by nature specific, multiple and contradictory.

The image that is evoked in us when we see form depends on the associations which the form holds for us, and in this process we are thrown back on our experience-...of the established patterns and systems of values of the world that we know and that is familiar to us. (Hertzberger, 1973)

Many people who have written about their observations of form are anthropocentrically city bound. This conditions an attitude towards a

I take SPACE to be the central fact to man born in America, from Folsom cave to now. I spell it large because it comes large here, Large, and without mercy. It is geography at bottom, a hell of a wide land from the beginning. That made the first American story (Parkman's): exploration. Something else than a streach of earth - seas on both sides, no barriers to contain as restless a thing as Western man was becoming in Columbus' day. That made Meville's story (part of it). PLUS a harshness we still perpetuate, a sun like a tomahawk, small earthquakes but big tornadoes and hurrikans, a river north and south in the middle of the land running out the blood. The fulcrum of America is the plains, half sea half land, a high sun as metal and abdurate as the iron horizon, and a man's job to square the circle. Some men ride on such space, others have to fasten themselves like a tent stake to survive. As I see it Poe dug in and Melville mounted. They are the alternatives.

Charles Olson, *Call Me Ishael*. 
separation of social from natural systems that is the
continuation of the idealist dualistic split between
man and nature. I think it is reasonable to recognise
that the landscape existed prior to any human
inhabitation of the landscape. This is true today as
well. Any site exists and has physical definitions
before our next action takes place. This is as true
within an urban or rural environment, as it is in a
natural environment. This understanding that the
physical reality and formal definition of the landscape
existed, and continues to exist, before man inhabited
the physical world, seems a reasonable basis for form
observations being the understanding of changes to
the material world which had form qualities before
we constructed new definitions. We can still recognise
the actual landscape and understand human
inhabitation as some physical action on it. In the same
way we can recognise a transformed or intensified
landscape and understand any projected move as

While the relationship between material
and built form is certainly generative, it is not
absolute. Materials have frequently reversed
their form-roles. A material that is a continu-
ous surface in one place and time might be a
framework in another. Form and material in
the natural landscape, however, except for
atypical "sights," maintain consistent relation-
ships: e.g., water flows in contours, trees grow
"out" from the ground. Families of multiple
use form, rather than those generated singu-
larly through engineered materials, are the
basis of physical associative use definition.
From them we can build up an inclusive,
deeply associative vocabulary evincing similar-
ties and lateral developmental transforma-
tions in different geographies and cultures.
We can understand and relate to the form
families directly—history is always Now as well
as Then. We can find a series of assemblages
that together come close to a reasonable
method of formal projection for now.
(Smith, 1982)
some action on it. These actions range over different kinds of change from minimal intensification or transformation, to complete obliteration of any existing physical definitions.

We can generally understand man's inhabitation of the existing landscape as being either long-term or short-term in nature. This is both a temporal and physical (formal) distinction. Historically the temporal nature is a result of many factors relating to fundamental differences in the productive relations between the people in various populations to the resources of different biological and geological situations and conditions. Now we can also associate particular formal phenomena and definitions with these historically emergent relationships. It is important to recognise that the constraining factors of climate and of landscape are of different orders, and that they are not completely determinative of social relations:
Geography provides conditions "without which"; it does not offer a causal explanation of why.

Christopher Hill

Neither can climate, environment or material be a complete and causal explanation of all building activity or formal decisions. There is a limit to what extent the material conditions of the physical environment constrain our building of formal definition. Neither climate, environment nor available material is reductively causal, in the sense that what is cannot be a completely deterministic explanation of all building activity or physical definitions/decisions. Climate is a part of the material conditions of physical reality of any location, but in terms of human history it has not been a singular causitive factor, because humans live in a conscious transformative relationship towards the range of environments. We have also been able, as social/economic organizations, to overcome some other physical/biological constraints on our physical activity - such as flight.
Short-term inhabitations were, in general, of nomadic origin; initially this was for reasons of scarce resources for people and/or animal grazing. Now short term inhabitations are for reasons of event duration, as in camping, carnivals, festivals and theatrical productions where the singular event is moved on to another location for different social and economic reasons.

Long-term inhabitations were generally the result of either continued agricultural cultivation or the repetitive serial or seasonal gathering of resources in one location, such as coastal fishing. In landscapes with some existing habitable physical definitions and a moderate climate, this inhabitation generally was a type of landscape intensification where habitable formal aspects of the existing landscape were extended or added to to increase the amount of habitable territory available to the population. This was necessary for reasons of population increase to
protect the existing arable land, or to extend the amount of habitable or arable land through terracing in hilly terrains. In harsh (hot or cold) climates landscape transformation was necessary to provide the protection required for habitable territory.

Both long and short term inhabitations, in a variety of environmental conditions, result in identifiable formal definitions in relationship to the landscape.
Actual Landscape

The landscape has its formation and as after all a play has to have formation and be in relation one thing to the other thing and as the story is not the thing as any one is always telling something then the landscape not moving but being always in relation, the trees to the hills the hills to the fields the trees to each other any piece of it to any sky and then any detail to any other detail, the story is only of importance if you like to tell or like to hear a story but the relation is there anyway.

1. Habitable landscape

This habitable landscape is a particular continuous unframed collage-field of formal definitions/materials/colours/lights... the presence of each «growth form» family... is optional, additive, and self-stable while (it) intensifies at varying sizes the reciprocal form of the bay-water/land reciprocity – plan low («shelter in outreach») relief.
Perception of larger landscape includes the multi-meaninged «FORM» of the reciprocally unbuilt...
(The general diagram would persist when specific built-form (e.g. ... to harbour-town, etc.) reinforces/adds to/reefines parts of the already «usable» assemblage.

(Smith, 1982)
The ground already has form. Why not begin to give at once by accepting that?... In any and every case the character of the site is the beginning of the building...

Frank Lloyd Wright
The Future of Architecture
Landscape Intensification

Landscape intensification: This means that we live with the friendly harboring landscape and add to the characteristics of what is already there and almost habitable. A fishing village follows the reciprocal form-zone of a land-water bay. The “habitable” landscape is much more extensive than the territories we claim through building. Additive growth-form is almost always directional with water/use/access continuities.

(Smith, 1982)
Landscape Transformation

Landscape transformation: By contrast, in extremely hot, dry climates, we protect ourselves from the environment. We usually work egocentric form organization. Landscape transformation is polar from intensification. Landscape characteristics are carefully controlled and transformed for survival to alleviate unlivable conditions. 

(Smith, 1982)
Camping: The next two families, comparatively recent in building history, omit the "geo" from anthropogeomorphology and for the most part are ecologically and formally unsound. Camping is "visited" when both intensification and transformation are ignored. Buildings are composed, "solved," even built independent from actual landscape facts/attributes. Land provides merely subdivisonal sites for locating real estate; that is
unhappily the largest part of modern building—modern nihilism. "Camping" in itself, where rampant, has destroyed the associative qualities of many world cities, and we understand very well that nothing is being intensified except the population density and the access. "There is no there, there."

(Smith, 1982)
Stage Sets

Short-term theater: In reaction to camping has come short-term “fake” theater. Many “designy” architects attempt to invent occasions, usually through variously misguided histrionics, light or heavy. They try to conjure up events through set design instead of building additively in place, contributing to much larger coherences. Both camping and short-term theater have no real roots traceable to landscape, and they are both therefore not much good....

(Smith, 1982)
Building Systems

Whatever our particular formal attitude to the landscape is, when we build we build with something: some materials, the organization of their formal relationships, and the methods of their assemblage.

We are trying to build positive definitions for use, with an understanding of what any building system can contribute as and to a formal physical definition.

We cannot physically build with only mental production about the material reality, we must build directly with the actual material and space.

Form encourages or hinders ranges of particular uses/associations.

Understanding the associative «behaviour» of form, then, permits the selection, assemblage + deployment of built definitions to support use-intentions.

The intrinsic «Behaviour» of particular definitions is (considered) constant/predictable. Each participating «behaviour» family encompasses polar opposites, for e.g.:

   Separation  Adjacency  Focus  Partial definition
5. Containment 6. Collage
   Openness  Subdivision ...

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Form families are identified through their direct physical attributes, for e.g.:

1. Single-sided surface
   Continuous «Ground-Form»
2. Two-sides surface
   Inhabited «Ground-Form»

3. Partial containments
   Extrusions/Channels
4. Planes
5. Screens (→ 3-D)
6. Lineal frameworks...

Nos. 1 + 2 «Block» space directly; while, in Nos. 3 to 6 Light Space increases towards maximal «Openess».

Each territorial self-stable form family IN TRANSFORMATION develops the characteristics of another, while maintaining, recognisable, some of its own properties.

Reversals of Material Substitutions of Densities generate the «Place Range» for each Family, e.g. for No. 2 «...Glazings displaced from masonry» walls...

(Smith, 1982)
One and Two sided Continuous Surface...
Partial Containments/Extrusions...
Planar Assemblages...
Screen definitions as a building system are made by spatial assemblage rather than mass packing or stacking. Screen definitions are historically antecedent in tree inhabitation or 'virtual cave' defensive brush building, both of which occurred before cave inhabitation.
...Lineal Frameworks
The Finnish farmer built his farm himself, mainly during the long, cold winters when farming was impossible but forestry could be undertaken. It took him many years to complete; in fact, a farmstead rarely reached a form that could be considered as definitive. It could go on growing and adapting over several generations, ... and many of the spatial and organizational devices used were of a sort to permit and encourage this. Amongst these, the major ones are the use of courtyards of all sorts, which have the peculiar property, that once understood, they can be inferred from the sketchiest information and are thus in a sense 'complete' at every stage while still leaving room for growth; the transferable axis, which together with the use of replicative plan rhythm intends growth; the construction of joints ready for latter marrying; and the concept of space like a 'box' and, more or less physically defined, for each separate function, allowing the addition of new boxes for new functions. By these means, growth and change are allowed for in a way that suggests an appreciation of the transience of permanence and encourages a continuing involvement by the farmer in the creation of his milieu...

So the farmer was responsible for all parts of his farmstead, from furniture to gatehouse, at all times. And this it seems to me to be the key to understanding Finnish architecture, which has had very few buildings that were intended to be one-off, all-at-once, professionally produced buildings until relatively recently. For, if a building is going to be assembled over a long time, and by one man continuously working on it, then this man needs the concept that in carrying out one building operation at one time and on one level, he is not restricting his potential to carry out other operations at other times and on other levels. (Glanville, 1978, p.20)

The same follows for any collective inhabitation over time. The difficulty is in establishing a method of building the potential for the continuation of other
building operations within the built organization of the 'all-at-once' professional commercial production, as well as transforming the economic relations of that production.

The product is provisional yet something always needs/is to be built and it needs, to some extent, to be provisional in the sense of providing the formal definition/situation for the ongoing process of additive change and transformation- 'other building operations at other times'. It is this continuous transformational building method that seems a necessity for our understanding of built form. If what is built is only minimal (reductive) and complete or finished it is difficult for the next steps of inhabitation with the range of building operations unless one of the operations includes partial demolition-- otherwise you are restricted to virtual two dimensional (decorating) or three dimensional subdivisional definitions rather than actual three dimensional spatial assemblage.

A flat surface will touch any other flat surface at all points. No other shape of surface will touch every other of similar shape at all points. A hemisphere, for instance, will only touch a hemispherical hollow at all points if it has the same radius as the hollow hemisphere; i.e. if the surface is of the same size. The flat surfaces need not be of the same size. Thus a mason building a wall need not fit each stone he lays to the stone below it. Having cut all his stones to flat surfaces first, he knows that any stone will bed steadily on any other without having to be fitted individually...

An extension of the discovery was that if the components of a structure were 'squared', i.e. were given two flat surfaces at right angles, then they would not only touch each other at all points of the adjacent surfaces, but would also both do the same to a third component.
At some reductive level structural facts are a determinative limitation and constraint. My argument is: why work at such a reductive and minimal level if what we are trying to build are maximal physical associations and definitions for our use and inhabitation? In general the reason given is efficiency - read profitability - of production. Therefore, in this century engineering decisions are biased towards minimal material and minimal singular definition, often continuous surface monolithic concrete. In the 19th C. partially because of differing technical and manufacturing constraints engineers built spatially with the assemblage of multiple small pieces, as in the work of Gustave Eiffel.

We take all of this very much for granted... The extraordinary rigmarole which I have had to use in writing about it is perhaps evidence that we take it as part of the natural order of things, which it is not. We have no colloquial word specifically for 'making a surface fit another by touching it at all points'. We very rarely need such a word. If we want things to fit in that particular way we give them flat surfaces and they do it automatically without our taking any further trouble. (Pye, 1969, p.49-50)
Physical and Existential Phenomena

The formal/physical phenomenal aspects of both natural forces and our actions are movement [actual and virtual], as defined by direction(s) [horizontal/lateral and vertical], within a field organization [territory], through territorial references.

Mobility is not something particular to us as a species, it is one general characteristic of animal life, our movement in the material world is a fact. It is also a fact that we do not move at all times, we are either moving or at rest. So there is the simple fact that we move, or go, and we stop, for varying periods of time, location, and intensities etc., in alternation. This is a fundamental fact of our living in the material world.

Generally we move in a material world that is understood as being horizontal in direction, with
inclined or stepped actions being displaced horizontals (lateral, vertical or angular displacements from some territorial reference).

Moreover, we are not disembodied, we do not go and stop in a vacuum but in the material circumstances of physical definition as we come to them. We live in form. Some of the physical definitions are easy for us to move through, some are not. When we move through a landscape one generally seeks the less arduous definition present for one's movement. This is even true of skill-testing activities, like mountain climbing, when the challenge of even a difficult ascent is to find the hardest possible route, but not the impossible or impassable ones.

It is important to remember that any particular definition exists whether we use it for access (or any other use) at this time or not. The form is not deterministically generated by our particular or
singular use, it exists as a potential use-definition or not whether you personally use it or not. A form may be specifically useful and have phenomenal qualities that we may understand or not, or that we may choose to use or not. Our understanding and recognition of these phenomenal qualities is part of our association with form.

**Perception and Preconception**

Form exists outside of our association with it, and our direct association with form is constrained by a range of factors physiological as well as ideological in character. However, our physiological apparatus for perceiving the material world is fairly constant historically across the human population, barring loss or change through accident or sickness.

... there are human universals that are in no sense trivial; humans are bipedal; they have hands that seem to be unique among animals in their capacity for sensitive manipulation and construction of objects; they are capable of speech. The
fact that human adults are almost all greater than one meter and less than two meters in height has a profound effect on how they perceive and interact with their environment. If humans were the size of ants, we would have an entirely different set of relations with objects that constitute our world; similarly, if we had eyes that were sensitive, like those of some insects, to ultraviolet wavelengths, or if, like some fishes, we had organs sensitive to electrical fields, the range of our interactions with each other and with other organisms would doubtless be very different. (Lewontin, Rose, Kamin, 1984, p.13)

Form language is the description of the the range of the possible form phenomena, from which we make editorial selections to intensify/extend our continued use and associative understanding of the material world. A reasonable form language is a (generative) description of the material/physical facts. The definition of form language as a descriptive system has implicit within it the understanding that description comes from observation and recognition, both processes which are constrained by our perception and preconceptions. In order to talk about and work directly with form we need a reasonable descriptive language of physical definition(s) that we

If we employ a sympathetic form language, the desired use associations are made more positive for the client and the user. It's not a problem-solving thing; it has to do with the nature of the form language itself. The emphasis is on generating a language that approximates social reality. We have to be wary of intermediate languages intelligible only to experts.

Architecture is a craft like cooking or farming. You can learn to cook beans and survive. In architecture schools, it is the same way. Students very often learn to operate in a particularly limited professional way. What we have is a language of narrow professionalism. The form language should not be confined to a particular local or regional style, or, worse still, to an international style that obscures the range of physical definition. The references the language supplies determine what the user gets. If the user knows everything he wants, he may be shopping for a style.
can share. Material facts can only be said to have meaning by our associative use/understanding of them, and the extra-physical aspects of this relationship change (over time) through historical transformations in the development of production relationships in a society.

Our range of (pre)conception and association is limited by our social/cultural situation. A reasonable system of built use/form is not a perceptual or physiological problem but a cognitive/productive ideological problem.
We're trying to design for continuity, continuity of life and optional continuity of experience...

but in general we have to move about to see additively in order to build up an associative completion. The 'whole' cannot be experienced from any one position...

(Smith, 1982)

**Organization and Formal Reductionism**

Perspective as a Renaissance organizational system of the visual, relied on the fixed position (time and physical location) monocular viewpoint to which every physical definition conformed, as a manifestation of the secular struggle for centralized power.
In other painting traditions, perhaps most notably Chinese landscape scrolls, the viewpoints are multiple and changing in terms of distance and orientation. We know existentially that this only occurs through our movement in space, so the implication of these paintings is that of a journey through the landscape, which takes place over time.

In 17th century Dutch painting there are specific recognitions of the world seen outside of our actions:

The Dutch present their pictures as describing the world seen rather than as imitations of significant human actions. Already established pictorial and craft traditions, reinforced by the new experimental science and technology, confirmed pictures as the way to new and certain knowledge of the world. A number of characteristics of the images seem to depend on this: the frequent absence of a positioned viewer, as if the world came first...; a play with great contrasts in scale...; the absence of a prior frame...; a formidable sense of the picture as a surface (like a mirror or a map, but not a window) on which words along with objects can be replicated and inscribed; an insistence on the craft of representation...

(Alpers, 1983, p.xxv)

In the work of Cezzane there is also a recognition of
the field that is visible to us, as a bi-ocular fact, in the multiple planar image shifts in his paintings and drawings.

Reductive organizations are based on a
mechanistic/thermodynamic model of every action having an opposite and equal reaction, which results in the search for 'elegantly' reductive self-referential singular biaxial symmetries, which are seen as a more 'basic' (i.e. hierarchial) order than those more complex and less reductive orderings which are often dismissed as chaotic or irregular, because these ordering principles do not completely determine or control what and where particular form(s) are.

Reductive ordering systems must be recognised as only a part of the range of organizational systems. We need to understand the full range of form phenomena, organizational systems and physical configurations, and recognise that some are more reasonable/useful than others, though all are factual.

The very sound of the word "disorder" generally provokes uncontrollable nervousness. Therefore, it must be explained that disorder does not mean accumulations of systematic...
malfunctioning but, on the contrary, the expression of a higher type of functionality, capable of taking in and manifesting the complex interplay of all the variables involved in a spatial event. Order comes from the selection which isolates the variables being considered significant and organizes them in a system which is as simple as possible, i.e. so as to offer a stable solution. We know there is an increasing tendency toward the organization of physical space according to this reductive principle, and we know that it is the origin of all the methods based on an addition which are universally applied to the construction of the environment; for example, the method based on the search for a typological order according to which it is possible to separate and attribute spatial prototypes- or a series of prototypes- to them. The combination by addition of these gives rise to an environmental whole: the street, the neighborhood, the city. We also know that a city, a neighborhood, or a street, even a building, is interesting to us for all that it manages to escape from the control of these rules, for the expressions which are "not permitted" but which insinuate themselves through the cracks in the order and reveal themselves with all the wealth of stimuli which is the property of contradictions. The breakthrough of the unallowed expressions gives rise to an imperfect configuration of disorder. The perfect configuration would be achieved if these expressions were included in a complex system organized from the beginning to include them. But that would imply a condition based on collective participation- on the creative collaboration of the entire collectivity- much different from the discriminatory and segregational participation which we find in reality. In that case, the organization of the physical environment would come about by means of a process and not by means of authoritative acts; the solutions would not be stable but in continual formation.... (DeCarlo, 1969, p.21-22)

In simple terms, you could say that building order is the unity that arises in a building when the parts taken together determine the whole and, conversely, when the separate parts derive from the whole in an equally logical way. The unity resulting from design that consistently employs this reciprocity may in a sense be regarded as a structure. The material is chosen on purpose, adapted to suit the requirements of the task in question, and, in principle, the solutions are permutations of or at least directly derived from one another. (Hertzberger, 1984, p.39)

Object is somehow "composed" of its lower-dimensional projections, which have ontological primacy and which exist in isolation, the "natural" parts of which the whole is composed. In the alienated world things are at base homogeneous; indeed, the object of reductionist science is to find those smallest units that are internally homogeneous, the natural units of which the world is made. (Levins, Lewontin, 1985, p.271)
** Territory and Geometry **

Geometry... celebrates timeless immutable space. It rejects any element of movement as contrary to the finite and absolute which is its domain.

Hugo Haring, 1931,
The Problems of Art and Building.

I think that it is reasonable that if we are to understand our use and inhabitation of form, that we then must work with actual physical definitions spatially and not with reductive geometrical abstractions. Any theory that reduces actual spatial complexities to only point and line coordinates, will be in the position of medieval theologians arguing about how many angels can dance on the head of a needle.

Territory refers to an actual physical definition, and its dimensional qualities, both in itself and in relation to other territories. Territory is both two and three dimensional.
Collage and Subdivision

Collage is not an anecdotal approach to form, but a process of physically building the dialectical exchange between and with a range of different sizes and
directions to build the field and continuity. One aspect of this process is the dimensional building of the zone of exchange between definitions and/or uses with the assemblage of material(s) and space.

Subdivision as the word implies divides and separates. In many subdivided site organizations the only way to generate any exterior space is not to fill it in with building, the only potential for a public zone is where a territory at the size of a full building dimension is left open. So the public zone is never something built by and in the same range of dimensions as the private territories but as a subtractive move from a packed organizational system.

Internally the norm is for a reductionist standardization to minimal dimension singular use packed cells. In other times and places virtually all buildings would have a reasonable range of

**Collage:** Not the insubstantial collage of paper gluers or theatrical revivalists, but additive collage in the sense that each different family of form and each method of building is sufficiently self-stable to exist in its own right. The realization of the complex at any given phase must still be coherent. The processes of building can be intrinsically understandable, self-stable, but not complete. A building foundation (ruin?) should be able to survive as a landscape definition. As in any democratic order, this means that each family of buildings is as important as any other—not necessarily as big or as strong, but as important. Each process/action should contribute something additional to the zone defined without it—not totally controlled by it.

So we must observe the generative and behavioral and form families and make collages of appropriateness. That is our job as designers, to be on good terms with the "facts of form." If we choose families of form inappropriate for a particular work—which we are at liberty to do—we will be acting (designing?) irresponsibly. If we choose and work with an appropriate range of form, then we will generate places parallel qualitatively to our model—the habitable landscape and its intensification—the only real challenge and test....

**(Smith, 1982)**
dimensions and numbers of use territories that would not determine singular uses. The flexibility of subdivisional building system lies in the possibilities of different additive arrangements of the cells within the subdividable box of the building, for control by the management not the inhabitant. In general the norm is a systemic attempt to restrict the focus on problems of inhabitation to the personal and individual rather than the collective and generic.
Dimensions or Useful Sizes

If we are trying to reach some understanding of possible approaches to housing at a collective size, and in particular the building of the public zone, then it would seem that some reasonable examples available for analysis are villages - or what has been called "indigenous" as opposed to "high" architecture. Villages have been either built or added on to by the inhabitants over time, and particular buildings have changed in use and individual inhabitants over the years. This process of additive growth and change can respond to local conditions of topography, material and climate as well as social and economic changes. In whatever way any particular village was generated and continues to change, what we can observe now is form and use.

We can only use these existing examples generatively if we can understand them as a coherent system of
building directly with form. This is the result of the use of a set of dimensions, of recognizable difference, generated by territorial use, not by constantly variable dimensions or by a repeated singular dimension.

Within each Iberian town studied the specific dimensions for each “tape” are phenomenally consistent—while the entire family of dimensions differed somewhat from town to town.

As expected, in easier / flatter terrain, building / collective dimensions were greater than in difficult / sloping sites—transportation vehicle-aided versus donkeys only, etc. . . .

Each town’s dimensional consistency, then, surely predicates a finely tuned / agreed / enacted / asserted measuring system—“building inspector” with official knotted rope? chain? marked sticks?—rather than the “intuitively” shared understandings often attributed to under-documented indigenous building / architectures.

There can be no doubt of similarly finite measurings / displacements in urban plazas.

How ubiquitous / “mandatory” this particular behavioural / formal attribute really is awaits further assimilation / assessment.

It is certainly observable as a convincing delineator of territoriality in association with the other alternations (light-dark, π, reciprocity, etc. . . .)—not only in building and design but also in a host of other particular sizes / categories / media, etc. . . .

The range includes ridge-roosting seagulls, the dark spots white aureoled on foxglove petals, and, probably, Jacobs cattle beans.

Antienvironmental, disassociative, minimal modular repetitionisms achieving variation / change only through removal / substitution receive no further comment here.

(Smith, 1988)
Casares, Andalasia

Serpentine lines represent "unfinished" rough rock—either full building height (at far right) or at building wall to ground exchange. This steeply ramped stepped street climbs 30 feet in 70, generating, as it rounds the top-right corner, an entire floor height—donkey / manger below, citizens / house up-stepped above. In leveller terrain, people and animal (erstwhile) doors alternate.

Still in landscape intensificational development, this portion shows the town's (yellow) basic building dimension already securely in place. Rough-formed (but red width) street / public steps lead down / up through a semiprivate outside room / patio, once a stable access / work area (furnished with red-width slate wall-bench).

So public / private boundaries vary / reverse through use / occupation. There is no total / permanent privacy "outside." Similar use options pertain throughout the town's exterior / domestic porches / rooms.
What is important to note is that these ranges of dimensions are not found in singular isolation, in general you will find that dimensions are built in two directions at any one location. Also you will find the full range of dimensions within close proximity to each other. This contrast and alternating deployment of small and large dimensions is not alienating because the public zone is built by dimensions that are associated with access, small room and a range of building sizes. This use of understandable dimensions built from territorial use and systematically deployed generates a coherent place that has options for growth and change. The use of a range of territorial dimensions sets the particular conditions for the next range of choices but does not limit the particular choices, you know that the dimensions will be used at a particular territorial use but the dimensions themselves do not determine the location or extent of the next move(s) as would the hierarchies a
proportinate or subdivisive dimensional ordering system.

Why are indigenous inhabitations (villages, etc.) more associative? I think it is that the organizational systems used as well as the actual historic production (and modes of production) were less alienated than at present, see Braverman for alienation and degradation of work in the 20th C.
Dialectical Materialism and Form

*Matter* is simply the name for what exists objectively, with the one proviso that mind, thought, consciousness are its products. All further questions as to the nature of matter, its structure or composition, the relation of mass, energy, space, time, etc., are not primarily philosophical, but are to be resolved by the natural sciences themselves. (Selsam, Martel, 1963, p.45)

Therefore, matter and form are not primarily philosophical in themselves but material, and the material and formal phenomena need to be directly understood as such. Form is both 'space' and 'matter'; form is the result of the spatial arrangements of material at a range of sizes from the atomic to the cosmic, and in this sense, it is universal.

Our association with form is conditioned by two facts. Form as a material phenomena is a fact. That we are observers, users and producers is also a fact. The relationship between these two facts can only be
explained, I think, as being dialectically contradictatory. This relationship is an aspect of the ongoing dialectical contradiction between the ontological and the epistemic; of how things are in themselves and how we come to know how things are in themselves. Moreover, by extension, not only the 'how' of how things are in themselves, but also the 'why' of the how things are in themselves and how we come to know it.

... the particular character of Marx's explanations is such that they take the form of an explanatory critique of an object of inquiry which is revealed, on those explanations, to be dialectically contradictatory. (Bhaskar, 1983, p.255)

The most practical model to examine these material phenomena and our associations with the phenomena, I think, is not a structuralist or synchronic analysis, but a diachronic and dialectically materialist analysis.

...structuralism makes the 'system' it studies into something closed and intrinsically coherent, and reveals no interest in its genesis 'from below', or in the relations between human activities and their material determinations...

(Timpanaro, 1980, p.53)
With [a] sense of **form** [as a discoverable organizing principle within a work], different questions could be asked about the real **formation** of a work, which requires specific analysis of its elements in a particular organization. The point was confused by distinctions between intersubjective and social processes, and between synchronic and **diachronic analyses**: terms derived from a tendency in linguistics, and used either to express an absolute distinction between a self-sufficient system in language and a system as a part of an historical process, or to express an alternative emphases, now on the system, now on the process of development of which it is a moment, with real and dynamic relations between them. (Williams, 1976, p.114-115) [Italics mine]

Thus we need to study both the historic development of the social/economic relationships as well as the **form[al] phenomena** of the material world, as independent and interdependent subjects and objects with 'real and dynamic relations between them'. Part of this dynamic and dialectical relationship, is the recognition of principles from the observation of phenomena. When we understand the phenomena as being ontological in nature, we then understand the abstracted principles as being epistemic in origin.

Without any form[al] understanding or form
principles, derived from the observation of material phenomena, it would seem to be difficult to make any consciously reasonable form decisions. However, without any reasonable social principles or understandings of political/economic phenomena, it would also be difficult to recognise reasonable form principles, let alone be able to apply form principles in reasonable ways.

"What do you make of that?" - it is what we 'make' of it in the realm of mental production which is a learned or taught behavior, therefore, our range of understanding and cognition is often conditioned and constrained by the ruling ideologies. How we come to know about things as they are in themselves is biased and constrained ideologically, therefore, the range of possible principles runs from those of active praxis to principles of theory or practice which are partially to completely alienated from each other.
...praxis is practice informed by theory and also, less emphatically, theory informed by practice, as distinct both from practice uninformed by or unconcerned with theory and from theory which remains theory and is not put to the test of practice... In effect it is a word intended to unite theory with the strongest sense of practical (but not conventional or customary) activity: practice as action.
(Williams, 1976, p.268)

It is in this sense that active praxis is the practical transformation of reality.

...it is necessary first of all to show that a reference to praxis can have quite different meanings, according to whether one is declaring the inability of pure thought to make men happy and free,... or declaring that knowledge itself is praxis tout court. In the latter case, since to know reality is to already to transform it, one retrogresses from Marxism to idealism - i.e., to a philosophy of thought as praxis, which makes action seem superfluous. In the first case, however, although one may not have abandoned the idea of enlarging the dimensions of knowledge's 'active side', and although one may not make any absolute distinction between knowing and doing, it is acknowledged that knowledge by itself does not provide a complete domination of reality. True liberation can be attained only through the practical transformation of reality.
(Timpanaro, 1980, p. 56-57)

Moreover, I want to emphasize that by practical I do not mean merely utilitarian activity, but that the practical deals with the development of the full range
of every persons human potential; a desire for anything less is impractical and inhuman.

V: Feuerbach, not satisfied with abstract thinking, appeals to sensuous contemplation; but he does not conceive sensuousness as practical, human-sensuous activity. (Marx, 1845, p.12)

VIII: Social life is essentially practical. All mysteries which mislead theory to mysticism find their rational solution in human practice and in the comprehension of this practice. (Marx, 1845, p.13)

Moreover, sensuous activity does not imply emotion at the expense of lucid thought.

Godard deplores the way in which cinema ... has been disfigured by a bourgeois capitalist ideology that permeates its very theoretical foundations and has never been correctly diagnosed, much less corrected...

Godard accuses bourgeois cinema of over-emphasising and playing on the deep-seated emotional fears and desires of the audience at the expense of their critical intelligence. He seeks to combat this tyranny of the emotions, not because he is 'against' emotions and 'for' rationality... But he believes strongly that the filmgoer should not be taken advantage of, that he should not be manipulated emotionally but should instead be addressed directly in a lucid dialogue which calls forth all his human faculties.

The way things now stand, however, every element of a bourgeois film is carefully calculated to invite the viewer to
indulge in the 'lived' emotional experience of a so-called 'slice of life' instead of assuming a critical, analytical and, ultimately, political attitude towards what he sees and hears.

Why should one's attitude towards a film be political, one might ask? The answer is, of course, that the invitation to indulge in emotion at the expense of rational analysis already constitutes a political act - and implies a political attitude on the part of the viewer, without the viewer necessarily being even aware of it. (MacBean, 1971.)

Perhaps Lenin is most concise as to the ideological nature of this opposition:

... any cult of spontaneity, any weakening of the 'element of lucid awareness'... signifies in itself - and whether one wants it this way or not is immaterial - a reinforcing of the influence of bourgeois ideology. (Lenin, 1902)

In his memo on multiplicity Calvino quotes from Raymond Queneau on the surrealist movement:

'Another very wrong idea that is going the rounds at the moment is the equivalence that has been established between inspiration, exploration of the subconscious, and liberation, between chance, automatism, and freedom. Now this sort of inspiration, which consists of blindly obeying every impulse, is in fact slavery. The classical author who wrote his tragedy observing a certain number of known rules is freer than the poet who writes down whatever comes into his head and is slave to other rules of which he knows nothing.' (Calvino, 1988. p.p.123)
Form and Knowledge

The problem, it must be admitted, is one of knowledge - architectural knowledge. There is a substantial gap in our knowledge of the social implications of strictly formal, hence architectural, decisions. There is no adequate description and explanation why certain types of spatial patterning seem inevitably to lead to that curious feeling of disembodied architecture, devoid of human contact and activity, any more than there is an understanding of why common-or-garden urban space of the past so easily provided a setting for the life that nowadays seems so often to be missing.
...Designers do not have concepts and techniques that allow them to describe and investigate the kinds of spatial order that are to be found in highly complex physical objects like towns and cities. It is because designers today do not properly understand their spatial logic that they cannot develop a proper understanding of their social consequences.
( Hillier, Hanson, Peponis, Hudson, Burdett, 1983, p.49)

The above aside, we need to recognise that a formal description of a built spatial organization does not purport to be the record of the actual historical dynamics of production, but the description of what exists (is built) at this time. If the formal organizations we are trying to understand and describe are material phenomena, then all material phenomena are the 'subject' of our investigations. This certainly means not just the elite or 'high' architecture, but also the
production of the populace: the popular or indigenous architectures, and all other human form-making activities, as well as all natural formal material phenomena. Everything. The universe.

For quite some time I have been concerned with the man-made environment as a dynamic, everchanging phenomenon. One can view the built environment as a phenomenon composed of space volumes and material volumes of every sort, form and dimension which presents itself in an endless diversity of combinations. Through observation we realize that this built environment is subject to continuing change. These are changes which take place gradually and, therefore, the casual observer would not directly perceive the built environment as a dynamic phenomenon... The built environment is in a continuing condition of transformation. These transformations are the result of human attitude. Man caused the built environment to exist and he allows it to do so through continuing changes. Thus we are talking about a process in which man continually intervenes. By studying the transformations of the built environment we can learn something about this process. For the changes are naturally not arbitrary. Patterns crop up; we can identify variations on particular themes. In short, the transformations of the built environment betray certain laws of the processes whereof this environment is the tangible manifestation.

...Thus the relationship between human actions and their outgrowth, the material phenomenon, can, in principle, be formalized. (Habraken, 1975, p.52)

I would again insist that the material phenomena of
the environment are not limited to man-made building actions, natural forces build too. The relationships between natural forces, actions and phenomena can also be formalized.

The design of complex, varied forms that are adaptable over time and nonetheless easy to control and to build demands new methods and skills. In turn, such new methods and skills must come from a good understanding of the structure of complex artifacts. And much can be learned from the study of environments with a high degree of spatial complexity to find out what their structure is and what processes could make them come about...An interest in these environments has nothing to do with a romantic yearning for past conditions. We are not looking at them to copy but to learn how today structures of similar sophistication and resilience may come about in accordance with the means we have today...What we look for and what we are interested in here are systematic properties from which complex environmental organizations can be built. (Habraken, 1987, p.3)

In the same way, observing the formal phenomena of the landscape is not a nostalgia for some edenic 'golden age' in our relationship to nature, but simply a recognition of what we can learn. When we recognize form to be a material condition, and of being phenomena with real structures, there should be a human interest and simple desire to understand their

The client in architectural education is the student. Everything we do must be processed for the student, and not for someone else. One must, presumably, develop the student's capability, which means that you must help them develop a language and method of operation—a physical language of definition for people, whether clients or users. That is, for all of us. There is much fundamental background work to be done in order to develop their competence to a stage where they have the ability to do anything. What we must provide is the general basis for practice. We must teach them something they can bring to bear on the needs of the specific client.

Information we give students is based on centuries of observation about place and the use of places. It is not a matter of abstract or geometric form or of professionalism designed to serve only the so-called client, whoever that may be. What they need is a sense of use-form.
actual nature and relations. What we understand and what we do with form has to be for people, and for animals, plants, water, air, rocks...etc., in short it has to be for, not against, the material world. As a result we must recognize that there will be contradictions and oppositions between all of the above. Our work must be towards a social and collective understanding of the facts, not ego-centered individual opinion, because agreements can only come from shared production that is not limited to the personal or mystified in basis ('there are personal opinions but no personal facts').

It also seems self-evident to me that in dealing with environmental problems, and particularly with theoretical aspects of the man-environment interaction, we cannot ignore thousands of years of experience, insights derived from the slow development of balanced interactions between many generations of men and their settings. It seems difficult to believe that all of our problems are so new that our sample must be limited accordingly... Looking at archival material extends the range of environments which we can study as well as the range of people's reactions and interactions with them. This broadens our view and shows us what has been accomplished. If certain regularities and recurring patterns can be discovered, this would seem to be _prima facie_ evidence.
that there are some valid reasons for them, and it would seem important to discover what those reasons might be.
(Rapoport, 1978, p.50)

Form phenomena are not by their nature derived from human history, in that they are physical phenomena, so by extension I would argue that the reasons for particular formal phenomena are not culturally relativistic. This is to say that form may be culturally chosen, but it is not culturally determined.

Science, since people must do it, is a socially embedded activity... Much of its change through time does not record a closer approach to absolute truth, but the alteration of cultural contexts that influence it so strongly. Facts are not pure and unsullied bits of information; culture also influences what we see and how we see it. Theories, moreover, are not inexorable inductions from facts...

This argument, although anathema to many practicing scientists, would, I think, be accepted by nearly every historian of science. In advancing it, however, I do not ally myself with an overextension now popular in some scientific circles: the purely relativistic claim that scientific change only reflects the modification of social contexts, that truth is a meaningless notion outside cultural assumptions, and that science can therefore provide no enduring answers. As a practising scientist, I share the credo of my colleagues: I believe that a factual reality exists and that science, though often in an obtuse and erratic manner, can learn about it. Galileo was not shown the instruments of torture in an abstract debate about lunar motion. He had threatened the Church's conventional argument for social and doctrinal

The “facts” of physical form are partially independent of the social conditions that nurtured them. If we feel sympathetic toward foreign physical definitions, our relationship with them may differ considerably from the indigenes. We can look at a painting or a farmed landscape and feel friendly toward it (associative) although we have contributed not at all to its generation. We don't have to be farmers to enjoy walking in an orchard—its space, screened light, or fruit. Nor need we be Japanese to appreciate (in part) their traditional form-making.

If we believe that no associative choice need be made about formal organization, then we are likely to accept what we perceive to be the current of the time. Because it is possible to do this problem technically this way, we should go with it and see where it takes us. Whatever is current, however, be it isolation and separation, whether it makes environmental sense or not, is certainly going to affect us.

(Smith, 1982)
stability: the static world order with planets circling about a central earth, priests subordinate to the Pope and serfs to their lord. But the Church soon made its peace with Galileo's cosmology. They had no choice; the earth really does revolve around the sun. (Gould, 1981, p.p.21-22)

What is important are the physical and social realities. If a tree falls in the forest with no one to hear it, does it make a sound? ... yes. Physical activities occur whether we are there to perceive them or not, just as territories for access exist whether anyone is using that territory for movement at any particular time or not. The qualities of any built definition do not depend on constant use to maintain that definition. We should be critical of the egocentric generation/understanding of anything, in particular the idealist pretence that nothing exists unless you personally have experienced it. We know that singular personal use can't generate the world itself for everyone because you do not generate the world when you are born, or when you get up every morning, but you may personally share in what has been generated before, and contribute to
new physical definitions.

Cultural and social realities are also real whether we understand their roots or not. Moreover, the existence of any particular cultural phenomena is not 'self-justified' because it is considered to be part of the 'natural' development of the culture. Cultural/social development is not justifiable as a "natural" process, in the sense of 'natural' that means inevitable and out of our conscious control because rooted in "human nature". Our relationships to the conditions of the material world are not passive but active and dialectical, and culture does not develop passively but by conflict and struggle between those who benefit from a particular system of productive relationships and its methods of exploitation [racism, sexism, ..etc.] and those who are subject to it.
Form and Political Ideology

The tragedy of modern design, it seems to us, is that designers never made a concerted effort to work out the form implications of their social and political ideals. Indeed, the very strength of their commitment to these ideals seems to have led designers to feel that a concentration on form itself was somehow superficial. Form, they felt, ought to be the by-product of progressive social and political attitudes. But in adopting this stance, paradoxically enough, designers failed to realize that the man-made environment is a political system in its own right: try walking through a wall, and you'll notice that it is the physical fabric, as well as the way it is managed, that sets constraints on what you can and can't do. Multiplied to the scale of a building or - crucially - a city, this is indeed a political matter. (Bentley, Alcock, Murrain, McGlynn, Smith, 1985, p.9)

There are theoretical tendencies within urban planning that attempt to deal with some of the issues that I have been examining, in an attempt to understand the dynamics of the relationships between form and society as taking place in an explicit context. At the same time being urban in focus often seems to preclude a more extended understanding of form as it relates to all material conditions.

To consider the city as a projection of society on space is both an indispensable starting point and too elementary an
approach. For, although one must go beyond the empiricism of geographical description, one runs the very great risk of imagining space as a white page on which the actions of groups and institutions are inscribed, without encountering any other obstacle than the trace of past generations. This is tantamount to conceiving of nature as entirely fashioned by culture, whereas the whole social problematic is born in indissoluble union of these two terms, through the dialectical process by which a particular biological species (particular because divided into classes), 'man', transforms himself and transforms his environment in his struggle for life and for the differential appropriation of the product of his labour.

Space is a material product, in relation with other material elements - among others, men, who themselves enter into particular social relations, which give to space (and to the other elements of the combination) a form, a function, a social signification. It is not, therefore, a mere occasion for the deployment of social structure, but a concrete expression of each historical ensemble in which a society is specified. It is a question, then, of establishing, in the same way as for any other real object, the structural and conjunctural laws that govern its existence and transformation, and the specificity of its articulation with the other elements of a historical reality. (Castells, 1977, p.115)

I would argue that space and form already exist, and that we come to it and transform it or not, whether it is natural or of social production. Therefore, we then do need to establish 'the structural and conjunctural laws that govern its existence and transformation' for form in itself, and for form in dialectical relation to
...one must go further than the ideological opposition between the determination of space by nature and its shaping by culture, to unite these two terms in a problematic that recognizes the specificity of the humanly social, without seeing it as a deliberate creation which cannot be explained by laws. To the common ideological front of culturalism and historicism, we must oppose a theoretical front that integrates the ecological, materialist-based problematic in a sociological analysis whose central theme is the contradictory action of social agents (social classes), but whose foundation is the structural web that creates the problematic of any society - that is to say, the way in which a social formation fashions nature, and the mode of distribution and administration, and therefore of contradiction, that stems from it.

(Castells, 1977, p.122)

In other urban planning views, however, all form is reduced to being the determined factor and/or effect of social relations.

By giving shape and form to our material world, architecture structures the system of space in which we live and move. In that it does so, it has a direct relation - rather than a merely symbolic one - to social life, since it provides the material preconditions for the patterns of movement, encounter and avoidance which are the material realization - as well as sometimes the generator - of social relations.

(Hillier, Hanson, 1984, preface)

Hillier and Hanson proceed on a completely reductive
and abstracted analysis, that on one hand is completely aformal, and on the other completely anthropocentric in their consideration of form as being only man-made. This argument is biased towards only man-made physical definitions, as if naturally occurring definitions were not as 'formed', or as if a physical definition only exists if it has been the subject of an idea before it is a material reality. It is here that their idealist bias is revealed. Instead of examining our material association with form they couch the terms of their methodology in the 'objective' examination of the adjacencies of minimal cellular organization. This is perhaps useful for prison planning but not for the examination of openly complex physical definitions (like landscapes).

... syntactic generators are right for the job they are intended to do: capturing the formal dimensions of real-world spatial systems in terms of the social logic behind them... We are convinced that it is unnecessary to specify shape in order to model real-world generative processes; indeed, that the concept of shape obscures the fundamental relational notions that underpin human spatial order...
To our way of thinking, two concepts underpin the geographic approach to formal spatial analysis...: these are the notion of distance; and the notion of location. It is crucial to our approach that neither of these concepts... appears in the foundations of 'space syntax'.

(Hillier, Hanson, 1984, preface)

In this argument 'formal dimensions' are neither formal or dimensional, and hence not spatial.

Therefore, I think it is reasonable to argue that this 'space syntax' cannot possibly describe spatial organizations and relationships. In fact Hillier and Hanson are reduced to 'connect the dot' wiring diagrams of path and point adjacencies or replicating packed minimal cellular organizations.

The ordering of space in buildings is really about the ordering of relations between people. Because this is so, society enters into the very nature and form of buildings. They are social objects through their very form as objects. Architecture is not a 'social art' simply because buildings are important visual symbols of society, but also, through the ways in which buildings, individually and collectively, create and order space, we are able to recognize society: that it exists and has a certain form.

... in talking about buildings, we need not only talk about objects, but also about systems of spatial relations. ...In these circumstances an explicit discourse of architectural space and its social logic is an absolute requirement.
But in spite of its centrality in the act of creating architecture, the question of space has failed to become central in the academic and critical discourses that surround architecture. When space does feature in architectural criticism, it is usually at the level of the surfaces that define the space, rather than in terms of the space itself; when it is about space, it is usually at the level of the individual space rather than at the level of the system of spatial relations that constitute the building or settlement. (Hillier, Hanson, 1984, p. 2-3)

... Our initial aim has been to show how order in space originates in social life, and therefore to pinpoint the ways in which society already pervades those patterns of space that need to be described and analysed. Only when this is understood is it possible to make a theoretical link to patterns of use.

... by the assumption that what is to be sought is a relation between the [abstract immaterial] 'social' subject (whether individual or group) and the [material] 'spatial' object acting as distinct entities, space is desocialised at the same time as society is despatialised. This misrepresents the problem at a very deep level, since it makes unavailable the most fundamental fact of space: that through its ordering of space the man-made physical world is already a social behaviour. It constitutes a form of order in itself: one which is created for social purposes, whether by design or accumulatively, and through which society is both constrained and recognisable. It must be the first task of theory to describe space as such a system. (Hillier, Hanson, 1984, p. 8-9)

On the contrary, it is the statement of the 'problem' as one of the distinction between object and subject (or...
form and content), whatever other qualities are ascribed to them, that is the deep, and ideological, misrepresentation. Social formations build on existing spatial and formal 'patterns' whether they are natural or man-made in origin, within the constraints of all material phenomena.

Marxist film criticism ... refuses to make an artificial distinction between form and content...Instead, with detailed analysis of the specifically cinematic relations between images and sounds, contemporary Marxist film criticism focuses precisely on the way the world's contradictions are manifested in images and sounds on celluloid. (MacBean, 1975, p.17)

By extension we need to to focus on a detailed analysis of the specifically formal relations as a product of the contradictions of the material world.

Form and the Practice of Architecture

The architect, as we know, has never been very human: throughout history he has always served the happy few and never the great number. Since building costs money, he was always on the side of money...
He has occupied himself with pyramids, temples, cathedrals, palaces, and office buildings, and more often allowed himself to be exploited as a tool for repressing people, than helping them to liberate themselves. Partly as a result of his forced marriage with aesthetics, he has existed more to honour and celebrate the established order of the few, than to stimulate better conditions for the many, more servant of the repressors than of the repressed. (Hertzberger, 1973)

The integration of ... the functional structure and of the formal and organizational quality of the environment brings back the question into the real field of architecture, because it restores the circuit of relationships between physical configurations, their real motivations and their concrete consequences. (DeCarlo, 1978, p.36)

Centuries of being left out of the process of transformation in the physical environment have firmly convinced people that there is no possibility for collective expression to intervene in this process. By now there seem to be no alternatives to the models elaborated by the ruling class and the functional, organizational, and aesthetic principles on which they are based seem to be the only possible ones. This numbness of the consciousness and the senses gives rise to alienation; and for this reason, even the rare cases in which direct action is possible, people go on choosing expressive typologies and languages exactly like the ones which are imposed. (DeCarlo, 1969, p.31)
IF (NEGATIVE)

THOSE WHO are concerned mostly with the 'need' they to control 'disorderly' people, they will prefer the 'advantages' of militaristic singular organization -
deadening exclusive hierarchic circulation systems limited building to feed cellular packing orders.

but

IF (POSITIVE)

the intention is to help generate variable environments for responsive towards REAL GROWTH and CHANGE, - through participation — (these same) architects will 'discover' the designers (could) exciting coherence of INCLUSIVE ORDER — pluralistic (maximal range of definitions polarities clarifying choices and offering fresh possibilities through reciprocal continuity.)
in which

NO PLACE is wholly self-defined, but is mutually dependent for its existence on many others.
XI: Philosophers have only *interpreted* the world, in various ways; the point, however, is to *change* it.
( Marx, 1845, p.13)

**Production**

One wants one's work to be in the world, but of course it's never the world. The work is *in* the world; it never contains the whole thing.

  Jasper Johns,

The problem is not to make political films, but to make films politically.

  Jean-Luc Godard

I want to emphasise that theory and practice are by no means mutually exclusive... The real dilemma for filmmakers today is not a choice between theory and practice. The act of making films necessarily combines both. ( MacBean, 1971.)

**Methodology and Production**

The reconstruction of a portion of a city, especially a historically sensitive one, requires a clear understanding of two important aspects of the work: first, the political stance, which forms the primary attitudinal framework of values from which the basic physical and programmatic decisions and priorities will be based; and second, and equally important, the methodological stance, which provides the strategic and mechanical means through which the first will be carried out. ( Mignucci-Giannoni, 1988, p.3-5)
It therefore follows that the methodology, either explicitly or implicitly, is political and ideological in nature, and is also directly part of the productive forces and relations.

The productive forces... include not just the means of production (tools, machines, factories and so on), but labour power - the skills, knowledge, experience, and other human faculties used in work. The productive forces represent the powers society has at its command in material production. (Shaw, 1985, p.207)

Form[all] Working Method

[The] transformation process... must be everpresent in our working methods. Only by such a dialectical process, will there be a continuous thread between past and future, and the maintainence of historical continuity. Whatever goal architecture may have set for itself, it can only be meaningful today if it is making a demonstrable contribution towards the improvement of living conditions and circumstances. Form must improve conditions, or rather, must lend a helping hand to people, inciting them to make their own improvements. (Hertzberger, 1973)

What we should be focusing on in design is form and use; our concern is to understand form phenomena
and physical definitions from many times and places, to generate the collective provision of form/physical definitions for our use now.

Active observation: looking/observation as a deep structure analytical method to recognise formal phenomena for understanding and projective production.

Passive observation: viewing and recording as idealist contemplation, for consumption as a touristic 'postcard'.

To view the universe and to extract explanatory principles and unifying hypotheses from the rich confusion of phenomena and processes, one must systematize and use tools for systematization that are derived from the experience of the social world and of one's fellow students of the natural world.

It is precisely at this point that the concept of ideology becomes of paramount importance in making transparent the ways in which human understanding becomes refracted by the social order in which that understanding develops. (Lewontin, Rose, Kamin, 1984, p.41)

The reason to observe and to recognise formal phenomena and to describe the material world, is as a
projective or generative reference for production.

Observation/description is an explicit recognition of "one piece of the world looking at another piece of the world" [Calvino], not an egocentric or anthropocentric position in regard to the environment.

The observation of physical definitions already produced/existing requires the recognition that our formal understanding of spatial/material organizations may not be a surrogate/record of the actual dynamics of the historic production over time, but an understanding of what is built now.

... the state of the art in building technology suggests that there is not necessarily a conflict between efficient production and variety of form. In fact, variety might be the logical outcome of efficient production.

If neither the use nor the technical means dictate uniformity and rigidity of built forms, design skills may become the weakest link in the chain. The design of complex, varied forms that are adaptable over time and nonetheless easy to control and to build demands new methods and skills. In turn, such new methods and skills must come from a good understanding of the structure of complex artifacts. And much can be learned from the study of environments with a high degree of spatial complexity to find out what their structure is and what processes could make them come
An interest in these environments has nothing to do with a romantic yearning for past conditions. We are not looking at them to copy but to learn how today structures of similar sophistication and resilience may come about in accordance with the means we have today. What we look for and what we are interested in here are systematic properties from which complex environmental organizations can be built. (Habraken, 1987, p.3)

**Projective Production**

The design section of the thesis is an attempt to clarify a working method. Given that Sunnyside Gardens, in the borough of Queens, New York City, is one of the better multiple city block low-rise housing projects of the first part of this century - this study is seen as an exercise to make projections for what would be possible now. These projections are based on transformational studies of the: site organization and access, the building system(s), and the inhabitation of...
Clarence Stein was quite clear as to the formal transformation he saw Sunnyside Gardens manifesting in relation to the typical housing organizations of the day. Rather than the subdivided block with a freestanding building in each lot, he was able to build some collective landscape by the collective organization of individual dwellings to make larger building definitions.
The projection now is to extend that understanding by building the collective landscape at a dimension that is bigger than and not completely defined by the building size.

Site Organization and Access System

Observations:
The existing site organization reinforces the double directional field organization street/block definition. The existing building organization builds the street edge and by partial 'courtyarding' internalizes and defends the collective landscape at the center of the block.

Ground level pedestrian access mirrors street access in elevation and form as well as the form of the courtyard organization.
Projection:
Increase landscape continuity at the full site size, by transforming city grid block and street organization to a directional organization that maintains major thoughfare traffic access but removes the subdivision from direct lateral access. This allows the building of larger territories and landscape continuities with dimensions larger than the existing block size.

Build pedestrian access at both existing ground and displaced ground elevations. This allows for separation, as needed, from direct [1:1] association with the street access and for extension to the existing elevated transit station (the #7, Times Square <-> Flushing).
displacement
landscape continuity

Site/Access Studies

0168
directional branchings in the access.
Building Systems

Observations:
The existing reductive system is single floor containment system that is multiplied and stacked as required. Extensions to this masonry box are limited to ground level wood porches, that may or may not be glazed, and metal 'fire escapes'. These boxes are added together, with minimal displacements and normal direction changes, to build the actual building size.

Projection:
Multiple additive building systems: Masonry bearing walls and lintel/beam with spanning cored concrete planks to define lateral extent of private territory and build double floor height zones; light steel framing with wood T&G planks for internal inhabitation of double floor heights and exterior extensions; screen system with attached glazing and panel system for internal containments (partial) and exterior closure (full).
Bearing Wall Edge Zone Variations
Building System Relations - Wall above Plank

Building System Relations - Wall below Plank
Building System Relations - Lintel above Plank

Building System Relations - Lintel in Wall

Building System Relations - Lintel below Plank
Building System Relations - Wall and Plank
Building System Relations - Sectional Studies

0176
Inhabitation

Observations:
Existing system is a subdivision of the box, the subdivisions are at the dimension of a singular use.

Projection:
Initial move is to build a territory larger than a 'unit' size. This slack increases the options for deployment of the internal privacies and containments, latter additions, and a range external territorial landscape definitions - terraces, gardens at displaced ground etc.
Plan Transformations
Plan Transformations

0182
Plan Transformations

0 1 8 3
Transformed Sections

0 32

0 186
Postscript

or: what is to be done?

A whole history remains to be written of spaces - which
would at the same time be the history of power.

Michel Foucault

The primary dialectic of projective and/or generative
work is between the understanding of what is ( how
'things' are and why) and what is possible ( how
'things' could be and why). Historically 'what is
possible' has been limited, in various ways, by the
ruling class to those possibilities that enhance, solidify,
exalt or protect the manifestations of that class power
and its continuation as the ruling system.

If we are to change what is possible, then we must
change the current systems and relations of
production. These will not change easily, or by
evolution, but through struggle. This struggle will take
many forms collectively and individually, both in

The ability to see the big picture
seems to come with age. I remember
when my children first started playing
soccer. At first they could see only the
ball. They chased after it, wherever it
went. Then, as they grew older, they
began to see the playing field as a
whole, and they started to play their
positions. They waited for the ball to
come to them. As they grew older yet,
they began to think about the whole
game, to think about their team and to
develop strategies.

Perhaps it was just that they had
improved their mastery of the technical
skills and could think about putting
their skills together, much as people
who have learned the mechanics of
driving can focus on driving as a whole,
instead of thinking about braking or
shifting gears. Or, perhaps, they had
just grown older and more mature.

Peter Kugel. January 8, 1989
The New York Times
theoretical and practical production. In order to understand change we need to understand what has been and what is now. We need to analyze the contradictions within the historic and current production of built form.

I think that the main purposes of an architect, politically involved, is to give models, physical models, physical views of a new kind of organization, translated in terms of form of course, representing how the world could be. This is what I mean by political involvement. How do you get to the point of being in touch with political reality? (DeCarlo, 1973, p.32)

A Little Piece of Joe Hill

The 73d anniversary of the execution of Joe Hill, one of America's most incandescent labor leaders, falls on Saturday, and tomorrow the National Archives will make a kind of restitution to his trade union heirs. It is turning over a sealed vial believed to contain some of Hill's ashes to his organization, the Industrial Workers of the World.

In 1913 the 32-year-old Hill organized a successful strike at the United Construction Company in Bingham, Utah. The following year he was convicted on charges, apparently trumped-up, that he had murdered a Salt Lake City grocer. Hill was executed by a firing squad on Nov. 19, 1915.

In accordance with his wish that "I don't want to be found dead in Utah," his body was taken to Chicago and cremated. His ashes were to be scattered in every state but Utah. Two years later an envelope containing ashes and marked "Joe Hill — Murdered by the Capitalist Class" was sent to a Chicago man. The letter was seized by the postmaster in Chicago because the I.W.W. was considered a subversive organization. Eventually it wound up in the National Archives, which tomorrow will present the ashes to the I.W.W.'s current chairman, Frederic Lee.

Don't mourn, organise.
Joe Hill, 1915.
The initial designing is only a little part of it, the building has its life to live, just as people do. You might just as well advise abandoning your children “complete” at birth. There’s a continuing process of growth and change. We’re not making finite art objects to display in fashionable galleries; we’re helping worlds of definition into existence...

(Smith, 1982)
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___ 1980. Discussion... PLAN 1980 (MIT Department of Architecture), #11.


Location

Cover

1.0

2.0
*On Historical Materialism*.

2.1
Sweezy, *Four Lectures On Marxism*.

2.2
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2.3
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| 3.0 | Author, Massachusetts. |
| 3.1 | George Tice. |
| 3.2 | Mario Giacomelli, Italy. |
| 3.3 | Henri Matisse. |
| 3.4 | Henri Cartier-Bresson, Jardin du Palais Royal. |
| 3.5 | Author, Maine. |
| 3.6 | Lockwood Mapping Inc., Ice, Lake Ontario. |
| 3.7 | Author, Portland Oregon. |
| 3.8 | ?, New York. |
| 3.9 | Jay Freis, *Graphis* #225. |
| 3.10 | Herbert Bayer, Marseilles. |
| 3.11 | Werner Blaser, Vineyards, Stromboli. |
| 3.12 | Edwin Smith, Cacti. |
| 3.13 | *Black Sun* |
| 3.15 | Charles Sheeler, Williamsburg Kitchen. |
| 3.16 | Penny Yrigoyen, Patzcuaro, Mexico. |
| 3.17 | Atget. |
| 3.18 | Author, Maine. |
| 3.19 | Author, Maine. |
| 3.20 | Brett Weston. |
| 3.21 | Lucien Herve, Tour Eiffel. |
| 3.23 | Author, Washougal River. |
| 3.24 | Edwin Smith, Tombstones. |
| 3.25 | Ben Shahn, Threshing Machine. |
| 3.26 | Henri Cartier-Bresson, Madrid. |
| 3.27 | Shaffrey, *Irish Countryside Buildings*. |
| 3.28 | Charles Sheeler, Side of White Barn. |
| 3.29 | Author, Maine. |
| 3.30 | Norman Carver, Mexico. |
| 3.31 | Author, Maine. |
| 3.32 | Author, Maine. |
| 3.33 | Rudofsky, *Prodigious Builders*. |
3.35 Albert Renger-Patzsch.
3.36 Rudofsky, *Prodigious Builders.*
3.37 George Tice.
3.38 Norman Carver, Morocco.
3.39 Werner Blaser, Aran Island.
3.40 Werner Blaser, Seurasaari, Finland.
3.41 Graybooks Envelope.
3.42 Russel Lee, Kitchen, Hidalgo Texas.
3.43 William Clift, La Mesa from Cerro Seguro.
3.44 Martin Trelawny, England.
3.45 George Tice, Vermont.
3.46 Author, Maine Coast.
3.47 Author, Maine Coast.
3.48 Author, Maine Quarry.
3.49 Norman Carver, Yugoslavia.
3.50 ?, Pueblo.
3.51 Norman Carver, *Italian Hilltowns.*
3.52 Marc Boseret, the Ardenne, Belgium.
3.54 David Spector, *Urban Spaces.*
3.55 ?, Beynac-et-Cazenac, France.
3.56 Werner Blaser, Ticino, *Objective Architecture.*
3.57 Switzerland, *Space Design 8701.*
3.59 Rainer, *Anonymes Bauen im Iran.*
3.60 Rainer, *Anonymes Bauen im Iran.*
3.61 *Pioneers of Photography.*
3.62 Author, Portland Oregon.
3.63 ?, Pueblo.
3.64 ?, Greece.
3.65 Henri Cartier-Bresson, Salerno, Italy.
3.66 Andre Kertesz, Carrefour, France.
3.67 Author, Provence.
3.68 Art and Landscape of Italy.
3.69 Jean-Louis Martinetti.
3.71 Charles Sheeler, Baldwin Locomotive Factory.
3.72 Art and Landscape of Italy.
3.73 Werner Blaser, Japan.
3.74 Werner Blaser, Temple und Techaus in Japan.
3.75 Henri Cartier-Bresson, Ahmedabad.
3.77 Addison, Farmhouses in the English Landscape.
3.78 Paul Oliver, Egypt, Dwellings.
3.80 Author, Maine.
3.82 Werner Blaser, Glasgow Train Station, Objective Architecture.
3.83 Norman Carver, Japanese Folkhouses.
3.84 Tithe Barn, Great Coxwell, England, DQ118/119.
3.85 Albert Renger-Patzsch.
3.86 Charles Sheeler, Coke Oven Area- Ford Plant.
3.87 Becher, Forderturme.
3.88 Becher, Details, Fotos.
3.89 George Tice.
3.90 Gustave Eiffel.
3.92 Cezanne.
3.94 David Spector, Urban Spaces.
3.95 Mercer Museum, Doylestown Pa.
3.96 Maurice Smith.
4.0 Circuit Board.
4.1 *l'Architecture d'Aujourd'hui*

5.0 Kwartler & Havelicek, *Spazio e Societa* , 
    #26, 1984.
5.1 Clarence Stein, *Towards New Towns for America*.
5.2 Clarence Stein, *Towards New Towns for*

6.0 Lucia Moholy-Nagy, Yugoslavia.
6.1 Author, Smith House, Indian River Maine.