An Architectural Prognosis:
Greek Medicine & Architecture

by

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Abstract

An evolving narrative is apparent in the history of medicine, moving from Hippocratic medicine, which was formed in close relationship to culture and philosophy, to the abstract determinism of contemporary scientific medicine. If we consider that this is not solely a condition of medicine *per se*, but a modus operandi systemic to the human condition, medicine may be used as a metaphor to facilitate an engagement with our built form. The relationship between architecture and medicine is a topic with both contemporary resonance and deep historical roots; architects, theorists, and critics have turned to the body and body metaphors for inspiration or justification, a topic as vast as the worldwide history of architecture. Anthropomorphism has been inscribed in architecture since Vitruvius, read and rewritten in the Renaissance and through the modern movement, and medicine has contributed greatly to the body metaphors which reflect our changing perception of the world. In classical Greece, philosophy and medicine, in pursuit of an understanding of the human condition, were intimately connected. The dominant conception of man held by Hippocrates and others was that the body was to be in harmonious balance with nature, and, in turn, with itself. In this study, Hippocratic medicine and its philosophy is used to generate, through analogy, an architectural strategy for the revitalization of a neighbourhood; an attempted alternative to the reductive zoning and planning processes currently implemented to rejuvenate flagging areas. The exploration starts from a primary form of engagement, when men and women participated in the world with their bodies, intellect, and spirit. The philosophies of *physis*, prognosis and the principles of balance and harmony, derived from an understanding of Greek medicine were employed to facilitate the structuring of a dialectic process which generated design strategies for the renewal of the historic neighbourhood of Mechanicsville in Ottawa, Canada.

And the lonely voice of youth cries
'What is truth?'

- J. CASH

To Paul for the constant help up

And to my family – for better or worse – a constant

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Introduction –

An evolving narrative is apparent in the history of medicine, moving from Hippocratic medicine, which was formed in close relationship to culture and philosophy, to the abstract determinism of contemporary scientific medicine.[1] If we consider that this is not solely a condition of medicine *per se*, but a modus operandi systemic to the human condition, medicine may be used as a metaphor to facilitate the engagement of our built form. Medicine is an exquisitely sensitive indicator of the dominant cultural characteristics of any era, for man's behaviour before the threats and realities of illness is necessarily rooted in the conception that he or she has constructed of themselves and their universe. Every culture it seems has developed a system of medicine which bears an indissoluble and reciprocal relationship to the prevailing views of the body and the world. Never have medicine and culture been so mutually in need of converse. The disquietude of contemporary man has its foundation in both. It derives, on the one hand, from the dissolution of the Modernist utopic vision, the notion of revolutionary dogmas and overarching

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[1] We shall take the view of culture expressed by José Ortega y Gasset as "the system of vital ideas which each age possesses; better yet it is the system of ideas by which each age lives." See José Ortega y Gasset, *Mission of the University* (Princeton: Princeton University Press, 1944), 60.

ideologies have all but vanished, leaving in their wake an ideological vacuum filled by the many trajectories of globalization, and, on the other hand, from the inadequacy of current medical thought to encompass man's social dimensions within its rapidly changing scientific framework. The discovery of the double-helical structure by James Watson and Francis Crick in 1953 advanced and redefined our understanding of the biological structure, but this dramatic transformation of biology is also now represented by a trajectory of codification and informatics. The shift within medicine and biological research to a mediated relationship of genetic algorithms, computationally generated complexities, information management and virtual ecology has amplified the power of instrumental reason in transforming the substance of physical reality into the domain of informatic worlds and moved man further away from a sense of balance with the world around him.

Philosophy and medicine have perhaps never been so intimately in contact as in the era of classical Greece. Out of this relationship came the beginnings of a medical system which went far beyond earlier empiricism and provided the requisite base for the evolution of scientific medicine. The dominant conception of man held by the Hippocratic philosophers was that man was to be in harmonious balance with nature, and in turn with themselves. A

relationship created between medicine and philosophy, approaching the happy confluence of the two disciplines which contributed to the greatness of Hippocratic medicine, will allow for an understanding of illness holistically, integrating knowledge from all conceivable sources and adjusting diagnosis and treatment to the multiple needs of the ill person. Modern scientific and medical knowledge is of things, formulae and data rather than of persons.

My interest in medicine and architecture is based on a conviction that the relationship between architecture and medicine is a topic with both contemporary resonance and deep historical roots. Architects, theorists, and critics have, throughout history, turned to the body and body metaphors for inspiration or justification. The idea of the relationship of the body and architecture is an analogy that had been with us in one form or another forever. The idea of the body, however, has not remained fixed nor has the idea of architecture, but the idea of a *relationship* between the two, body and architecture, does remain. There is a need for the continued rediscovery of this metaphor or we risk it becoming barren.

This thesis is driven by a desire to seek architectural alternatives to simplistic reductionist urban models for the revitalization of neighbourhoods based on narrowly defined concepts of aesthetics, technology, or sociology. It seeks a

strategy of architecture which is impervious to a deductive process leading linearly from A to C and resists a universal approach which would be seen as an applied 'cure' to all 'diseased' urban conditions. The exploration starts from a primary form of engagement, when human beings participated in the world with body, intellect, and spirit.

The real issue at stake here is not a naïve dream of a 'natural' architecture, or an alleged shift from defined building-bodies to complex functional networks. It is rather a choice between the proliferation of a closed, immanent and self-referential architecture on the one hand, and an architecture that attempts to participate in a larger setting, on the other. The crux of creating architecture which would be a catalyst for neighbourhood revitalization is that the exploration cannot be solely construed as a single work of architecture – a part – nor can it be analyzed as a prescriptive planning exercise – an attempt at a whole – but rather must be understood as looking at the dialogue between these parts and whole. The use of the philosophies of *physis*, prognosis and the principle of balance and harmony, derived from an understanding of Greek medicine, allow for an alternative architectural approach for responding to an urban condition and a strategy for neighbourhood revitalization. Greek medicine is used analogously to facilitate

the structuring of the dialectic process to generate design strategies for the renewal of the historic neighbourhood of Mechanicsville in Ottawa, Canada.

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Greek Medicine –

But the other doctor,... carries his inquiries far back, and goes into the nature of the disorder; he enters into discourse with patient and with his friends, and is at once getting information from the sick man, and also instructing him as far as he is able, and he will not prescribe for him until he has first convinced him; at last, when he has brought the patient more and more under his persuasive influences and sets him on the road to health, he attempts to effect a cure.

— PLATO, Laws.[2]

The Greeks of the Classical period made a unique contribution to the development of Western civilization in philosophy, in politics, in art, and in literature of many different types. Surprisingly perhaps, the contributions of the Greeks in the field of medical science are often dismissed or seen as of merely historical interest; our own scientific discoveries having greatly surpassed them. Before the time of the Greeks, both Babylon and Egypt relied on occultism, astronomy, and mythology for medical knowledge. Sudden illness was

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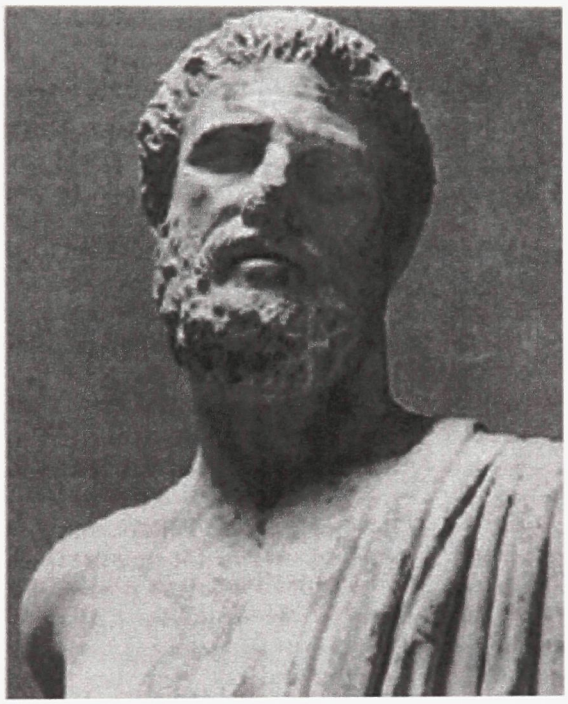
[2] Plato. *Laws.* IV, 720 d-e. Trans. B. Jowett, (London: Oxford University Press, 1952), 685.

considered the work of the gods and the remedy thus lay in placating the god; early medicine remained in the hands of the soothsayers, priests of the gods, and the medicine-men who knew the right ritual incantations.[3] The Greeks, however, broke this connection and applied reason to human life and in turn illness. They evolved rational systems of medicine for the most part free from religious or mythical elements, a replacement of transcendental explanations and posited instead a belief in natural causation for illness and health. This emancipation of medicine, –credited to Hippocrates[4] – using observation of the body as the basis for medical knowledge, was the outcome of precisely the same



1: Hippocrates

[3] G.M.A. Grube, "Greek Medicine and the Greek Genius," *Phoenix* 8, No.4 (1954): 124.

[4] Hippocrates is often referred to as the 'Father of Medicine", however, prior to historical times, there were in existence school of Medicine at Croton in Italy, Cyrene in North Africa and Cnidos on the coast of Asia Minor where a more or less technical language had be created. Still it is understood that Hippocrates was the first physician whom we know to have reflected with any intellectual power upon medical art. See R.O. Moon, *Hippocrates and His Successors in Relation to the Philosophy of their Time* (New York NY: AMS Press, 1923) 4-10.

attitude of mind which contemporary philosophers of this time were to apply to the world around them, a concept of symmetry that sees the world in the state of equilibrium due to the continuous processes of integration and disintegration. At this time, the area of human freedom was enlarged and men applied their reason to the order of the universe, the worth of the individual, mathematical-scientific formulae[5], and the riddle of physical reality. The extremes of specialisation and minute differentiation of knowledge into compartments which the modern world is all too compelled to continue, did not exist in the time of Greek antiquity, when art and religion, philosophy and medicine, acted and reacted upon one another and were intermingled.[6]

Physis —

Greek philosophy emphasized the microcosm/macrocosm relationship; the correlations between the human body and the harmonies of nature. There was a great variety of concepts developed along the borders between Greek philosophy and

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[5] "It was the Pythagorean doctor Alcmaeon who first applied to medicine the notion of mathematical limitation within a unlimited continuum of opposite qualities, in his conception of physical health as a balance of physical elements, so that disease was an unbalance of the same elements." Grube,125

[6] R.O. Moon, *Hippocrates and His Successors in Relation to the Philosophy of their Time* (New York NY: AMS Press, 1923) 4.

medicine, the one of fundamental importance being *Physis* (φύσις). The definition of *physis* is most often translated into *natura,* the antecedent of our words *nature* and *natal.* However, lost in translation was an entire way of thinking about nature. In the beginning, *physis* was conceived of as organic unity, as vitality, as the self generation of all that is, as life.[7] In rejecting the ideas of gods and daemons and their capricious influence over nature, the Greeks chose to believe that there was one fundamental principle behind all phenomena. There is unity behind the multiplicity of phenomena and that unity is nature, and nature acts according to causal necessity.[8] The Greek physicians observed, as do some clinicians, and as contemporary medicine sometimes fails to do, that the living organism under natural conditions acts primarily as a whole, and that the actions of its parts are naturally subordinated to this function.[9] The insistence, with regards to Hippocratic medicine, that all diseases were due to natural causes is shown in a treatise on epilepsy, then generally thought to be cause by sudden possession by a god;

> I am about to discuss the disease called 'sacred'. It is not, in my opinion, any more divine or more sacred than other

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[7] M. T. McClure, "The Greek Conception of Nature," *The Philosophical Review* 43, No. 2 (1934): 109-124.

[8] Walter Pagel, "Prognosis and Diagnosis: a Comparison of Ancient and Modern Medicine," *Journal of the Warburg Institute* 2 No. 4 (1939): 382.

[9] Arthur John Brock, *Greek Medicine: being extracts illustrative of medical writers from Hippocrates to Galen* (New York, NY: Dutton, 1929), 3.

> diseases, but has a natural cause, and its supposed divine origin is due to men's inexperience, and to their wonder at its peculiar character.... But if it is to considered divine just because it is wonderful, there will be not one sacred disease but many, for I will show that other disease are no less wonderful and portentous, and yet nobody considers them sacred[10].

In opposition to popular opinion, the writer maintains that these seizures are not due to possession by a god but to a natural cause. He insists upon the uniformity of nature, and protests against the unscientific dualism which characterizes some phenomena as natural and others as divine. All phenomena, he says, are both natural and divine. The author tries to give a natural explanation of the disease which he believes to be due to an overflow of mucus from the brain into the arterial channels that supply the brain with air. Accordingly, the therapy consists in the regulation of diet in order to add and to diminish something from the organism at the right time.[11]

Physis in the medical sense is understood as a 'normal' process in contrast with a pathological one, or even a fixed type of disease. The concept of 'normal', however, is not the modern understanding of a comparison with the average. It is the expression of what is appropriate to an individual's constitution, their temperament – an aggregate of qualities joined fatefully to a

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[10] Hippocrates, "The Sacred Disease," *Hippocrates Vol. II,* Trans. W.H.S. Jones (Cambridge MA: Harvard University Press, 1923), 139.
[11] Hippocrates, "The Sacred Disease," 183.

particular individual, regimen, and habits of body and mind are different from the constitution of other persons – and not a fashionable standard. The same disease must not be treated in the same way in every case. An example can be given as follows from Walter Pagel:

> The Geek physician tires to find out the dominating elements in the patient's organism, such as the "moistest fire" or the "densest water." And hence deduces his patient's nature (physis), e.g., a moist and warm complexion. He knows that such persons are most liable to illness in spring and least liable to it in autumn, because in spring there is excess of moisture, but in autumn a moderate amount of dryness. Such persons, especially when young, are subject to catarrhs and their regimen should consist of such things as are dry and cool. The Greek physician is therefore mainly concerned with the … causes of disease represented by the "Physis" which the patient shows in his normal life.[12]

Hippocratic medicine is based on the notion that it is the nature of the organism, its *physis*, to seek perpetually, to establish and maintain the state of balance which is health, and to re-establish this balance in illness by adding or subtracting the offending or excessive matter.[13]

With Greek medicine the healthy body was seen to be in tune via humoral theories of balance and the regulation of lifestyle. From Hippocrates in the fifth century BCE to Galen in the second century CE, humoral medicine stressed the:

> analogies between the four elements of external nature (fire, water, air and earth) and the four humours of bodily fluids (blood, phlegm, yellow bile, and black bile) whose balance determined health. The humors found expression in the

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[12] Walter Pagel, 395.

[13] G.M.A. Grube, "Greek Medicine and the Greek Genius," *Phoenix* 8, No.4 (1954): 130.

> temperaments and complexions that marked an individual. The task of regimen was to maintain a balanced constitution, and the role of medicine was to restore balance when disturbed.[14]

The influence of philosophy and precedent may have contributed to the development of the humoral theories found in several texts of the Hippocratic Corpus. Philosophical speculations about nature were enmeshed in dialogue with medical beliefs about sickness and health. The Ionian philosophers of the sixth century BCE widely agreed that the nature of the universe was made up of four primary elements, each with a specific characteristic or quality: fire, earth, water, and air. Different philosophers assigned primacy to one or another, or to all. The geometer Pythagoras[15] added to the elements a complex "law of numbers" – the key lay in number and harmony and the dynamic balance of contraries, based on the opposition of odd and even. Alcmaeon of Croton[16], a younger contemporary of Pythagoras, taught the necessity for a physiological balance or harmony of the elements, (hot – cold, and moist – dry) and disease came into existence when one of these four attained ascendancy or "monarchia" in the body, while health was a condition of equality or "isonomia."[17] For Hippocratic medicine the essential life-

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[14] Roy Porter, *The Greatest Benefit to Mankind: a medical history of humanity* (New York, NY: W.W Norton & Company Inc., 1997), 9.
[15] *c.* 580-500 BCE
[16] Mid fifth century BCE
[17] R.O. Moon, *Hippocrates and His Successors in Relation to the Philosophy of their Time* (New York NY: AMS Press, 1923) 14.

process was the interplay between the individual *physis* and the environment. The process through which the *physis* carries on its functions was the four humors. Certain people had a natural tendency to excess of one or other of the humors; hence the different 'temperaments' – sanguineous, phlegmatic, bilious, and melancholic – which predisposed disease of their particular type.

Health, for Hippocratic medicine, is synonymous with balance, whether of the fluids of the body, of material taken into the body or human activities. Disease, on the other hand, was synonymous with a disturbance of that balance, with a disproportion of the parts. It is understood as a natural or physiological process, differing only quantitatively from the normal functions. The individual must be treated as a whole and the physician must regard their general surroundings including climate, their eating habits, their constitution, their tendencies and their temperament –which gives them a predisposition to certain diseases. Plato, Hippocrates contemporary, refers to this Hippocratic doctrine and method of knowing the nature of the body as a whole, in the dialogue the *Phaedrus.* Socrates is seeking to define the true art of rhetoric and questions Phaedrus about the method to be followed in order to understand the "science of the soul". Socrates claims that the procedure of medicine and that of rhetoric are identical, in both arts its

necessary to give a diaeresis of the object concerned. He then asks:

> *Socrates:* Do you think that you can know the nature of the soul intelligently without knowing the nature of the whole?
> *Phaedrus:* Hippocrates the Asclepiad says that the nature even of the body can only be understood as a whole.[18]

Socrates goes on to explain what kind of investigation Hippocrates and right reason demand concerning nature. They demand, he says, for the understanding of every nature two things: first an investigation as to whether the object is simple or multiform, and then a division of the object into parts together with a determination of the relation of the parts to each other and the factors influencing them. The nature of the whole must be the comprehension of the parts into one idea.[19] Where upon the nature of the "whole" can be understood as knowledge of the body in the totality of its constitutive elements or of its types of constitution.[20] However, the interpretation of this passage is a matter of dispute.[21] There are varying opinions on the meaning and built-in ambiguity of the "whole" and many take it to be understood as the nature of the whole universe and that

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[18] Plato, *Phaedrus* (270 c-d) Trans. Benjamin Jowett, (Champaign Ill: Project Gutenberg; Boulder Col: NetLibrary), 53.
[19] Ludwig Edelstein, *Ancient Medicine,* (Baltimore MD: The John Hopkins Press, 1967), 117.
[20] Jacques Jouanna, *Hippocrates.* Trans. Malcolm B. DeBevoise (Baltimore MD: The John Hopkins University Press, 1999), 58-59.
[21] A review of recent scholarly work on the subject was given by Harold Cherniss,"Plato, 1950-1957," *Lustrum* 4 (1959), 139-141. Cherniss inclines to the view that the "whole" cannot mean the universe.

Hippocrates thought that the understanding of the body presupposed an understanding of surrounding nature. However, if we surmise that the Hippocratic method referred to by Plato could be the method described in *Regimen,* the understanding of "whole" is in regards to nature of the body:

> I contend that whoever is going to write properly about regimen for men must first know and distinguish the nature of man as a whole. He must know from what things man is composed from the beginning, and must distinguish the parts by which he is controlled. For if one does not know the original composition he cannot know what results from those things. And if he does not know what is to control the body, he cannot know how to administer what will benefit a man. These things the writer on regimen must know, and next what power each food and drink in our regimen has by nature or by human constraint and technê.[22]

Hippocrates says that one must know the nature of man as a whole and must know the parts that control him and the force of all aspects of the environment that affect man, recognizing all the while that nature is in the main striving toward the recovery and balance of health.

Though he is not free from wide generalizations, Hippocrates does try to relate the causes of disease to observed facts and to avoid *a priori* statements and preconceived notions and doctrines. It is essential in prescribing a diet for the physician to again take all circumstances into account: the health, age, and habits of the patient. There are also several works in the

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[22] Hippocrates, *Regimen I* ch. 2. Trans. Wesley D. Smith , *The Hippocratic Tradition* (New York, NY: Cornell University Press, 1979), 47.

Hippocratic corpus on the influence of climate on health and on the incidence of certain diseases; the treatise *Air, Water, Places* discusses this exclusively and traces the influence of climate and environment upon the health, character and physique of individuals. The distinguishing of particular constitutions of individuals and the attention given specific treatments are the essence of Hippocratic medicine.

2: Hippocrates, From a Greek Manuscript 1342.

We can see a change in the conception of *physis* in Greek medicine. It first means something common to all things, the fundamental principle behind phenomena. At a later date the word denotes the constitution particular to the individual distinguishing him from other individuals.[23] *Physis* in the medical sense is the mode of reaction distinguishing the individual from others and governing the course of illness. Hippocratic medicine was based on an understanding of the nature of the patient, their mode of response, their *physis*. The significance of Hippocratic medicine is not its accuracy in identifying illnesses, but rather in the ability of the physician to

[23] Walter Pagel, "Prognosis and Diagnosis: a Comparison of Ancient and Modern Medicine," *Journal of the Warburg Institute* 2 No. 4 (1939): 385.

adapt their opinion on the course of the disease and its cure to the *physis* of the patient.[24]

Prognosis –

We can name the disciplines and their methods which make modern medicine scientific, but can the same be said for antiquity? According to Emile Littré[25], the practice of prognosis was descriptive science and therefore the scientific achievement of Hippocratic medicine. Littré further explains that Hippocrates researched the common elements of diseases observable through external symptoms and concentrated on prognosis; prognosis distinguishes the science from pure empiricism and blind practical treatment.[26] Prognosis is essential to the understanding and treatment of the individual patient, ensuring that whatever is prescribed will be appropriate for that patient and their condition. It is more than just predicting how a disease is likely to progress and whether the outcome is going to be favourable. It provides a way of controlling disease, of modifying, if necessary, treatment in accordance with a predicted pattern, and of focusing on what each individual patient requires. Prognosis had reference not

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[24] Walter Pagel, 387.

[25] Paul Maximilien Emile Littré (1801-1881), a physician philologist, did his monumental translation and interpretation of Hippocrates between 1839 and 1861, at the last time when Hippocrates was very relevant to current medicine. See Wesley D. Smith, *The Hippocratic Tradition* (New York, NY: Cornell University Press, 1979), 31-44.

[26] Wesley D. Smith, *The Hippocratic Tradition,*33.

only to the future of the patient, as is the modern definition, but also to their past and present condition. R. O. Moon defines each for us:

> (A) As to the Past it gives the means of supplying what the Patient does not know or cannot say, furnishing information upon the accidents to which he has been submitted, the causes which have acted upon him, and the nature of the affection for which he demands assistance.... (B) As to the Present, it explains the difference existing between the state of health and disease, showing by degree which this difference has reached the danger which the Patient runs, the chances for safety which remains for him and the intensity of the evil which is overwhelming him. (C) As to the Future, it shows signs which announce the unrippness of the Coction of the Humours, the approach of Crises, the days when they ought to burst forth, the issues which they will take and the parts where the critical deposits will be made.[27]

The underlying idea of this doctrine is that the disease has its own course, development and termination, independent of the organ it may affect. It is more important to consider what diseases have in common than what is special to them. This tendency to direct exclusive attention to the general condition of the body regarded as a whole coincides with the synthetic character of the ancient sciences; thus Plato in *Charmides* says that it is not possible to cure a part of the body without attention to the whole. The physician's practical pursuit of prognostic signs impressed upon him the regularity of nature and led to an investigation of causal relationships. Hippocrates, in particular, assumed that man must be considered as under the influences of

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[27] R.O. Moon, *Hippocrates and His Successors in Relation to the Philosophy of their Time* (New York NY: AMS Press, 1923) 26.

surrounding nature, and elaborated this view as it applied to individual and mass disease.[28]

> The following were the circumstances attending the diseases, from which I framed my judgments, learning from common nature of all and the particular nature of the individual, from the disease, the patient, the regimen prescribed and the prescriber ...from the constitution, both as a whole and with respect to the parts, of the weather and of each region; from the custom, mode of life, practices and ages of each patient; from talk, manner, silence, thoughts, sleep or absence of sleep, the nature and time of dreams, pluckings, scratching, tears;....[29]

It is the physical course of disease, its natural history and its symptoms, which the physician must know in order to make a prognosis. No symptom should be taken singly; the important thing is the combination of all relevant circumstances. There was little value in merely taking a transverse section through a disease-process and giving a name to the result.[30] The Hippocratic physician was less interested in distinguishing between diseases as such or identifying a specific cause than in observing the symptoms so as to discover the underlying inner changes within the individual body which constitute that person's disease. He was concerned with individual disposition, not individual cause. The differentiation occurs at the level of the patient, not the disease, for although man reacts in a general way to weather and diet, the skilled physician must separate the

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[28] Owsei Temkin, "Greek Medicine as Science and Craft," *Isis* 44, No. 3 (1953): 216.

[29] Hippocrates, "Epidemics I," *Hippocrates Vol. I,* Trans. W.H.S. Jones (Cambridge MA: Harvard University Press, 1923), 181.

[30] Arthur John Brock, *Greek Medicine: being extracts illustrative of medical writers from Hippocrates to Galen* (New York, NY: Dutton, 1929), 83.

general reaction from the individual reaction to see what is wrong with the patient. The different symptoms and series of symptoms developed in the individuals because of their varying individual constitutions.[31] An example occurs in *Epidemics I*, where during certain epidemics those who suffered were of a general constitution:

> And of the patient there died chiefly striplings, young people, people in their prime, the smooth, the fair skinned, the straight-haired, the black-haired, the black-eyed, those who had lived recklessly and carelessly, the thin-voiced, the rough-voiced, the lispers, the passionate.[32]

The individual's constitution and their morbid predisposition were indicators distinguishing individuals and the course an illness would take. In looking back the physician compares what the patient was like in health with what he or she is like in disease.[33] Prognosis rather than diagnosis is what differentiates Greek medicine in general from modern medicine which, since its foundation on the pathology of anatomical basis during the sixteenth and seventeenth centuries, has made diagnosis the basis of medicine.[34]

Once the doctor has established what is wrong with the patient, a decision has to be taken whether to treat or not. One of the distinctive features of Greek medicine is its insistence on

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[31] Walter Pagel, 387-88.
[32] Hippocrates, "Epidemics I," *Hippocrates Vol. I,* Trans. W.H.S. Jones (Cambridge MA: Harvard University Press, 1923), 175.
[33] Vivian Nutton, *Ancient Medicine* (New York, NY: Routledge, 2004), 92.
[34] Walter Pagel, 387.

dietetics as central to all therapeutics. As Celsus, a later Roman writer, framed it, it is not how we digest, but what is digestible that matters.[35] "Give the organism," said Hippocrates in effect, "healthy surroundings, food, and conditions of life, and it will as a rule quickly regain health of itself."[36] Prognosis is necessary in applying the prescription of the diet appropriate to the individual and at appropriate periods indicated by crucial signs. Health was synonymous with balance but the balance of health could necessarily never be permanently sustained and is subject to change because of the constant intake of nourishment, new activities, seasonal changes, and the influences of heat and cold. So in the book on *Epidemics* a kind of prognostication is used for the prescription of the appropriate diet according to known harmful influences. According to Hippocratic principles, treatment can only support nature and attempt to readjust the abnormal conditions to the balanced state suitable for the patient. The function of the physician was to assist nature by maintenance of a proper diet and regimen, suited to the case, and based on the individual symptoms, and the study of the patient's constitution.[37] The physician, knowing the limitations of their art – unforeseen factors, unknown causes, no determined laws to

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[35] Ralph H. Major, *A History of Medicine* (Springfield, Illinois: Charles C. Thomas, 1954), 151.
[36] Arthur John Brock, *Greek Medicine: being extracts illustrative of medical writers from Hippocrates to Galen* (New York, NY: Dutton, 1929), 12.
[37] Fred B. Lund, *Greek Medicine,* (New York, NY: AMS Press Inc., 1936), 17

nature – and the comparatively small range of medical interference, makes prognosis the field of their interest.[38]

Conclusion –

As we have seen, Greek medicine was an enlightened scientific art. Disease was an imbalance of the body, an imbalance that had to be remedied in order to restore efficient functioning, to preserve the harmony of form and function. In antiquity there were as many diseases as patients; disease, not diseases, was the central problem for the Greek physician. The emphasis, rather, lay on individual *physis* as the main medical principle on which the variation of the clinical symptoms depended. The Greek physician did not understand disease as a system of classifiable entities. As well a change in the conception of *physis* can be seen to have occurred in the development of Hippocratic medicine. First meaning something common to all things, the fundamental principle behind phenomena *physis* later, denotes the constitution particular to the individual, the mode of reaction, distinguishing that individual from other individuals.[39] *Physis* governed the course of illness and was the focus of Greek medical knowledge. In accordance,

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[38] Walter Pagel, 389.
[39] Walter Pagel, 389.

prognosis rather than diagnosis and the elaboration of pathological doctrines, was the focus of the Greek physician.

For Hippocratic medicine, the *physis* of the individual, the *physis* of the external condition, and the *physis* of climate and locality, were always carefully taken into account in the treatment of illness. The diseased body was at the centre of medical cosmology for the Greeks, never the specific disease. These particular qualities of Greek medicine are developed by analogy in Chapter 3 to generate a strategy to help renew a historic neighbourhood in Ottawa and to suggest a means of creating a healthier city.

2

The Analogy – Body and Architecture

If a living body or thing is ever absolutely at rest, we shall have a motionless thing in which motion is originated by the thing itself and not from without. If this can happen to a living thing, why not to the universe? And if in a smaller cosmos, why not with the larger cosmos.

— ARISTOTLE, Physics[40]

The human body, as a metaphorical and symbolic referent, has proved to be one of the most prolific tropes for the architectural imagination.[41] This complex and intimate relationship with the human body has had a profound impact on the architectural body. The continued rediscovery of the analogy between the body and architecture, recorded by history, makes clear the depth of the relationship and suggests an enduring resonance.

The following chapter presents three precedents – three expositions of exalted architects – that illustrate various attempts to use the body analogously to achieve an architecture that is balanced

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[40] Aristotle, *Physics,* 8.1:252b. Trans. Robin Waterfield, (New York NY: Oxford University Press, 1996).

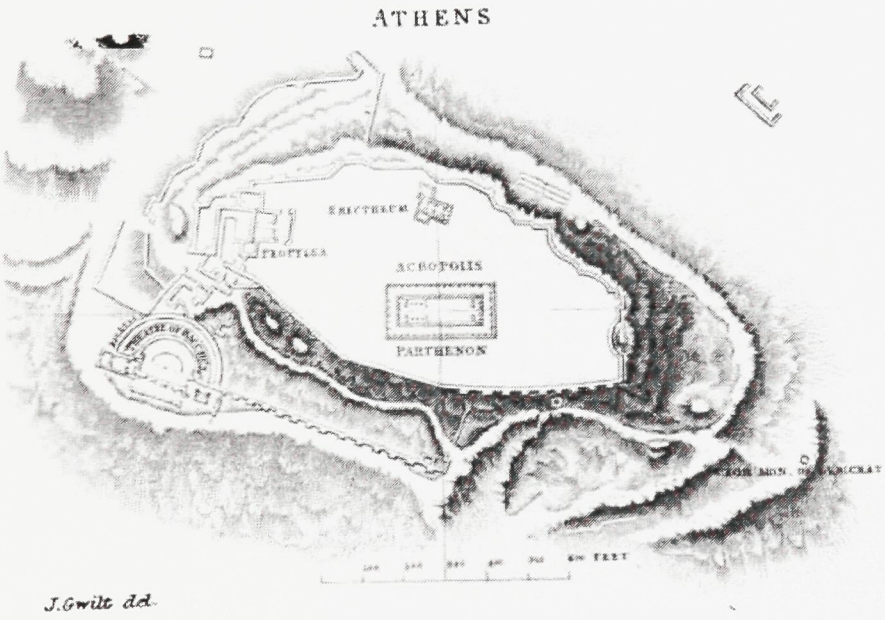
[41] Writing in the 1st century BCE, Vitruvius makes reference to Greek sources.

and unified between the whole and its variegated parts. For some the body is seen as idealised, for others multiple, and for others still, a subject of physical engagement. Vitruvius provides a sketch of man's body as a metaphor for ancient function of building and as the foundation of the ideal city. Michelangelo demonstrates a break with the Vitruvian paradigm – a paradigm which had become sedentary, occupied with the fixity of measure and proportion during the Renaissance. He reinterpreted the metaphor of the body and building with regards to attaining a balance between movement and life. The third illustration draws on the insights of David Leatherbarrow and his analysis of the relationships between interior and exterior in the work of Frank Lloyd Wright, Adolf Loos, Josef Frank and Rudolph Schindler. The notion of unity investigated by the three precedents demonstrates a balance in the relationship between the parts and the whole. This, in turn, through an analogical application of Greek medicine, is used to prognosticate on the building of healthy cities.

Vitruvius —

The relation of the body to architecture and the complex nature of corporeality has always held a privileged position within architectural culture. This tradition is most notably traced from Marcus Vitruvius Pollio, who compares the human body directly to

the body of building and extends claims for the analogy beyond the need to explain the meaning of proportion, symmetry and harmony in architecture. The provocative subject is exalted in Vitruvius' architectural treatise, *De Architectura*, dedicated to the first emperor of Rome, Caesar Augustus, composed near the end of the first century B.C.E. The only major work on architecture to survive from classical antiquity, Vitruvius, in witnessing the extensive public building program of Augustus and discerning the value of architecture for the political authority, wrote the *body of architecture*[42] in a treatise to identify the essential qualities of existing and ideal architecture to be disseminated as principles for Roman architecture.[43]



1: Plan of Athens, J. Gwilt

The contents of *De Architectura*, organised in ten books, addresses the discipline of architecture which combines information on the design

[42] See Indra Kagis McEwen, *Vitruvius: Writing the Body of Architecture* (Cambridge, MA: The MIT Press, 2003). McEwan argues that the imperial project of world domination shaped Vitruvius' purpose in writing what he calls "the whole body of architecture".

[43] Vitruvius, *De Architectura* 1. pref. 2. Trans. F. Granger, (Cambridge MA: Harvard University Press, 1956), 3.

of machines and dials along with descriptions of building techniques, in which he sought to complement practical knowledge of the construction of buildings with theoretical principles to be used in their design. Architecture, for Vitruvius, is considered an art of great complexity which requires the synthetic and balanced mastery of a range of theoretical and practical knowledge.[44] The treatise draws on the rich Hellenistic and Italic culture of philosophy, ritual and science conveying theoretical principles and complements them with practical knowledge of the construction of buildings, to elaborate an architecture which is capable of representing and interpreting the natural world. *De Architectura* presents a human-made environment that was in accord with Roman culture's view of itself and its relationship to the world of nature.

Vitruvius states that public architecture, as an extension of the truth of nature, must demonstrate six fundamental qualities; *ordinatio, dispositio, eurythmia, symmetria, decor,* and *distributio.* The fourth of these six qualities, *symmetria*, translates as 'symmetry,' but is quite different from our modern term understood as an exact correspondence of form and constituent configuration on opposite sides of a central axis. Vitruvius' meaning is much more complex in its application for architecture. He argues

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[44] "Introduction", *Vitruvius: Ten Books on Architecture.* Trans. Ingrid D. Rowland (Cambridge, UK: Cambridge University Press, 1999), 13.

symmetria is achieved through developing the correspondence of each part to the composition of the whole, achieving a quality of balance. Using an analogy of the body he explains that a properly completed building demonstrating *symmetria* is to be harmonious in its relationship of part to whole like the natural relationship of balance shown between the parts and whole of the human body.

> Symmetry also is the appropriate harmony arising out of the details of the work itself; the correspondence of each given detail among the separate details to the form of the design as a whole. As in the human body, from cubit, foot, palm, inch and other small parts comes the symmetric quality of eurhythmy; so is it in the completed building.[45]

Book 3 of *De Architectura* expands the discussion of *symmetria* and references the intimate relationship established by the Greeks between the body and architecture. Vitruvius states that the planning of temples – where man is faced with the gods through the immediate confrontation with the built environment – depends upon symmetry which is derived from proportion (*analogia*). With the principles of proportion, the corresponding measure of different things, and symmetry, the appropriate balanced relationship of part to whole, temple architecture will express Nature and tradition. He states that it is of the utmost importance that those parts of humans that are in natural harmony with the divine cosmic order are used as a constructive principle of the temples: that is the body.

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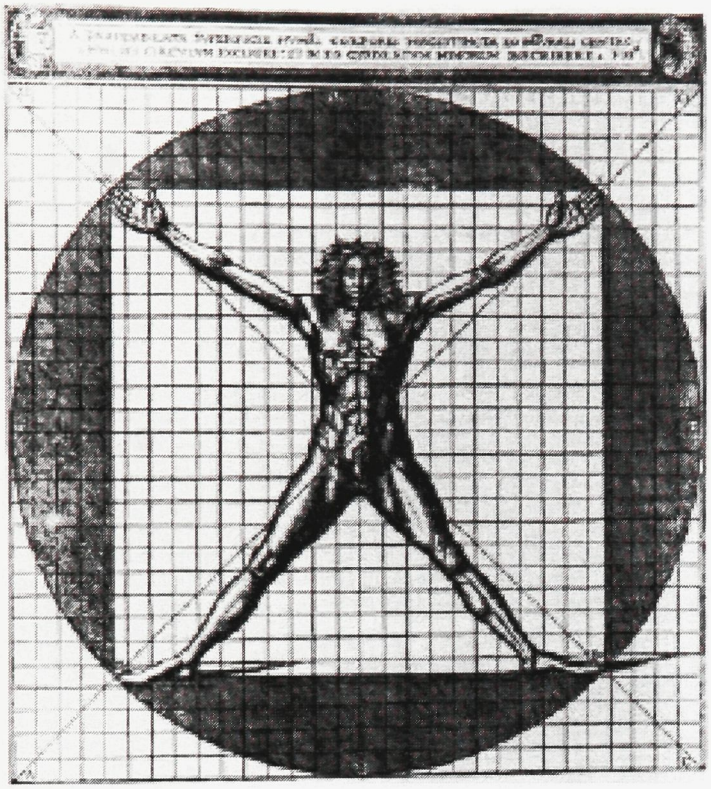
[45] Vitruvius, *De Architectura.* 1.2.4. Trans. F. Granger, (Cambridge MA: Harvard University Press, 1956), 27.

> For without symmetry and proportion no temple can have a regular plan; that is, it must have an exact proportion worked out after the fashion of the members of a finely-shaped human body.[46]



2: Woodcut from Cesare Cesariano's edition of Vitruvius' *Ten Books,* Como, 1521.

Vitruvius uses the members of a finely-shaped human body as the example of modular creation provided by the cosmic order and demonstrated by Nature. The arrangement of the parts of a well-formed human body afford the means of understanding the balanced whole. He also sees this proper order demonstrated by the grace of the ancient Greek temples in which he finds similar proportions translated into geometrical and numerical relationships. Vitruvius writes:

> Therefore if Nature has planned the human body so that the members correspond in their proportions to its complete configuration, the ancients seem to have has reason in determining that in the execution of their works they should observe an exact adjustment of the several members to the general pattern of the plan.[47]

Citing Greek sources, Vitruvius located evidence of a universal order in Nature's well-formed human body.

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[46] Vitruvius, *De Architectura.* 3.1.1., 159.
[47] Vitruvius, *De Architectura.* 3.1.4., 161.

The use of the body in *De Architectura* is metaphysical. Vitruvius concentrates on the human body only to the extent that it corresponds analogically to natural order, through the proportions of the body based on ideal numbers, and not through any other material or mental aspect;[48] a microcosm mirroring the macrocosmic proportions. The body in Vitruvius is not itself part of the ideal cosmic order as a body, but its proportions refer to it; it is signified rather than expressed. Analogy must be used to make the relation. Dalibor Vesely explains in *The Architectonics of Embodiment*, that the "tendency to reduce the continuum of transcendental relationships to purely corporeal analogies undermines not only the relevance of microcosmic speculations but also the relevance of analogy itself."[49] The symbolic nature of analogy allows the articulation of the relationship between the intelligible order of reality and its visible corporeal manifestations; one which is related and mediated. Analogy "… depends on resemblances, similarities, and eventually a balanced tension of sameness and difference when related to various phenomena."[50] Proportion was first understood analogically and then it became a relationship that could be represented numerically. This system of

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[48] Svend Eril Larsen, "Self-Reference: Theory and Didactics between Language and Literature," *Journal of Aesthetic Education,* Vol. 39, No. 1 (2005): 26.

[49] Dalibor Vesely, "The Architectonics of Embodiment," in *Body and Building,* ed. George Dodds and Robert Tavernor (Cambridge MA: The MIT Press, 2002), 36.

[50] Dalibor Vesely, *Body and Building,* 37.

proportions, which Vitruvius discusses, has its origins in the Pythagorean-Platonic traditions, in which number was known as *arithmos.*[51] Besides its common meaning of the counting-off of some number of things,[52] *arithmos* is also understood as a paradigm of unity in multiplicity.[53] Aristotle illustrates this idea in speaking of the equality of number:

> It is also quite rightly said that the number of sheep and dogs is the same if each is equal to the other, but the 'decad' is not the same [in these cases], nor are the ten [sheep and dogs] the same [ten things], just as the equilateral and the scalene triangle are not the same triangles, although their figure is indeed the same, since both are 'triangles' ... for they are indeed different triangles, though they do not differ in figure but [in this respect] they belong to one and the same division...[54]

A multitude, a number of objects, can be grasped as one number, the many can be 'one.'[55] The metaphorical nature of analogy suggests that underlying proportion there is always present a deeper level of articulation, coextensive with the articulation of the world as a whole. It is against this backdrop that the meaning of the balanced relationship between the parts of the body and building in *De Architectura* may be understood.

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[51] Dalibor Vesely, *Body and Building,* 37.
[52] Jacob Klein, *Greek Mathematical Thought and the Origin of Algebra,* trans. Eva Brann (New York: Dover Publications Inc., 1992), 46.
[53] Dalibor Vesely, *Body and Building,* 37.
[54] Jacob Klein, *Greek Mathematical Thought and the Origin of Algebra,47-48.*
[55] Jacob Klein, *Greek Mathematical Thought and the Origin of Algebra, 49.*

Michelangelo –

Michelangelo di Lodovico Buonarroti Simoni's monumental sculpture and painting oeuvre altered the course of Western art.[56] But the artist also created an important architectural legacy, one which was so boldly advanced in concept it was not fully understood for nearly a century after his death. Much of what he designed was never built, and today very little of what was constructed remains untouched and wholly representative of his original designs. Yet it is understood that through his endeavors and keen interest in the body he freed architecture from its emulation of Classical antiquity and transformed it into a dynamic art form.[57]

The interpretation of the human body as it relates to our capacity for artifice is a primordial understanding. Articulated theoretically in Vitruvius' *De Architectura* as a correspondence of measure, geometry and proportion, between the body and architecture, this understanding reappeared as a major dimension of Renaissance design and theory. Michelangelo considered a mastery of the body and anatomy to be the essential 'theory'

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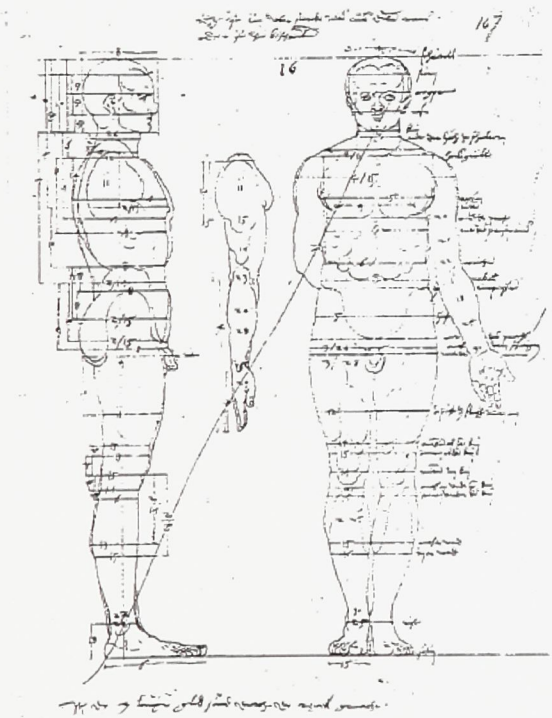
[56] March 6, 1475 – February 18, 1564.

[57] Carlo Giulio Argan and Bruno Contardi, *Michelangelo Architect* (New York, NY: Harry N. Abrams Inc., 1993), i.

articulating the practice of architecture.[58] For him, the reality of the moving human figure embodied the notion of life as animation. Captured in a fragment of a letter of unknown date and destination is perhaps a glimpse of this architectural theory, one of a very few direct statements upon art theory directly by Michelangelo:

> Reverend Sir: When a plan has diverse parts, all those [parts] that are of one kind of quality and quantity must be adorned in the same way, and in the same style, and likewise the portions that correspond. But where the plan is entirely changed in form, it is not only permissible but necessary in consequence entirely to change the adornments and likewise their corresponding portions; the means are unrestricted at will; similarly the nose, which is in the centre of the face, has no commitments either to one or the other eye, but one hand is really obliged to be like the other and one eye like the other in relation to the sides, and to its correspondences. And surely, the architectural members derive [dispendono] from human



3: Albrecht Durer. Extra strong man of eight head- lengths constructed.

4: Michelangelo. Studies from the Crucifixion of Haman

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[58] James S. Ackerman, *The Architecture of Michelangelo* (New York, NY: The Viking Press Inc., 1961), 1.

> members. Whoever has not been or is not a good master of the figure and likewise of anatomy cannot understand [anything] of it…[59]

In Michelangelo's oeuvre, we are confronted with the human body as a universal theme that is never fixed but rather always passing through various forms and the works themselves do not reflect a direct attention to the predominant theoretical concerns of the time of numerical proportion, geometry, and perspective. It is anatomy which becomes the basic discipline for the architecture of Michelangelo; the parts of the building are compared, not to the ideal overall proportions of the human body but to its functions.[60] In his work there is an endless display of the human body in movement – figures in which extreme physical movement is seen in conjunction with the movement of the emotions in the form of gestures. These gestures are understood as fundamentally singular, rarely repeated in the exact way, and therefore evade the grasp of an objective representation of the body.[61] In contrast to the anatomized static body used in the Renaissance to derive discrete units from the whole, Michelangelo's demand for an architecture based on anatomy was motivated by a desire to restore the indivisibility of the human form, a unity and balance to be found in the internal

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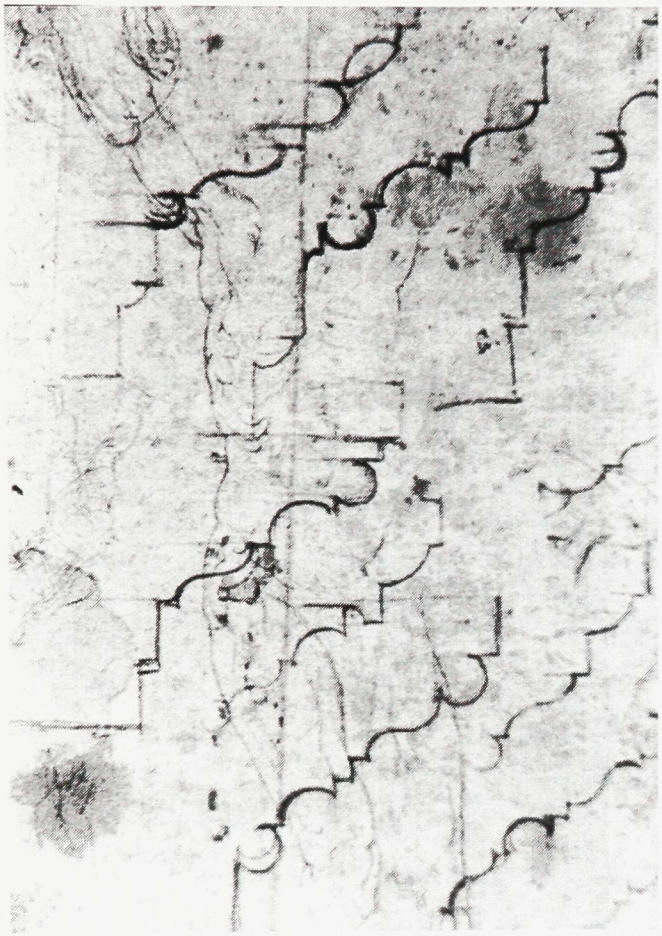
[59] James S. Ackerman, *The Architecture of Michelangelo,* 1.
[60] James S. Ackerman, *The Architecture of Michelangelo,* 2.
[61] Helmut Klassen, "Michelangelo: The Image of the Human Body, Artifice, and Architecture", *Chora Vol. 1* ed. Alberto Perez-Gomez and Stephen Parcell (Montreal, QC: McGill-Queen's University Press, 1994), 61.

functions of the body rather than in external appearances.[62] The mathematical and proportional description of the human body during the Renaissance was elaborated in association with anatomy, in which order was understood to be found in a lifeless body. Stiffness and immobility is Michelangelo's criticism of Albrecht Dürer's *Four Books on Human Proportions* (1528). Seen in this perspective, Michelangelo's approach to architecture appears as a radical departure from Renaissance tradition. His association of architecture to the human form was no longer an abstraction whose primary aim was to achieve ideal mathematical harmonies. "By thinking of buildings as organisms," James Ackerman explains, "[Michelangelo] changed the concept of architectural design from the static one produced by a system of predetermined proportions to a dynamic one in which members would be integrated by the suggestion of muscular power."[63]



5: Michelangelo. Ten Profiles of Cornices

Michelangelo's profound sense of artifice, articulated in not only his sculpture and painting but his architecture as well, may be found in his specific sense of *disegno. Disegno*, closely tied to

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[62] James S. Ackerman, *The Architecture of Michelangelo,* 3.
[63] James S. Ackerman, *The Architecture of Michelangelo,* 5.

the imagination, "is superior to sense in that, with no external stimulus, it yet produces images, not only present, but also past and future, and such as cannot be brought to light by nature."[64] Moreover, "it can form, and reform, combine together and separate; it can blend together the most distant objects or keep apart the most intimately connected objects."[65] *Disegno* is a creative process, inventive and transforming, rather than the imitation of visible nature. It "is the imagining power that guides the action of craft – not the prescription of technique towards end results but the initiating movement as the beginning, or intention."[66] For Michelangelo, the power of *disegno* was elaborated through a drawing of the human body. His understanding of the body and the nature of his research are framed by the circumstances of the work – that is, as the body appeared in painting, sculpture and architecture. The figures in his work, conform primarily to what can be visibly understood – the imagined reality of the work created by *disegno* that is balanced to the reality of the observed world.[67] Michelangelo's figures are not drawings from life but are defined as

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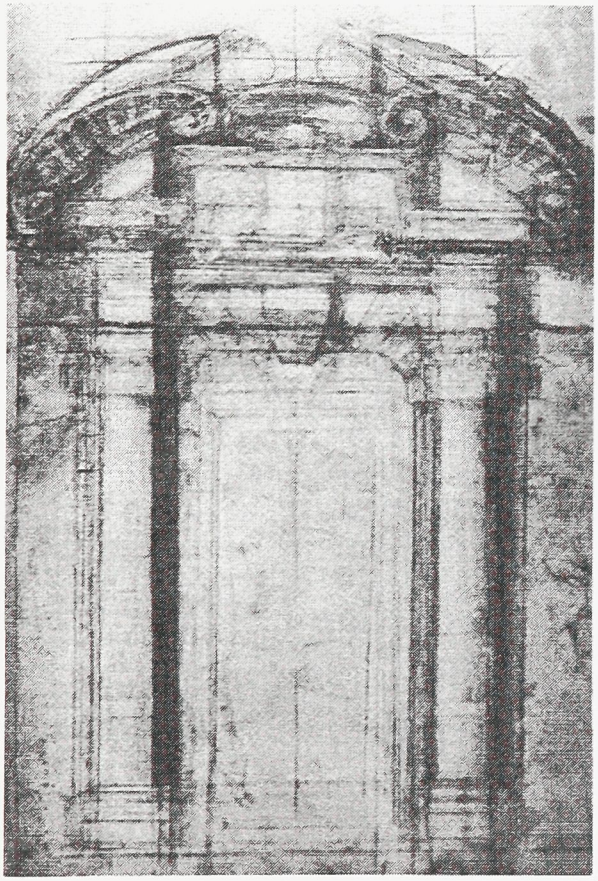
[64] G. Pico della Mirandola, *On the Imagination,* quoted in David Summers, *Michelangelo and the Language of Art* (Princeton, NJ: Princeton University Press, 1981), 113.

[65] C. G. Norena, *Juan Luis Vives,* quoted in David Summers, *Michelangelo and the Language of Art* (Princeton, NJ: Princeton University Press, 1981), 113.

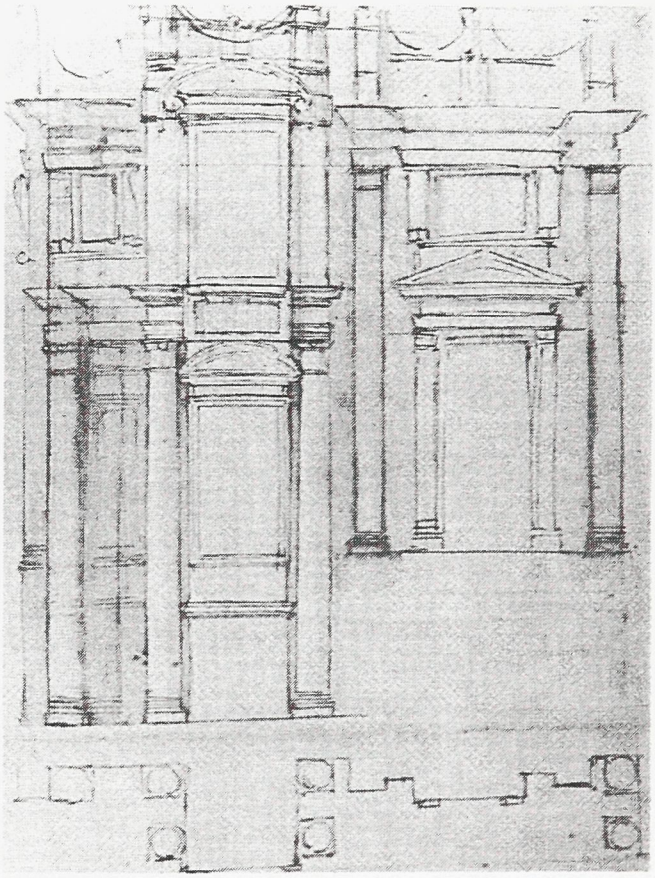
[66] Helmut Klassen, "Michelangelo: The Image of the Human Body, Artifice, and Architecture", *Chora Vol. 1* ed. Alberto Perez-Gomez and Stephen Parcell (Montreal, QC: McGill-Queen's University Press, 1994), 66.

[67] Helmut Klassen, 67.

a construction of diverse parts with members derived from various sources, life, dissection, and historical works. And yet, primary to the character of his work, is the integration and balance of the parts into, and their inseparability from, an observed whole. Not formed with reference to a pre-existing model, the human body is continually remade or re-interpreted – an open project through which human experience is explored and ever newly revealed. The human body revealed in its fabric the relation of intentional form to activity or purpose.[68] Helmut Klassen explains that the body,



6: Michelangelo. Architectural study for the Porta Pia and Figure



7: Michelangelo. Elevation and plan studies for the papal tomb at San Lorenzo

[68] Bernard Schultz, *Art and Anatomy in Renaissance Italy* (Ann Arbor, MI: UMI Research Press, 1985), 11.

consistent with the definition of its nature as a temperament, is a complex compositum of intentional forms and functions that is not subject to a single system of proportion.[69] The order of the body presents a quality of movement as the sign of life and, at the same time, this representation of life and movement is produced from a divergent relation of the parts to the whole – parts which exist at different tempos.[70] Thus Michelangelo rarely draws whole figures but constructs the body from dynamically articulated parts – volatile elements open to joining and connection.[71] He used this same method when creating architecture. He did not invent the ornaments or details of architecture which constitute the point of departure for his work, but transformed the classical ornament into volatile

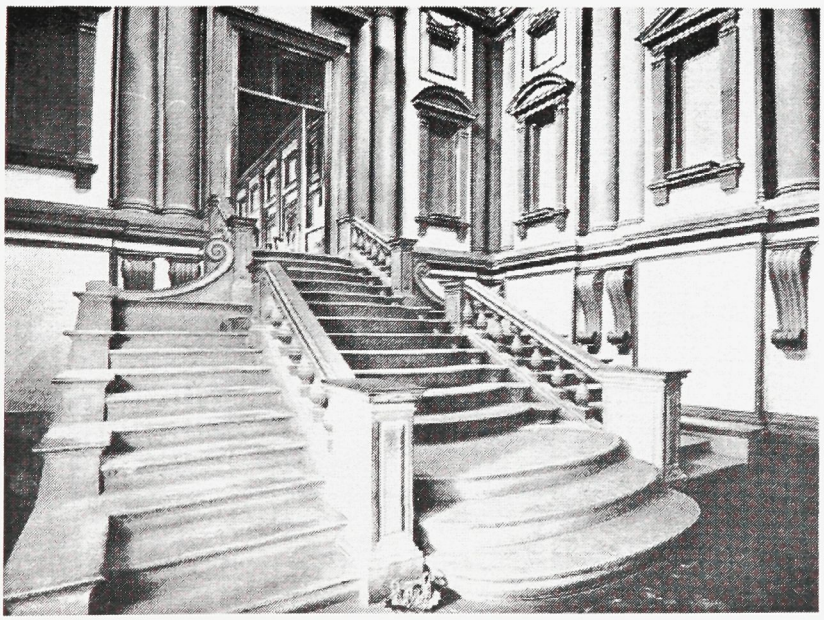
[69] Helmut Klassen, 69.
[70] Helmut Klassen, 69.
[71] Helmut Klassen, 69.

elements, as he had done with the members of the body. They too were formed and reformed, combined and separated as his imagination demanded, capable of embodying new life and experience by invention. In his architectural drawings, Michelangelo often superimposed, rotated, and displaced elements to reveal a potential new construction. This use of invention – defining a new reality of things 'not seen' through the superimposition of two distinct realities – defined Michelangelo's artifice and is carried out at the level of detail but also at the level of the literal flesh of the building. The superimposition is implicit in

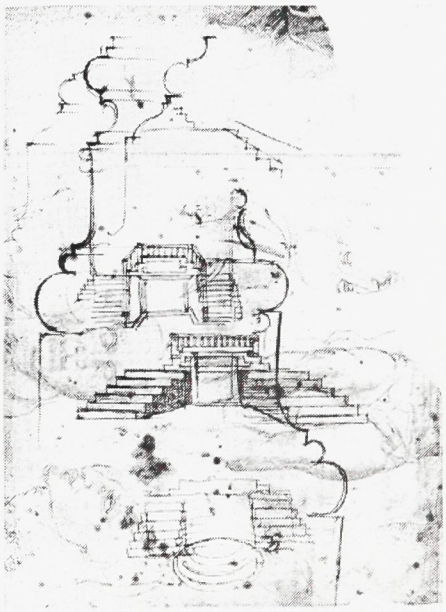
8: Michelangelo. Laurentian Library. Interior of the vestibule looking West

the engagement of the columns with the walls of the Laurentian

Library, reminiscent of the engagement in Michelangelo's Slaves, where stone and figure intertwine. Here Michelangelo's energetic and powerfully modeled architectural vocabulary emerges in the tabernacle niches, the paired columns, the portal, all imbued with a feeling of solid strength [Fig. 8]. This dynamism, concentrated on the walls of the vestibule, overflows in the fantastical staircase [Fig. 9, 10]. In the Sforza Chapel, Santa Maria Maggiore, the four central columns are dramatically shifted from a passive role to an active role, jutting aggressively into the central space, superimposing the beginnings of an 'X' made not of typical voids, but of masses [Fig. 11, 12]. The plan of the Sforza Chapel as a whole, with its equal but differentiated arms and its dynamic forms was to become one of the most influential of Michelangelo's

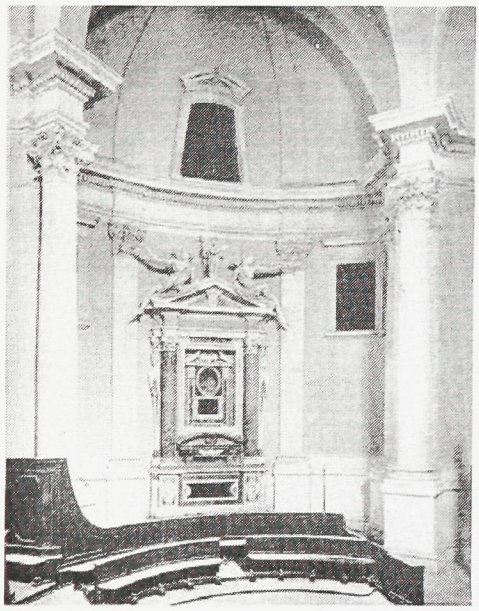


9: Michelangelo. Laurentian Library. Vestibule stairway

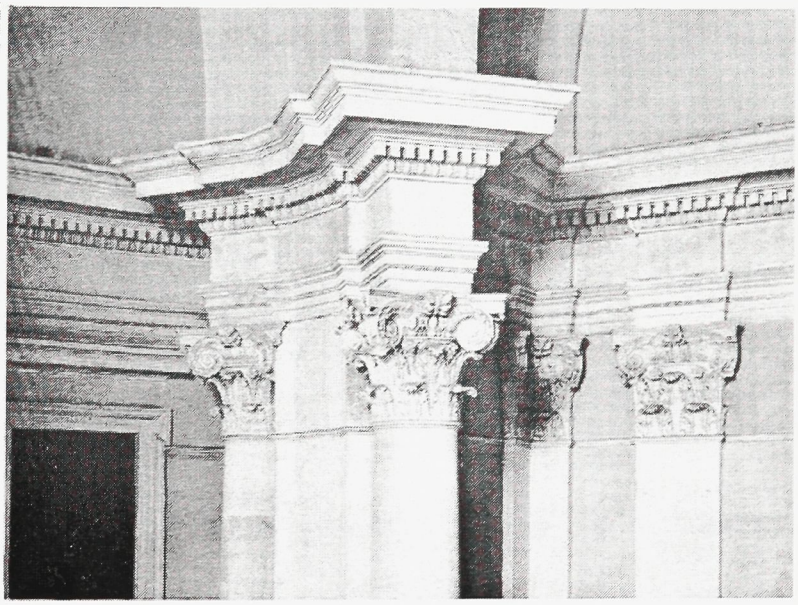


10: Michelangelo. Laurentian Library. Studies for the stairway

inventions. In these examples – by no mean exclusive – of Michelangelo's boundless imagination the suggestion is not of an imposition of one reality upon another but of a reciprocal elemental growth into a new complex structure.[72] His use of the human body for the creation of architecture was not defined by equivalence, the substitution of architecture by the body. Rather, it is a relation defined dynamically by tension – an analogical relationship in which the body and architecture pass dynamically in and out of identification with each other.[73] Also displayed in Michelangelo's architecture, similar to how the body was described by its visible surface, clarification by *disegno* was to adorn – a process of ornamentation as architectural ideation.[74]



11: Michelangelo. Sforza Chapel Right Chapel.



12: Michelangelo. Sforza Chapel. Detail of Order

[72] Helmut Klassen, 69.
[73] Helmut Klassen, 71.
[74] Helmut Klassen, 72.

As a moment in the larger phenomenon of the relationship between the body and architecture, Michelangelo understood the living human body as the foundation of all art and his main emphasis was upon life and movement, qualities which were most often excluded from Renaissance theory. Architects were increasingly concerned with clarity and ultimately fixity of measure and proportions. Michelangelo considered a mastery of the body and anatomy to be the essential knowledge necessary for an understanding of architecture. Not a theory in the conventional sense, the body in movement for him was nevertheless a profound thinking about the world and life, guiding and articulating architectural practice. Michelangelo's appropriation of the analogy of the body and architecture, further than any of his contemporaries, was of a perception of the literal life of the work.

Sitting in the City —

David Leatherbarrow, in an essay entitled *Sitting in the City, or The Body in the World*, explores the work of four architects who he believes introduce a sense of relationship between the interior of a building and the environment; Frank Lloyd Wright, Adolf Loos, Josef Frank and Rudolph Schindler. Each of these

architects, instead of advocating a formal unity and synthesis, proposed a unity that reflects practical situations. He writes that despite the reasonable assumption that conditions as distinct as being in or outside an architectural enclosure require equally distinct ways of thinking about the body and the space that it occupies, the two should be seen as one – that architects should think about the body within an interior in the same way they imagine it within the environment.[75] Perhaps this suggestion is not seen as controversial now, for widely shared notions about the unity and certainty of individual experience, the continuity of space, and of the several scales of architectural design assume the indivisibility of the interior and exterior and of our experience of them. However, aside from the suggestive elaborations of the concept of environment in the social science of everyday praxis (the texts of Pierre Bourdieu or Henri Lefebvre), the role of architecture in making this connection is often vague. Leatherbarrow explains, when architects do concern themselves with the vicinity as well as the building, the more comprehensive territory is often treated as it too were an "object of design."[76] Leatherbarrow outlines and redefines the term *topography*, "a horizon of architectural work that is more

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[75] David Leatherbarrow, "Sitting in the City, or The Body in the World" in *Body and Building* eds., George Dodds and Robert Tavernor (Cambridge, MA: The MIT Press, 2002), 269.
[76] David Leatherbarrow, 269.

inclusive than the outer walls of a building and is indicative of the existence it sustains, a wider horizon of physical and spatial conditions that traces typical human affairs.[77] At the same time, he also outlines the architectural work of the four architects which recognises its own limitations, rejecting the idea of totalizing design practices.

At the beginning of the twentieth century, no other architect proposed the interconnection between interior setting and environment more than Frank Lloyd Wright. Because of his immense collection of writing, it is difficult and dangerous to suggest that any single theme was primary within his work, but the notion of organic unity can be understood as one of the most important. The summary made within *The Natural House* can be seen to demonstrate this. He explained that after the Winslow house of 1893 his conception of the wall changed, it was no longer the side of a box.[78] The wall was still a means of protection against environmental inclemencies, but it took on the role of bringing "the outside world into the house and let[ting] the inside of the house go outside."[79] The wall was becoming a screen, allowing the extension and connection of the interior not only to the immediate vicinity but also the greater region

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[77] David Leatherbarrow, 270.
[78] F. L. Wright, *The Natural House*,(New York, NY: Horizon Press, 1954), 38
[79] F. L. Wright, 28.

surrounding the site. For Wright, the result of organic unity would be harmony, essentially the same harmony as found in nature – all things harmonize with the whole. Never is one figure shown in relief at the expense of the rest. Breaking the box, however, extended the house but also the architect's authority, the garden, furniture and artwork fell into the domain of Wright.

Adolf Loos, a contemporary of Wright's, criticised this sort of compositional synthesis and ridiculed its once-and-for-all, unchanging, finality. At risk in totalizing or complete design is not only spontaneity and choice but freedom.[80] Leatherbarrow explains that against the ideal of uninterrupted continuity, or sameness among the assembled parts, Loos proposed differentiation and complementarity – not a "verging" but a reflexive or reciprocating space.[81] This reflexive relationship can be observed in Loos's urban projects. The building on Michaelerplatz in Vienna site plan, section, and construction detail were developed in dialogue with its ambient circumstances.[82] For example, the limewash of the upper floors was a way of establishing continuity with Viennese street architecture. Leatherbarrow writes of the Moller house in Vienna and the Muller Villa in Prague;

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[80] David Leatherbarrow, 274.
[81] David Leatherbarrow, 275.
[82] David Leatherbarrow, 277.

> one could reconstruct the distribution of settings inside their walls by considering carefully the opportunities for repetition and contrast latent in their sites, interpreting the vicinity as a ser of 'predispositions' within which a 'plan of volumes' could be developed; entry at the front, service at the back, morning light from one side, quiet on another, and so on. One could develop such an interpretation because one knows through cultural experience how rooms of various types are typically oriented in typical sites .... This is not to say that design in this sense involves the comprehensive duplication of models; instead it develops systematic deviations from them, in recognition of or response to the exact particulars of the project....[83]

Leatherbarrow continues that the physical plan is as much a function of the opportunities of the building's surrounds as it is of the internal relationships. Without the salient characteristics of the vicinity, Loos would have been at a loss to determine the most basic of building elements such as window size and their location, the orientation of the terrace, and entry location.[84] The site does not predetermine the solution, but that the site and program serve as predispositions, pretext, or first premises for design.

One of Loos's near contemporaries in Vienna, Joseph Frank, was extremely critical of any kind of synthesis – organic, aesthetic, or functional – within design. His arguments against unified interiors led him to reject synthesis at the scale of the room and of the ensemble of elements: "Each [piece] must be independent of the rest, obstructing nothing and only giving the

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[83] David Leatherbarrow, 277.
[84] David Leatherbarrow, 277-78.

impression of belonging together as a 'group' in this particular context."[85] Unity was not formal but situational. Frank observed that the rules for a good house never change in principle, yet he argues they must be continually considered anew. Such consideration would question the entry of the garden, the entry sequence to the house, the configuration of seating with respect to the windows, and so on. Questions such as these must be asked anew because dwelling changes, inside and outside of the house. Leatherbarrow explains;

> Topography so conceived does not project settings that verge toward and away from one another, as did Wright's, or the reciprocities envisaged by Loos. Instead, it is based on analogies and projects a field of similarly structured practical solutions. Such an ensemble is neither continuous, concordant nor discordant; it is a field in which reiterations play against one another, each inviting choice and sustaining both historical memory and contemporaneity.

Finally, Leatherbarrow considers the work of Rudolf Schindler. Both 'translucency' and 'transparency' are indicative terms within Schindler's work. He invoked the customary meaning of the words, the penetrability of light, but transparency for him was also a quality of things that are familiar or habitual. Transparent figures were those that were unseen because they were inconspicuous or unobtrusively present in a setting.[86] Schindler comments; "It must be the basic principle of all interior

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[85] Joseph Frank as quotes in David Leatherbarrow, 280.
[86] David Leatherbarrow, 282.

decoration that nothing which is permanent in appearance should be chosen for its individual charm or sentimental associations, but only for its possible contribution to the room conceived as an organic entity, and as a background for human activity.[87] The relationship between the room and 'world' outside may help clarify how this may be achieved. Schindler's arguments about the interconnection between the building and its site emphasize changes in the ways people had come to understand and use their houses. Shelter and playground were the alternative ways of seeing the house. Schindler saw the future of the house move from a shelter – a place for frightened people with emphasis on safety – to a playground of sorts – where work and play come together in various open rooms. The rooms of the house of the future will lose their autonomy, their compartmentalisation, because they will merge into a new 'fluidity,' as will the house itself into the flow of the wider horizon.[88]

In considering Schindler's buildings, one can infer that the framework for the lateral repositioning of program which he advocates is a set of horizontal strata that extend to the buildings surroundings.[89] Schindler writes; "the stereotyped from-sentence of the conventional designer: base, body, cornice, crown – has

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[87] Rudolf Schindler as quoted in David Leatherbarrow, 283.
[88] David Leatherbarrow, 285.
[89] David Leatherbarrow, 285.

now lost its meaning. The contemporary form-sentence may move horizontally, around the corner … our time, with a more democratic scheme, has discovered the meaning of the neighbour and allows us to stretch our hands out horizontally."[90] Two of the most celebrated aspects of the Schindler Chace house are the exterior fireplaces and the rooftop 'sleeping baskets.' Both illustrate the displacement of program that is typically thought to be interior and both demonstrate ways of interpreting the potentials of topographical strata. Leatherbarrow elaborates:

> The floor slabs of the house comprise one level of the site section…. As if to serve as the basic premise of an 'escarpment,' the slabs extend into the garden court and serve as the surface on which open-air fires could be ignited. Overhangs above some of these slab extensions annexed into the holdings of the house other stretched of the surrounding gardens, insofar as they cut patches of shadow out of the sun's brightness and thereby marked thresholds between interiors and exteriors…. Viewed in plan, the topography can be read as a mosaic of dwelling platforms, each providing no more than a pretext or premise for some practical purpose and preferred posture…. Nevertheless, the ensemble as a whole serves as a 'background for life,' one that was meant to be unobtrusive in its presence and latent in its significance….

At least two points of convergence can be discovered in the work of these four architects, formal and practical unity. Wright's arguments in favour of organic synthesis were based on his criticism of boxed-in enclosures. Schindler also valued this criticism and proposed a 'fluid' alternative, program was freed from its constraining enclosures. All four architects criticised

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[90] Rudolf Schindler as quoted in David Leatherbarrow, 285.

closure, not in the spatial sense but with regards to the totality of design, from the ashtray to the paintings. Thus the alternative: instead of a formal synthesis, each of these architects proposed a unity that somehow reflected the pattern of typical situations, in both its spatial and temporal aspects. Leatherbarrow calls the architectural setting a *trace*- the sediment of some typical practice and its indication.. He writes that no trace of this kind can be placeless, even if the elements on which it is inscribed are moveable, each one is located somewhere, each one typically here or there, and also around for a purpose.[91] Where something is for a typical purpose depends on what it is nearby or what it is there with. The task of topography is to posit probable sequences through these relationships, some of which express sameness, others difference. Only in such a field can an event and its setting find a place. In design, architects are always concerned with bounded settings. Consequently they tend to see the field around them as a background. Reflections on topography reorient design and thought to the world. The real prospect for an architecture of our time is still to be found within the horizon of the city, that spatial material trace of reciprocal interests.[92]

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[91] David Leatherbarrow, 288.
[92] David Leatherbarrow, 288.

3
Prognosis

I dare say that you have heard eminent physicians say to a patient who comes to them with bad eyes, that they cannot cure his eyes by themselves, but that if his eyes are to be cured, his head must be treated; and then again they say that to think of curing the head alone, and not the rest of the body also, is the height of folly. And arguing in this way they apply their methods to the whole body, and try to treat and heal the whole and the part together.

— PLATO, Charmides

In an attempt to address and understand the issue and fundamental nature of creating architecture that could be a catalyst for neighbourhood revitalization – such that the neighbourhood embodies and retains its own unique qualities – analogy figures prominently in the reciprocal process between contemplating and making, theory and praxis, and promotes the discovery of new and alternate understandings of urban planning and its architectural associations and formal qualities.

The Greek word *analogia*, in its primary and most general definition means 'a relation', and in its secondary definition has to do with mathematical proportion and ratios.

Through analogy in general and in this thesis in particular, imaginative thought is enabled to leap scales and transcend superficial differences to find hidden and fertile connections. Analogy maps out networks of possibility by tracing the visible lines connecting things by similitude as well as the implicit unity or invisible connective tissues that persist despite perceived differences. Unity, however, does not imply homogeneity. Rather, through analogy, the extensive diversity of phenomena of the world can coexist, interact, and mutually inform.

It is via medicine, the art and science of healing the body through an understanding of its complex workings, that conceptions of the body can become available for translation into architecture. The study of Greek medicine has yielded an analogous way to look at an ill site within the city and recover that site's balance of health, namely what is an optimum health for the neighbourhood and not the fashionable standard or a prescribed objective. *Physis* – the individual mode of reaction – was the centre of the ideology and knowledge base of Hippocratic medicine. Accordingly the attention of the Greek physician was focussed on prognosis rather than on diagnosis and the elaboration of strict pathological doctrines. Vitruvius manifested one of the earliest understandings of the analogy of body and architecture, the body provides a model of unity, as a

necessary and sufficient combination of parts working together to maintain human life. Michelangelo centuries later revised this analogy as architects were increasingly concerned with clarity and ultimately fixity of measure and proportions. Michelangelo considered a mastery of the body and anatomy to be the essential knowledge necessary for an understanding of architecture; the body in movement for him was a profound thinking about the world and life, guiding and articulating architectural practice.

Hippocratic medicine criticised a reductive approach to medicine; the architectural intention of this thesis is to provide an alternative to a reductive approach of urban planning for the revitalization of the Mechanicsville neighbourhood; an architecture which attempts to participate in the larger setting and become a catalyst instead of a 'cure'. The underlying ideological frame of reductive urban planning is one that prefers wiping the slate clean to weaving incremental change into the existing fabric of cities. Without question, this carte blanche approach to city-building has been a particularly contemptuous feature of North American city planning since the Second World War, from the disasters of urban renewal, meager public housing efforts, and destructive federal highway programs. The drive for wholesale change in less affluent areas is facilitated by a political pendulum that has swung from a heavily top-down to a heavily

bottom-up planning practice. In abandoning its ethical role in city-building, architecture has given over its social responsibility creating a vacuum to be filled by ideological solutions like "New Urbanism," an equally skin-deep prescription for the city. Rem Koolhaas has recently noted, architects "used to be good because we were servants of the public. Now we're the servants of private interests. … That shift needs to be understood."[93] The following architectural strategy promotes small-scale incremental development and is an exploration which cannot be solely construed as a single work of architecture – a part – nor can it be analyzed as a prescriptive planning exercise – an attempt at a whole – but rather must be understood as looking at the dialogue between these parts and whole. The use of the qualities of *physis*, prognosis and the principle of balance and harmony, derived from an understanding of Greek medicine, allow for an alternative response for the city.

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[93] Liz Holmes, "Architect Rem Koolhaas warns of the 'sloppy' and 'uncritical,'" *Cornel News*, April 25, 2005.

Context: Mechanicsville, Ottawa –

As a vehicle to engage this approach to the body/built form, the historical neighbourhood of Mechanicsville provides a site that can be understood as an illness – an imbalance. Mechanicsville, which still retains its founding working class character, is located

1: Map Showing the Context of Mechanicville and Hintonburg Neighbourhood

west of the City of Ottawa's central district. To the far north runs the Ottawa River Parkway, a riverside throughway on land owned by the National Capital Commission and just beyond it the Ottawa River, which bisects Ontario and Quebec. To the immediate south are the Transitway, Ottawa's high-speed rapid transit route for busses and emergency vehicles,

and Scott Street, connecting Mechanicsville to the greater downtown area. To the east is Bayview Yards, a man-made

2: 2005 Mechanicsville, Looking West.

Bayview Snow Dump in the foreground, Tunney's Pasture in the background, Ottawa River Parkway on the right, Scott Street and Transitway on the left

landfilled extension on the former shoreline of Nepean Bay, filled by increments initially to expand lumber and rail yards and provide embankments for rail lines, and later to provide a convenient dump for municipal and construction waste. It was also recently a crucial component of the city's now terminated light-rail transit expansion plan, and still provides a significant interchange for those using busses east-to-west needing to transfer to the train going north-to-south; the O-Train pilot project currently terminates there. Farther east is LeBreton Flats, slated for extensive growth over the next two decades with significant mixed-use development, including the completed War Museum of Canada. Just beyond LeBreton Flats is the Ottawa

skyline and the Peace Tower on Parliament Hill. To the west, pinning the site is Tunney's Pasture, an overwhelming government complex. The neighbourhood to the south of Mechanicsville is the recently gentrified Hintonburg.

3: 1931 Aerial Photo of Bayview/Somerset.

Looking south, Bayview Yard in foreground: note (from left) Richmond Rd overpass, railway yards and roundhouse, former lumber yards along Bayview Rd, Mechanicsville flanking Stoneburst Ave. on the right.

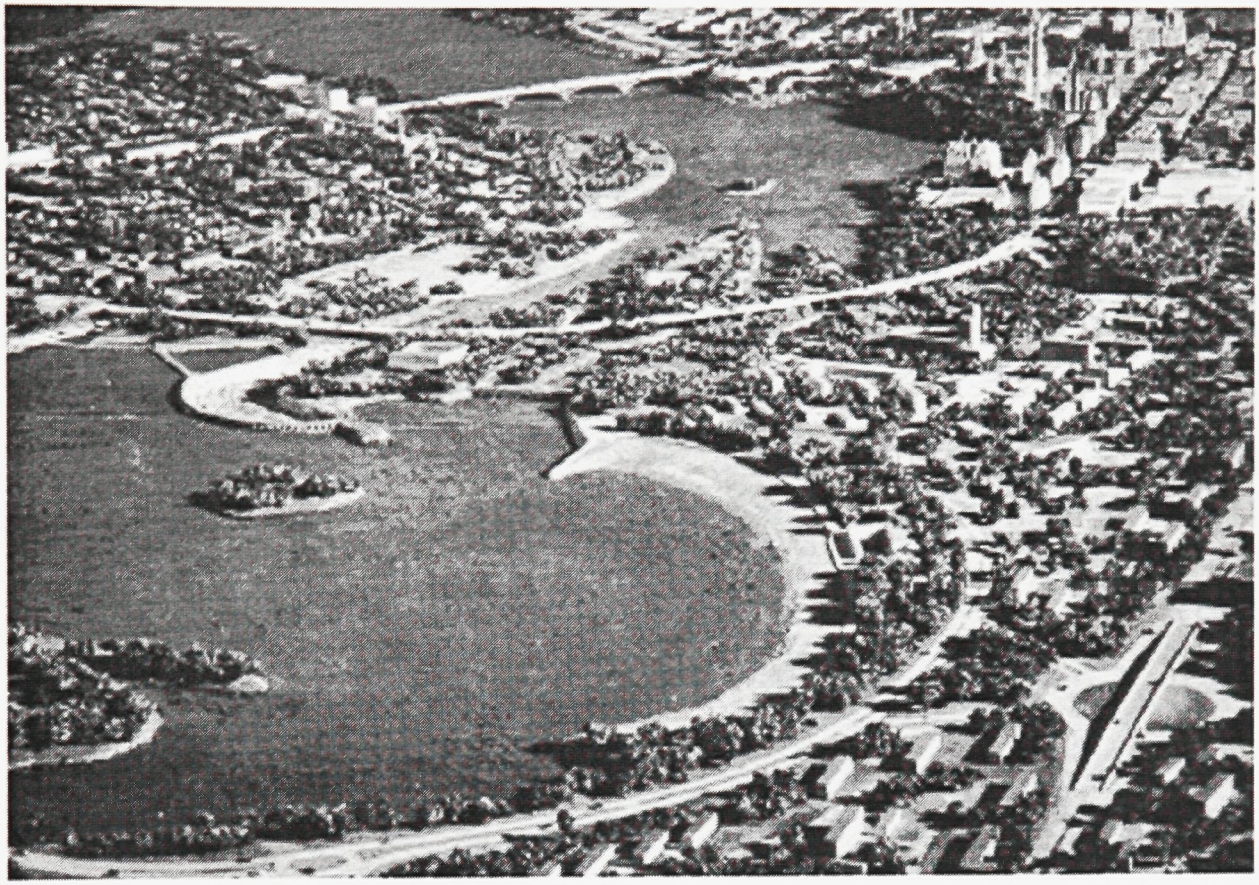
At their founding, Mechanicsville and Hintonburg were part of Nepean Township and one of the city of Ottawa's first industrial and streetcar suburbs. The railways and mills provided the majority of the employment for the communities, with Mechanicsville the home for most of the Francophone, Catholic, blue-collar workers.[94] Hintonburg was first settled in the 1830s and began as several farms along what is now known as Wellington Street. The land was gradually subdivided and sold forming a community which became an incorporated village and

[94] Bray Heritage, *Bayview/Somerset Planning Area Ottawa: secondary planning study* (Ottawa, ON: City of Ottawa, 2004), 9.

was subsequently annexed to the city of Ottawa in 1907. Although mainly serving an industrial and suburban residential function within Ottawa, Hintonburg was linked to rest of the city soon after its creation by the municipal transit system and contained modest stores, workshops and related businesses, allowing the area to emerge as both a residential and commercial district for the working class.

Today the majority of Hintonburg has shed its old neighbourhood character and is evolving into a more cosmopolitan community. The Northeast portion of the neighbourhood, across from Mechanicsville, however, still maintains a working class character and experiences occasional social problems and neglect. Southern Hintonburg, nevertheless, is seen as a vibrant cultural area and arts district with many upstart galleries, ateliers and theatre spaces, lending a relaxed creative atmosphere to the neighbourhood. This current commercial cultural awakening for the neighbourhood has greatly helped its revitalization. Mechanicsville, however, remains resistant urban space where very little has changed over many decades; rather most alterations have served only to increase its isolation.

Mechanicsville is the oldest subdivision remaining in the area. It was created by the mill owners and industrialists Thomas Blasdell and Alanson Baldwin in 1872 on



4: Aerial view of Gréber Plan (1950) model.

Looking east towards LeBreton Flats, showing urban renewal proposal for the area; note crescent beach, removal of Prince of Wales bridge and all railways, addition of major motorways and apartment slab blocks

land that was formerly owned by the Sparks family. It was composed of working class citizen who could only acquire very narrow, small lots for their homes. Train tracks separated Mechanicsville from the rest of city and as a result it developed its own character. During the 1880s, the community consisted of thirty-four families, mostly French Canadian mill-hands and labourers, and their small inexpensive wood-framed houses.[95] "The houses that were built were cheek-by-jowl with the

[95] John Leaning, *Hintonburg & Mechanicsville* (Ottawa ON: Hintonburg

neighbour's home. The front door or the front step was frequently flush with the street."[96] This dense pattern of settlement is still evident today.

In the 1950s and mid 1960s Mechanicsville and North Hintonburg were threatened by numerous social, economic and political pressures. Recommendations made in the 1950 Jacque Gréber Plan for the National Capital Region advised that like LeBreton Flats, these areas should be cleared of their residential slums and rebuilt.[97] The Gréber Plan regarded this area, along with most of the other industrialized waterfronts served by railways, as being ripe for redevelopment. Drawings, photographs of models and supporting text describe a radically different scene from the then-existing setting of railyards and lumber yards bordered by tightly packed neighbourhoods [Fig.3]. Most of the industrial land is swept away, replaced by a massive circular highway interchange for a major route leading up from Dow's Lake and continuing across the river via Lemieux Island. A riverside parkway provides an east-west link along the river, augmenting a second such link along the rail corridor. Between Bayview and LeBreton Flats apartment slab blocks in park-like settings flank the roadways, and the Nepean Bay shore has been

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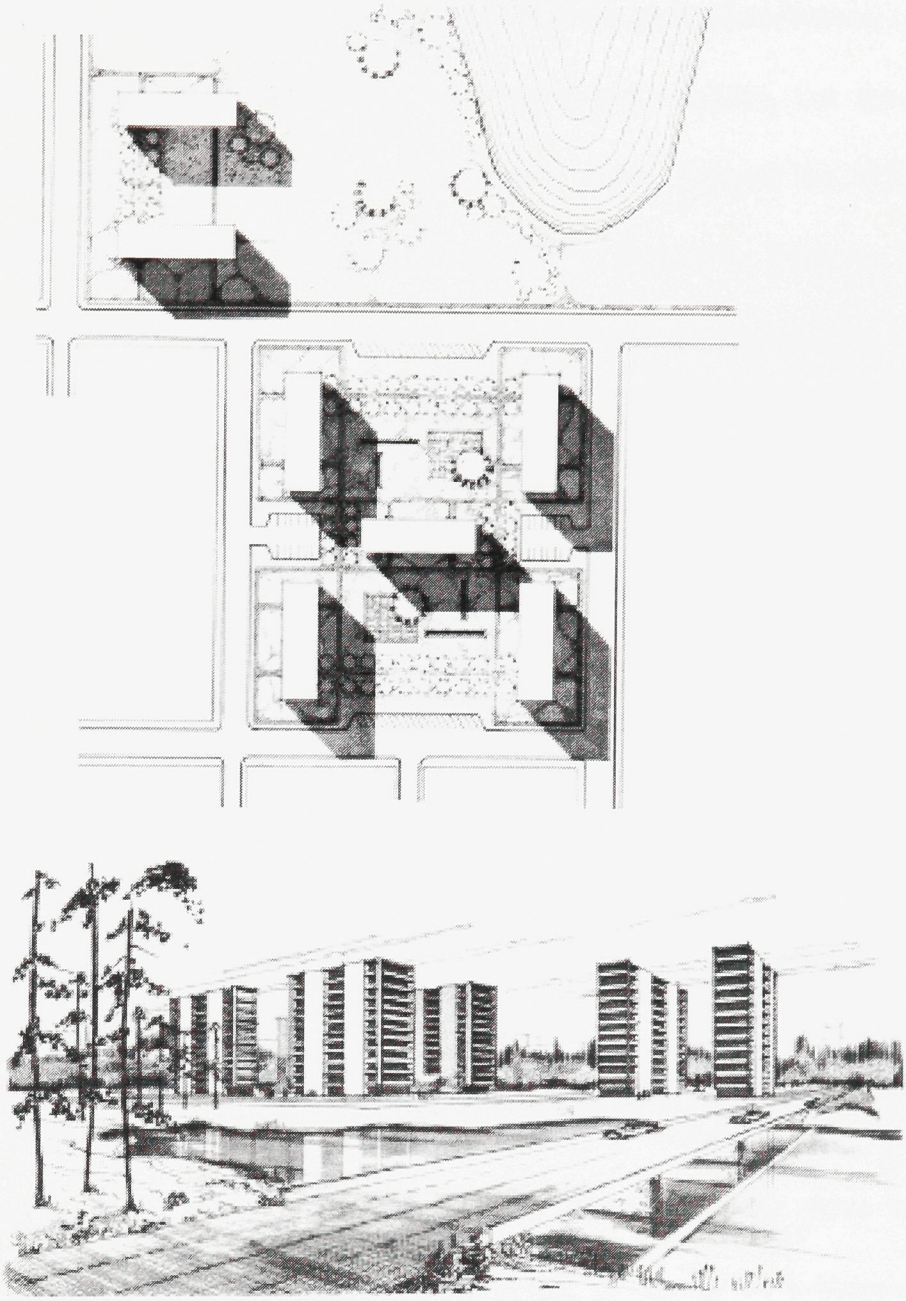
Community Association, Inc., 2003), 15.

[96] Christina Newell, *Hintonburg: A Working Class Streetcar Suburb at the Turn of the Century* (Ottawa: The Historical Society of Ottawa, 1995), 9.

[97] John Leaning, *Hintonburg & Mechanicsville,* 18.

remade as a large crescent beach, complete with central pavilion

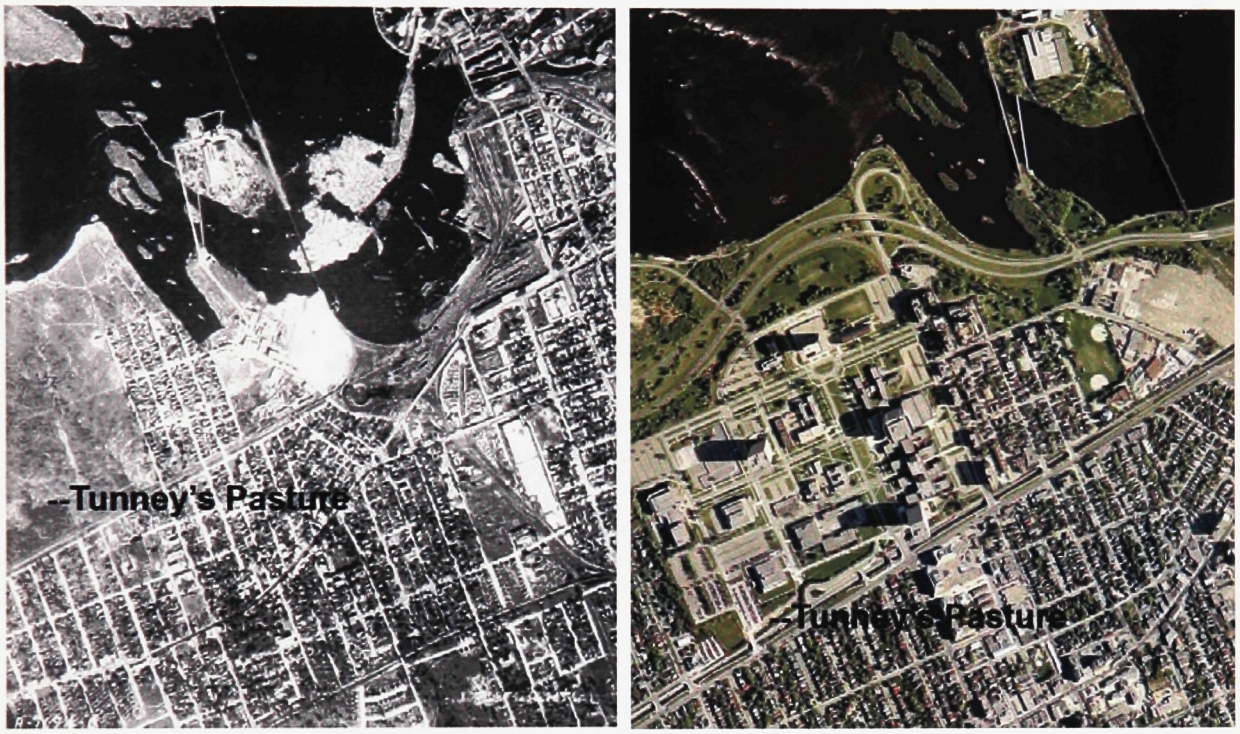


1: Plan and sketch of proposed 1960s urban renewal scheme in Mechanicsville.

and amphitheatre.[98] A sample redevelopment plan for Mechanicsville shows three blocks to the northeast levelled and replaced with seven apartment blocks, each 12 storeys high and

[98] Bray Heritage, 10.

set in parkland [Fig 4].[99] The National Capital Commission (NCC), which was formed to carry out the recommendations of the Gréber Plan, did not build these grand schemes, but their legacy has still affected all subsequent plans. Instead the NCC built the large Government complex, Tunney's Pasture, a bureaucratic 'park' with monolithic edifices, on pasture land to



2: Aerial views of Mechanicsville and Tunney's Pasture in 1944 and 2004.

Note the access for residences to the waterfront in 1944 before the NCC filled in Nepean Bay and established the Ottawa River Parkway

West of Mechanicsville, and completed the riverside parkway, with the expectations of generating renewal. The drive to expunge the gritty industrial landscape in favour of a utopian suburban image, though unfulfilled, has left its mark.

The street grid and majority of narrow frontage lots of Mechanicsville have remained the same over time allowing for the retention of the area's fine-grain texture. However, in an

[99] Bray Heritage, 12.

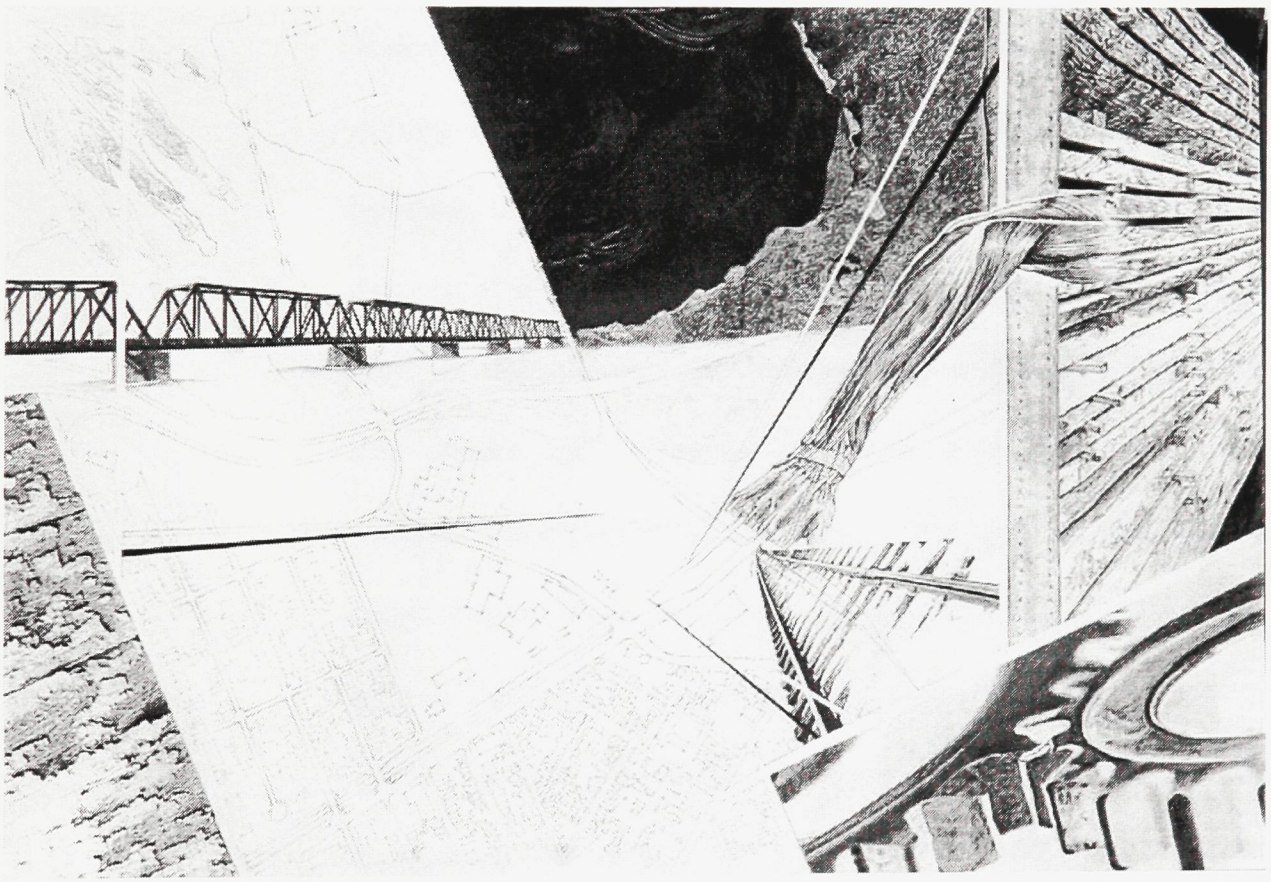
attempt to mediate the large scale of the bordering government complex as well as establish a buffer to the Ottawa River Parkway the housing blocks to the West and North have been replaced by apartment buildings. The small neighbourhood of ten blocks is bound on three sides by the aforementioned Tunney's Pasture, elevated Ottawa River Parkway – which cuts off access ands views to the Ottawa River – and the Bayview Yards Snow Dump, an awkward and relatively barren site that is laden with oppositions and an escarpment to its East. The neighbourhood's only exodus is onto the fairly inhospitable Scott Street, created by the high-speed four lane arterial road, expansive shoulder and the imposing cavern incised by the below-grade Transitway which separates and isolates the neighbourhood.

Mechanicsville's topology, a residue torn between multiple oppositions including obsolescence and gentrification, and the surrounding area is itself a microcosm of former inflexible urban planning. The area, however, continues to emerge through the surrounding forces, evading erasure but also recuperation. It is one of only a handful of places in which history exists without having been artificially resuscitated.

7: Mechanicsville and photographic documentation of neighbourhood.

Design Investigation –

My exploration set out with a specific plan of approach to the prognosis of the site, the neighbourhood of Mechanicsville, but without a programmatic signifier or predetermined 'cure'. Initial explorations centered on the understanding the *physis* of individual –the neighbourhood– the interconnected parts of the site at various scales, to facilitate a layered understanding that



8: Preliminary Site Collage

Investigating the history of the site

could not be gained by a strategy of strictly identifying causes and effects. "The contrast between particular and universal, between individual and collective, emerges from the city and

from its construction, its architecture."[100]

The investigation for the revitalization of the Mechanicsville neighbourhood began with various studies of the area at five different scales. To restore health, Hippocratic medicine shows us that no symptom should be taken singly; of importance is the combination of all relevant circumstance. To try to begin to understand the neighbourhood as a whole and determine the most critical need, a closer study of five different scaled layers was initiated; a large portion of the city encompassing the neighbourhood, a block, the park, a large scale building, and a house all within the neighbourhood. A rigorous process of drawing was used as a tool for understanding each scale of investigation and their overlap and interrelationships. The studies each encompassed three overlapping layers of collaged information; a plan layer – the abstract geometrical order, a detail layer – texture, pattern, or material, and a general layer – figure and form. The aim of this investigation was to obtain a prognosis of the site; to understand the symptoms so as to discover the underlying changes within the "body" which constitute that person's disease. Not to enter into the investigation with a preconceived notion of 'a cure' or one

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[100] Aldo Rossi, *The Architecture of the City* (Cambridge, MA: MIT Press, 1982), 21.

universal application or idea which is applied carte blanche.[101] Greek medicine has allowed us to recognize that there can be a dynamic treatment which will change depending on the circumstances – given time, environment, weather, diet, etc., and that each patient is to be returned to a balanced state suitable for them.

This drawing exploration allows each layer to be separated, read, and interpreted on its own but at the same time each layer is only complete and fully comprehensible when it is considered in relation to all other layers – the whole. Together, they correspond to the layered complexity and the immediate relationships between various elements of the neighbourhood. The 'city scale' investigation deviated from the pattern slightly because of its immense scale. The layers presented the contextual givens in three parts comprised of: the roads, figure ground, and green space. Each layer of the drawings is connected and every set of drawings is understood in relation to all other sets.

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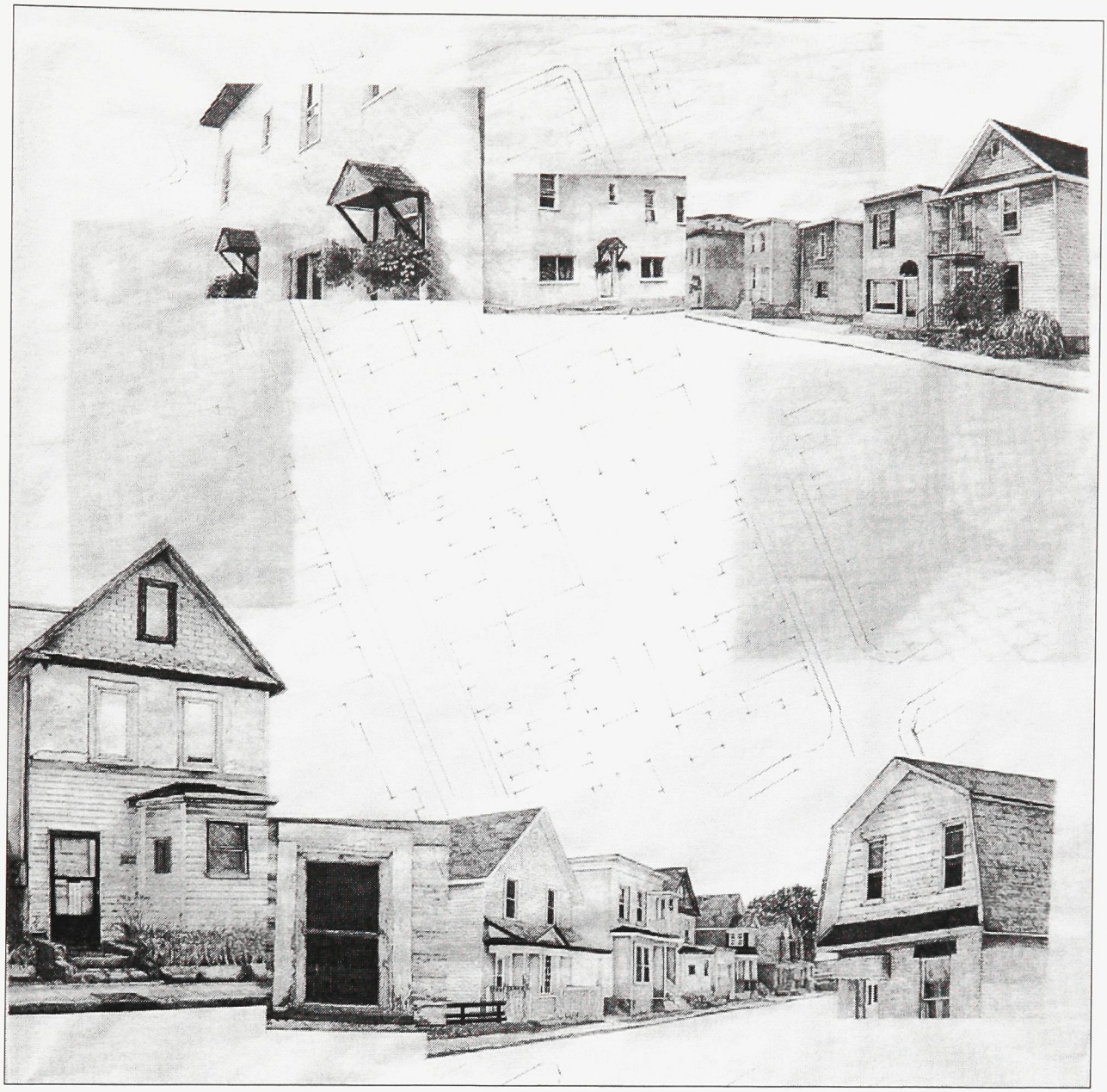
[101] If you have high blood pressure you must cut down on salt or a urban plan which specifies each zones functionality – industrial, residential etc. forever.

Design Investigation – 1

9: City Scale: Three layers seen together; roads, figure ground and green space.

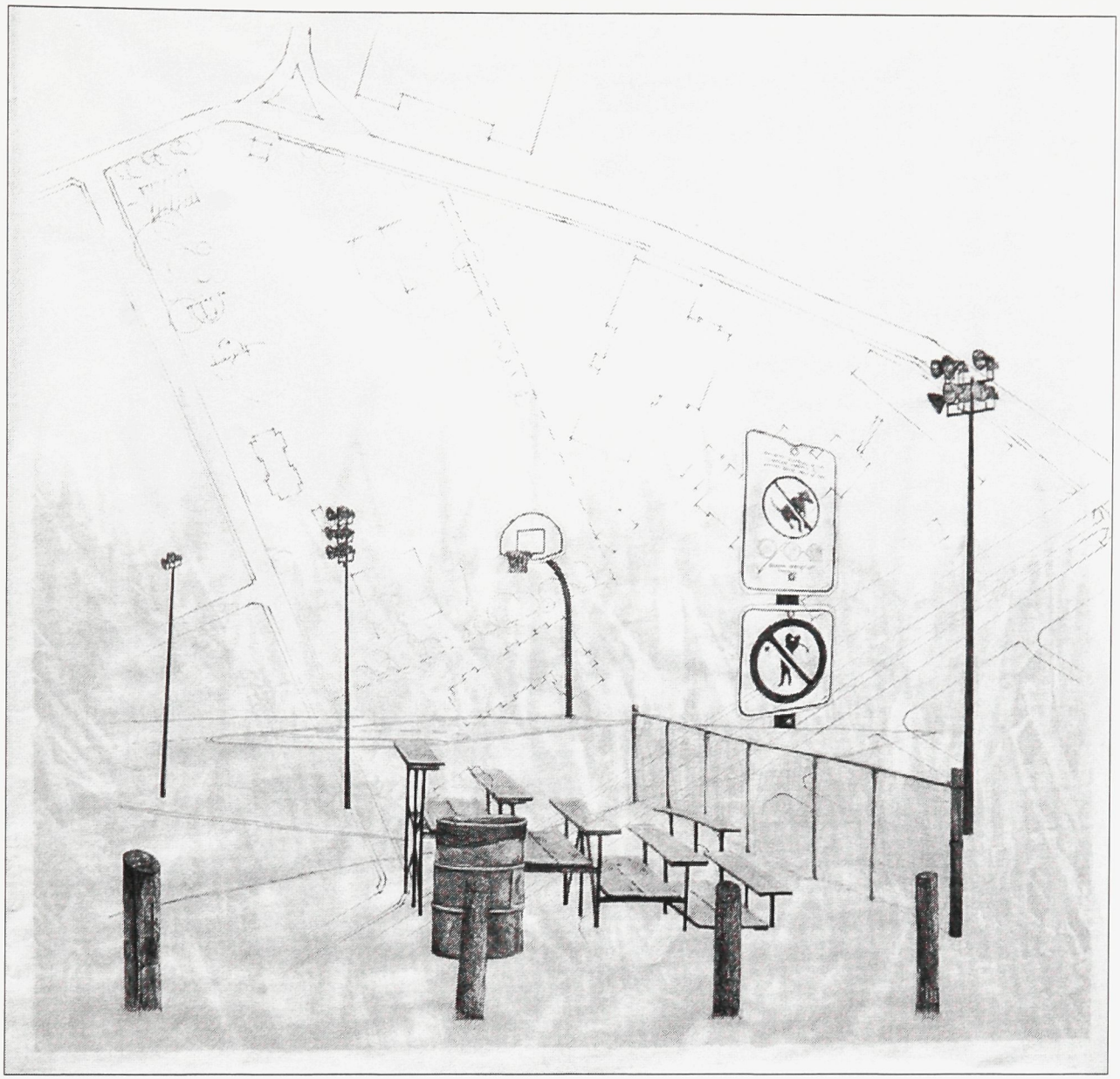
10: Figure Ground Layer of City Scale.

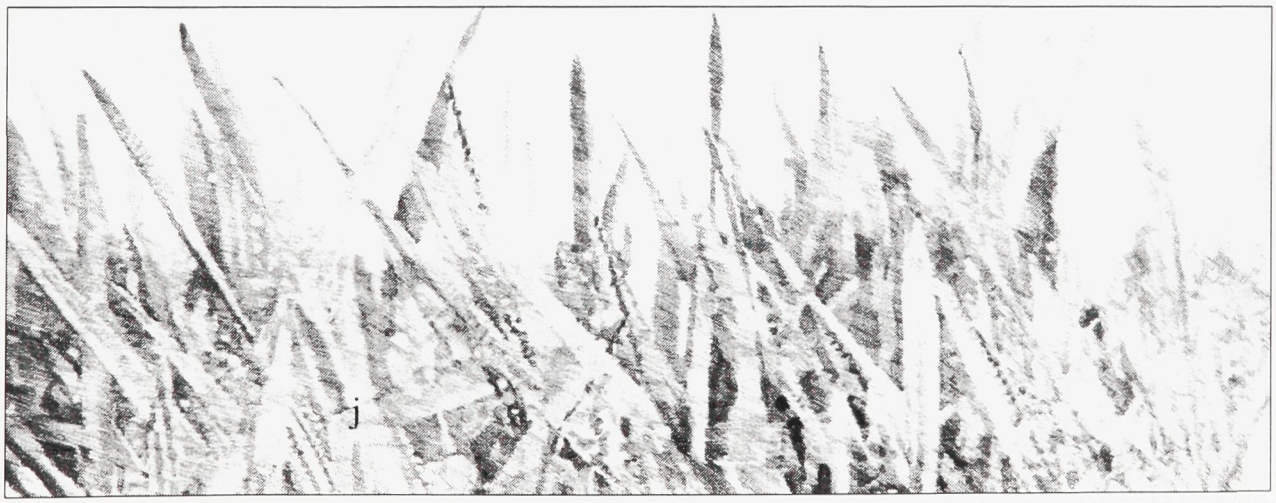
11: Detail: Mechanicsville Neighbourhood.



12: Block Scale: Three layers seen together; plan, texture details, and general impression.

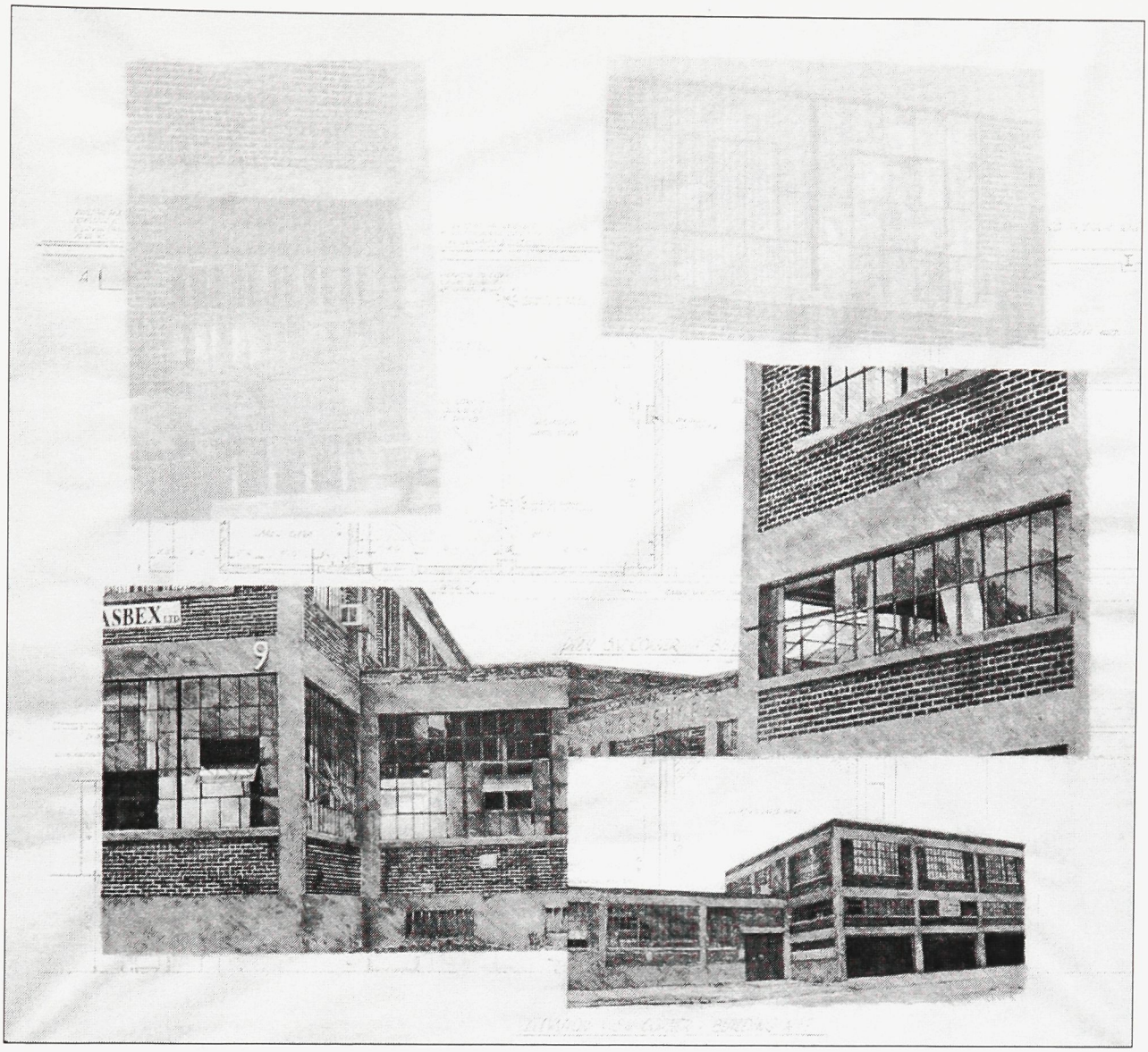
13: Texture Detail Layer: Portions of the detail layer studies for the Block Scale..

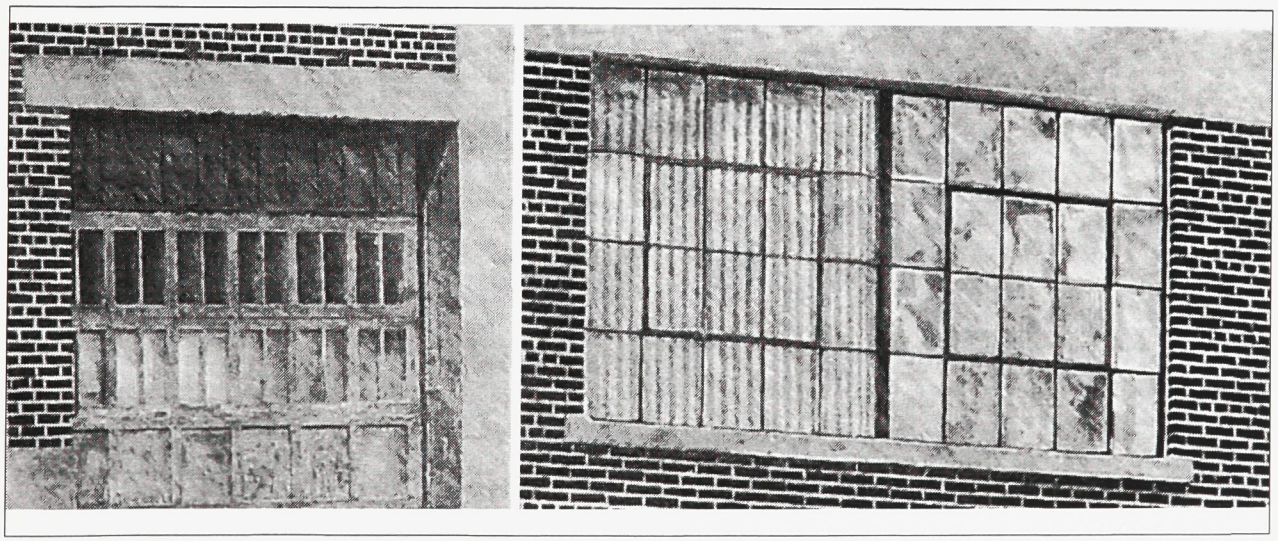




14: Park Scale: Three layers seen together; plan, texture details, and general impression.

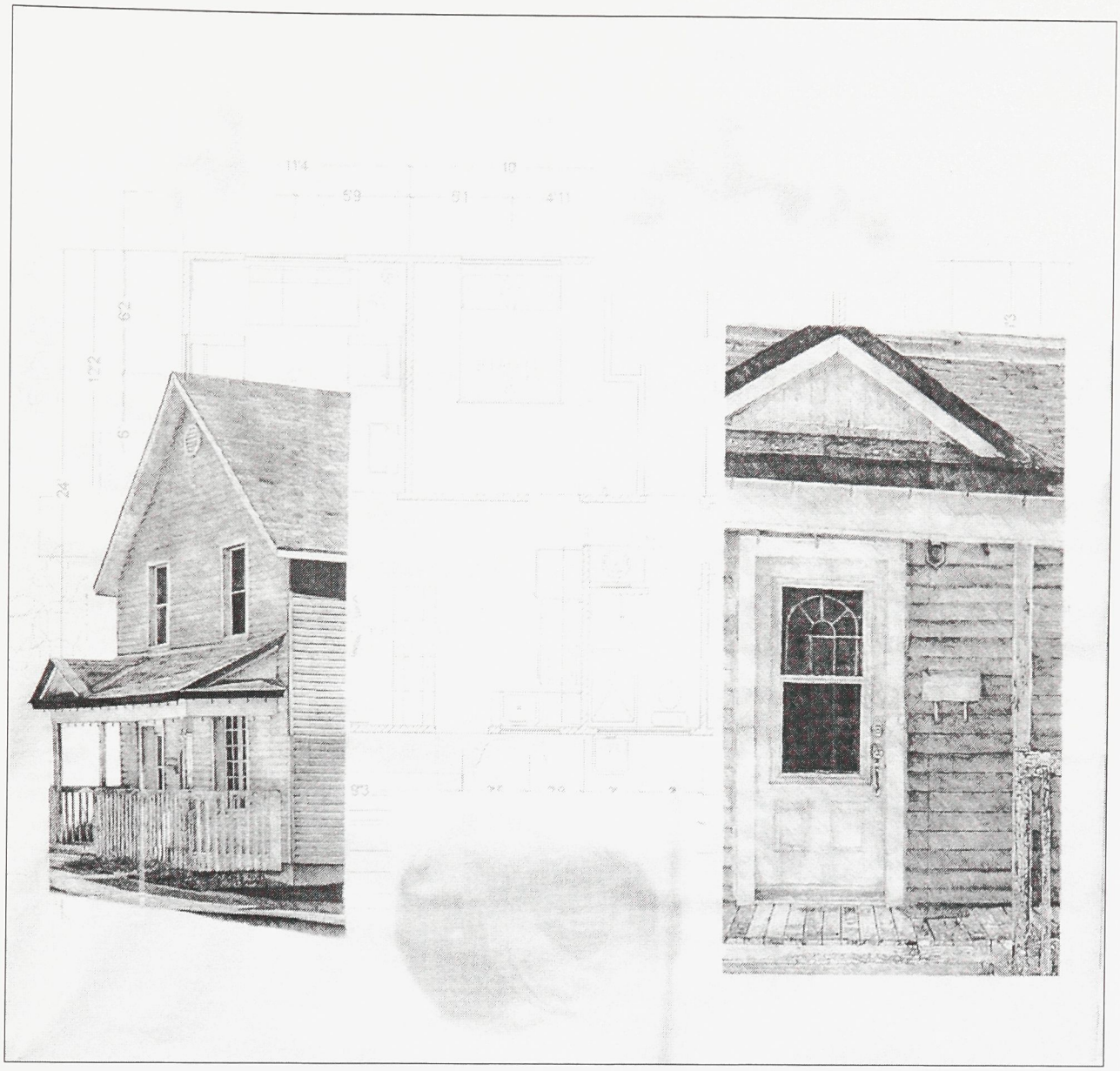
15: Texture Detail Layer: Portion of the detail layer study for the Park Scale.

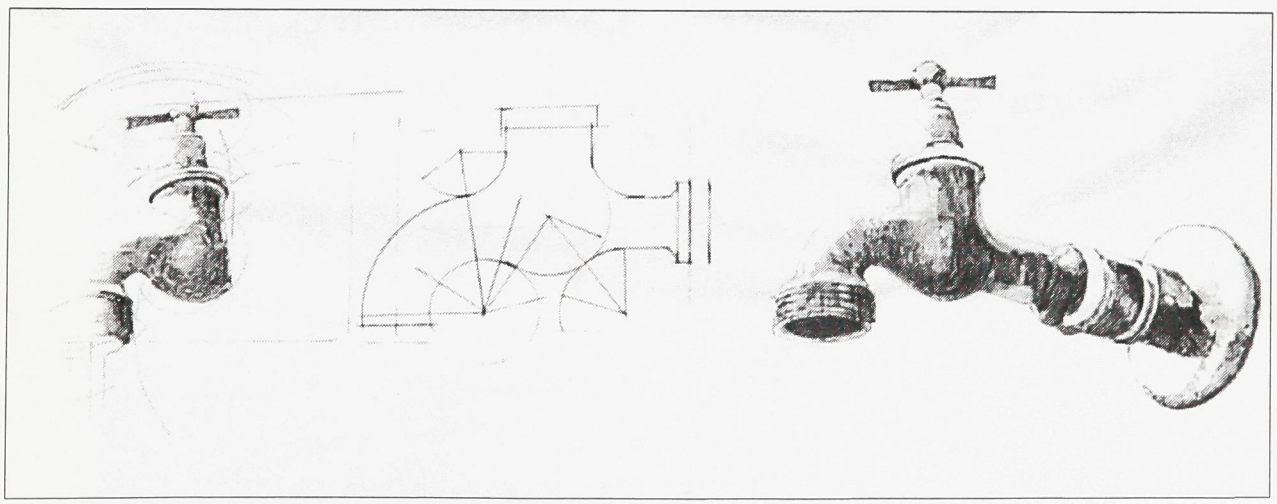




16: Large Building Scale: Three layers seen together; plan, texture details, and general impression.

17: Texture Detail Layer: Portions of the detail layer study for the Large Building Scale.



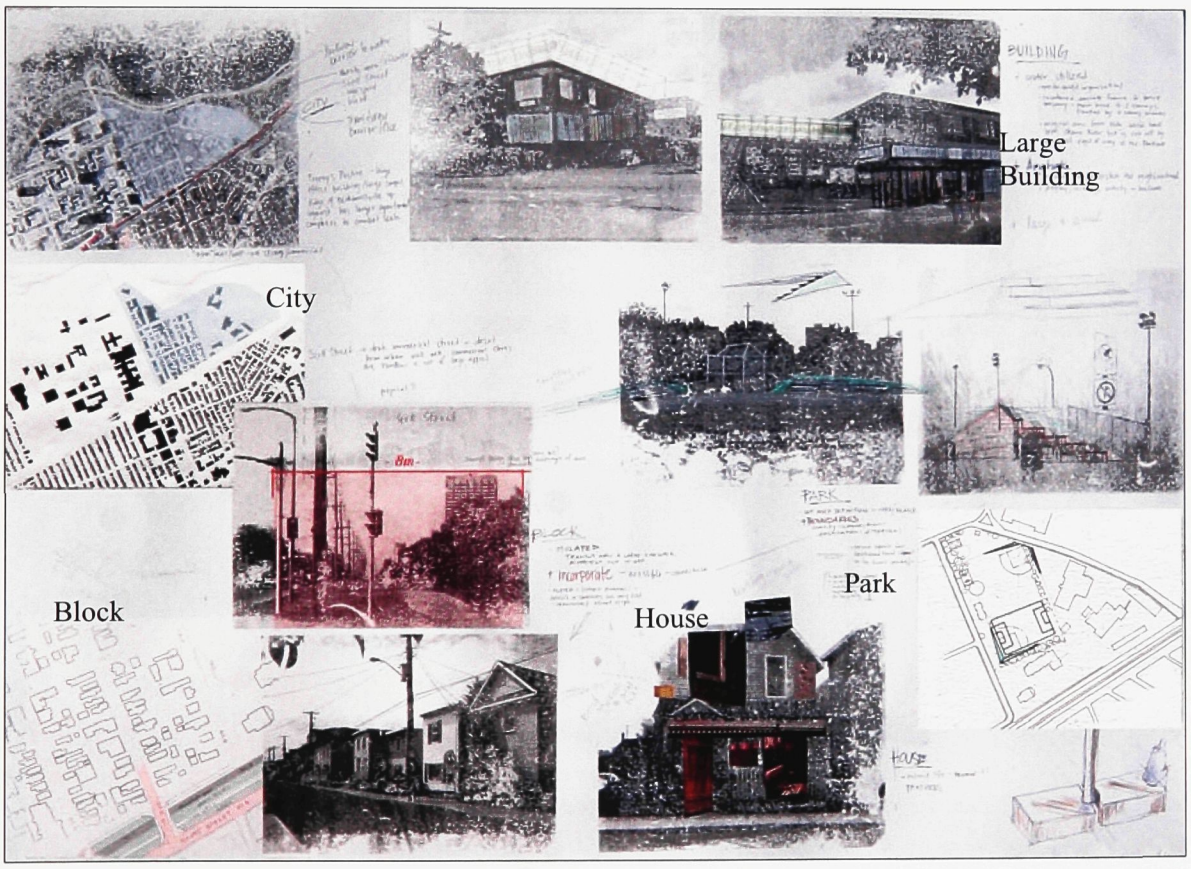


18: House Scale: Three layers seen together; plan, texture details, and general impression.

19: Detail Layer: Portions of the detail layer study for the House Scale.

Design Investigation – 2

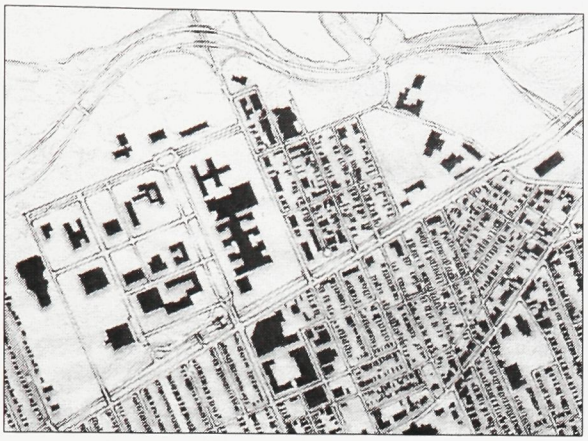
After the identification and study of the five various scales of the site – enabling the difficult comprehension of the whole by considering specific details against each other – an analysis of the past, present and potential future conditions was initiated, a prognosis and a proposal for each of the scales was sketched out. Hippocratic medicine was an art of addition and subtraction; adding what was deficient and removing what was present in excess to restore the balance of health.[102] Each of the proposals, which vary in scale, considered what was deficient and excessive in order to restore balance, and in turn vitality, to the neighbourhood.



20: Proposals for each scale; City, Large Building, Park, Block, and House scale

[102] Hippocrates, "Breaths," *Hippocrates Vol. II,* Trans. W.H.S. Jones (Cambridge MA: Harvard University Press, 1923), 229.

Urban Scale:

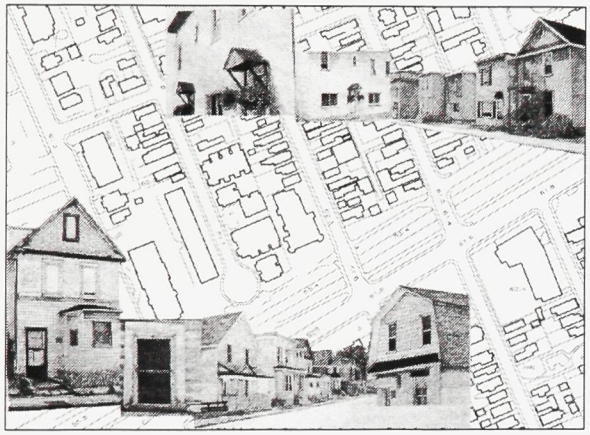


Investigating the Mechanicsville neighbourhood at a large scale and in relation to the city surrounding it, one can see the geographic segregation of the neighbourhood. Enclosing the neighbourhood to the West, the towering, visually dominating and vastly dispersed government complex of Tunney's Pasture and to the East the brownfield of Bayview Yards, used as a snow dump in the winter. To the North the elevated Ottawa River Parkway cuts off the view and access to the river making the only exit from the neighbourhood to the South, Scott Street. A current prognosis for the site sees the continuity of barriers increasing the isolation, disintegration and decay of the neighbourhood.

To address the prognosis of the urban scale, it is necessary to harmonize and incorporate the neighbourhood into the larger whole of the surrounding city which is accomplished by lessening the intensity of the barriers enclosing the site by utilizing and rehabilitating the Bayview Yards area. This area can also be linked to the transit interchange of light-rail and busses on the south-east corner of the lot, providing an alternative route for the residence other than traversing the imposing and unfriendly elevated bridge of Scott Street and new transit lines could allow for an intensification

of the neighbourhood and surround area. This interchange will in turn be connected to LeBreton Flats a major westward expansion of Ottawa's downtown core slated for significant mixed-use development, including the completed War Museum of Canada. Improving the only exodus from the site onto Scott Street would also help in knitting the neighbourhood to the surrounding city.

Block Scale:

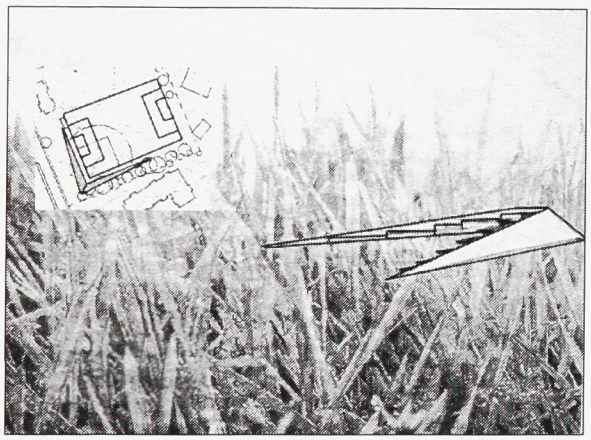


A study of the neighbourhood at the block scale led to a closer look and better understanding of Scott Street; the only entrance and exit from the neighbourhood is an inhospitable throughway of four lanes of high speed traffic. This runs parallel to the Transitway, Ottawa's high-speed rapid transit route for busses and emergency vehicles trenched below-ground and traversable by two bridges. To add to the expanse between Mechanicsville and Hintonburg there is a large stretch of green space and sidewalk, between the neighbourhood and Scott Street, to buffer the high speed traffic from pedestrian traffic. The South side of Scott Street, facing Mechanicsville, is an amalgamation of low-rise commercial buildings set back from the street by empty parking lots. There is no street presence or street life; a few of the buildings front the side streets leaving the

façades of Scott Street blank and austere. A prognosis for the block is similar to that of the urban scale, further isolation of the Mechanicsville neighbourhood.

The proposal for the Block Scale entails a renewal of Scott Street. It is proposed that a more dense and permeable street front will bring both life and safety to the neighbourhood which abuts onto this main artery. With density and permeability comes openness – Jacobian 'eyes on the lane' as it were. The density found in the Mechanicsville neighbourhood will be echoed on the proposed Scott Street, with all the social advantages that can bring.

Park Scale:



Laroche Park is located on the eastern edge of Mechanicville. It is suffering from the opposite enclosure situation of the neighbourhood; it is rather poorly delineated and lacks strong definition. This park serves as the primary green space for Mechanicsville. It consist of two baseball diamonds, a basketball court, water park for small children, washroom building and a small community center with after school programs. It is also a favoured place for dog-walkers from the neighbourhood and the vicinity, in large part because it is one of the few public parks in Ottawa where dogs are allowed to roam off

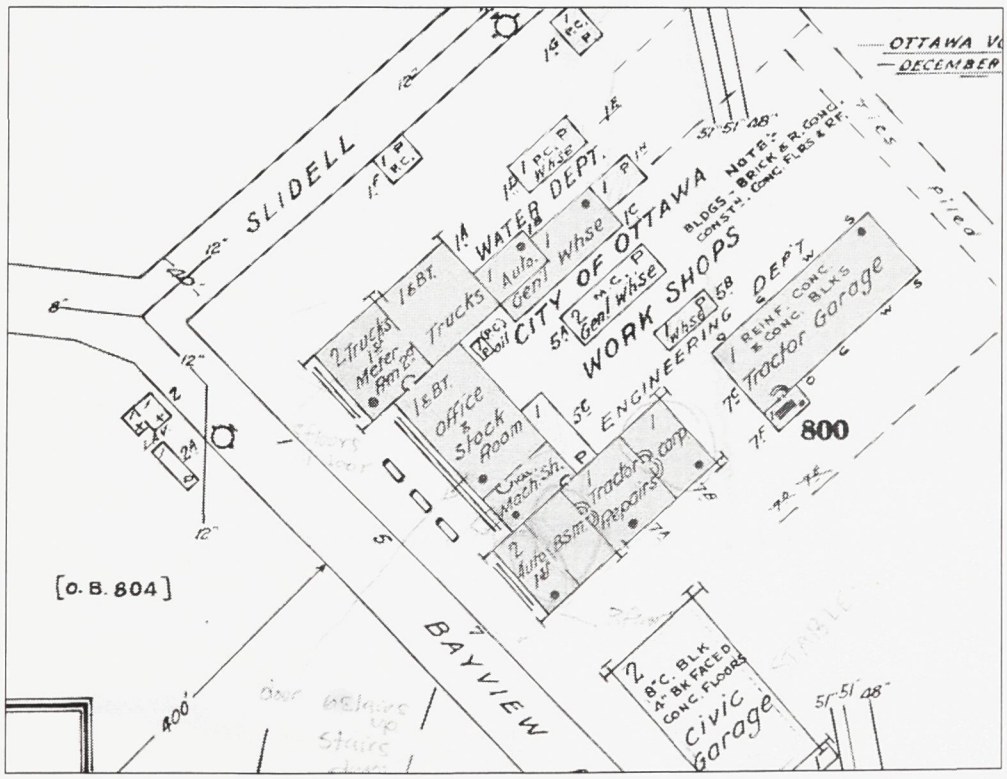
leash. The diversity of activities available in the park is an asset; however, the dull, homogenous design tends to lend a lifeless, uninviting feel to the area. A prognosis for the park sees the continued under utilization and, as a result, further deterioration. This will leave the neighbourhood with another blight to overcome.

The proposal for the park does not involve imposing anything drastic to restore the balance, rather to massage what is there. Delineating the playfield areas with interesting seating designs will help to create boundaries and definition within the park. The same type of design could be used to create additional seating elsewhere in the park and at the same time create more visual interest. This could be achieved with a variety of textures – springy, flimsy, wooden, etc. – and unusual visual elements, encouraging people to do anything – play, skateboard, stand and gawk – but walk though at a brisk pace.

Large Building Scale:

The City Works Building located at the Northeast corner of the neighbourhood, beside the Bayview Yards, near what would have been the original shoreline of Nepean Bay has been studied and identified as having high potential

for reuse. The building occupies parts of the former site of the lumberyards of Shepard and Morse (1922-1930) and Mason & Sons (1901-1922). Original views from the site would have included a panoramic view of the Ottawa River, a view that has since been cut off by the elevated right of way of the Ottawa River Parkway. The complex was built in stages from the early 1930s to the early 1940s as a work yard for the City of Ottawa and includes (former) stables, a maintenance yard, workshops, offices, and storage. The stables were built first, in 1933, followed by the main block, constructed between 1944 and 1947. The complex has always been owned by the City of Ottawa and the architect was J. H. Irwin, the City's Deigning Engineer. The complex no longer functions as a municipal works yard and now houses a variety of



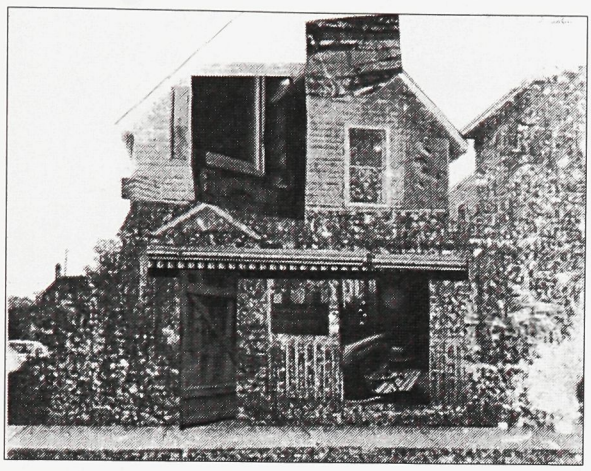
21: Fire Insurance Plan 1948, showing City Works Building.

non-profit enterprises alongside municipal engineering uses in a rather confusing and jumbled mess. Structurally the building is a reinforced concrete frame with brick masonry and glazed infill panels and internal column grid and beams. The main block is two storeys and the flanking pavilions are 3 storeys. The rear stable wing is a single storey concrete frame with infill panels of wooden service doors. There is a large masonry chimney behind the central building. Detailing is restrained and confined primarily to structural components, there are boldly expressed poured concrete structural elements, exposed building services, steel handrails and large industrial windows consisting of single-glazed panels in steel frames with casement sections inserted to allow ventilation. A prognosis for the City Works building is similar to the park and sees the persistence of under utilization and as a result further deterioration, leaving the neighbourhood with a lost opportunity for the genuine retention of a piece of the industrial and working class history.

The proposal for the Building Scale entails a reuse of the City Works Building, retaining the non-profit enterprises and adding more community functions. The building is to become an anchor for the neighbourhood, providing community support, encouraging activity and liveliness. This revived and enlivened building would in turn promote the development of the adjacent

Bayview Yard brownfield, giving the neighbourhood strong eastern definition.

House Scale:



Neighbourhood housing is in need of some immediate repairs that could extend its life cycle. Most blocks consist of simple, narrow, deep houses, clad in vinyl with gable or flat roofs. There is a kind of stillness in the streets. On Carruthers Avenue, a man sat on his front step staring into the quiet street with his television on in the background. Across the street, a storeowner sat quietly, smoking. A prognosis for the housing perceives a continued deterioration of the area. This could very well result in the more horrific modern diagnosis of razing the whole neighbourhood.

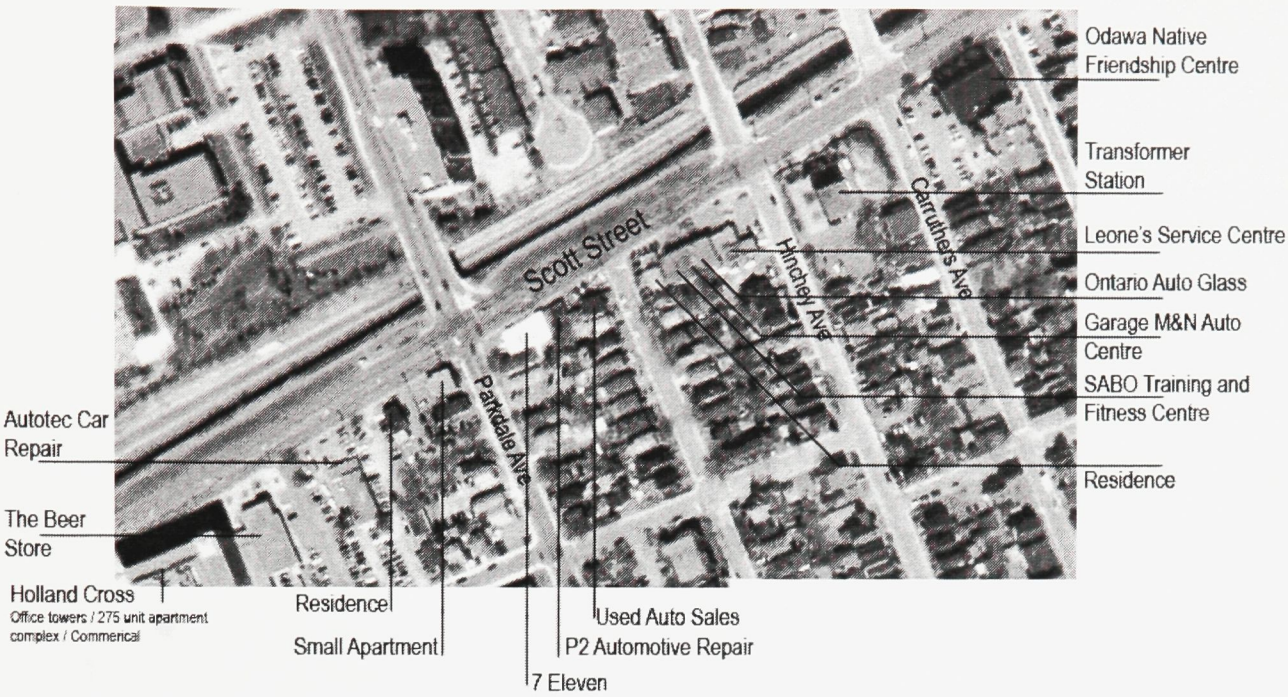
The proposal for the house scale sees the housing contribute more to the neighbourhood streetscape by increasing the use of textures on the facades and with the addition of or improvements to their front porches.

Design Investigation – 3

After the identification of a proposal for each of the scales, looking at each specific case in and of itself and as a contribution to the whole and overall balance of the neighbourhood, a decision was made regarding which scale is the most critical for the health of Mechanicsville. The improvement of the streetscape of Scott Street is seen as possibly having the most impact as a *physis* appropriate for the community – socially, economically and physically.

A section of Scott Street, directly facing Mechanicsville was examined and four blocks were identified as underutilised and as a potential site for a more dense and permeable street front, bring both life and safety to the neighbourhood. A higher density of residential and commercial activity will be proposed for Scott Street, with all the social advantages that it can bring.

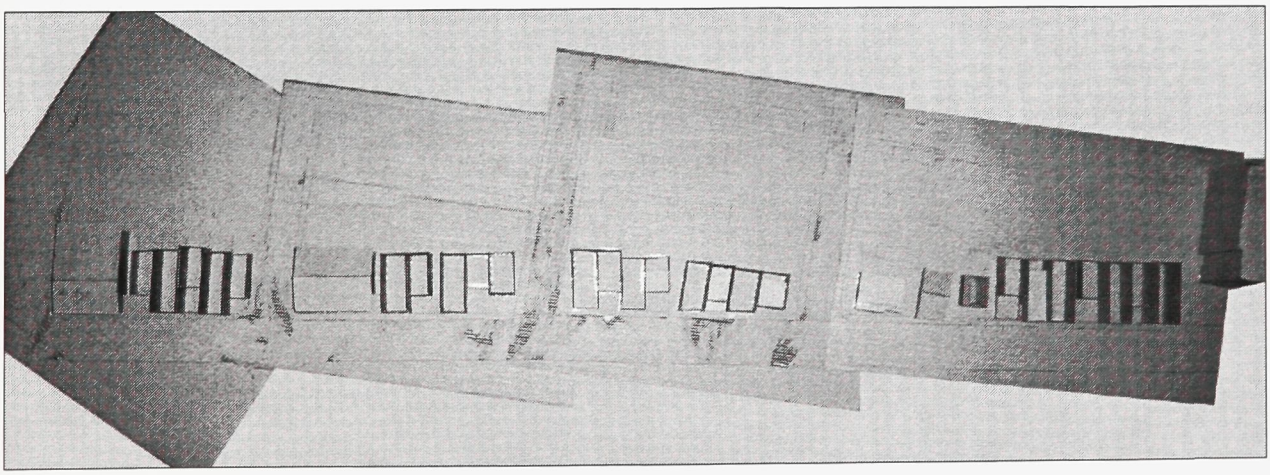
22: Aerial view of potential reuse Blocks & Perspective of the Blocks and their existing street fronts.
Top perspective – Blocks 1, 2, and partial of 3.
Bottom perspective - a partial of the long Block 4.



23: Scott Street Showing Existing Program on each of the Blocks identified for reuse and redesign.

The objective of the Scott Street design is to create a dense and substantial edge, a variegated wall, which contains variation with regards to form, height and materiality but is also perceived as continuous and a whole. The enclosed linear street front would be relieved by the presence of a small number of alleyways leading to the neighbourhood behind, which would break up the continuous building frontage and lend a slight porousness. Abutting the significant traffic route, the Scott Street development will form a protective edge for the residence within the buildings as well as a public realm on the street particularly sympathetic to pedestrians in scale, material and texture, decreasing the severing effect of this route from the surrounding Mechanicsville and Hintonburg neighbourhoods. For the initial architectural and formal move,

three conditions for the depth of the setbacks of the street front were set up; right on the street, 5m setback, and 7m setback. The initial impression was to use the setbacks to differentiate what was strictly residential use and what was commercial on the ground floor, creating a mixture of scale and function. The width of the buildings was derived from the common width of housing seen in the two adjacent neighbourhoods and varied only slightly between 5-7m. The typology of the commercial buildings allowed a higher first floor – 4m, follows tradition; however there is also a modern logic as well to delineate use and character. In the largest setbacks, delineating residential, entry gardens were placed with a fence on the street. Similar basic moves were executed with the elevations, the ground level was recessed with the residential projected, creating a darker entryway; the heights also varied slightly from 3-5 storeys and some buildings sat under one roof.



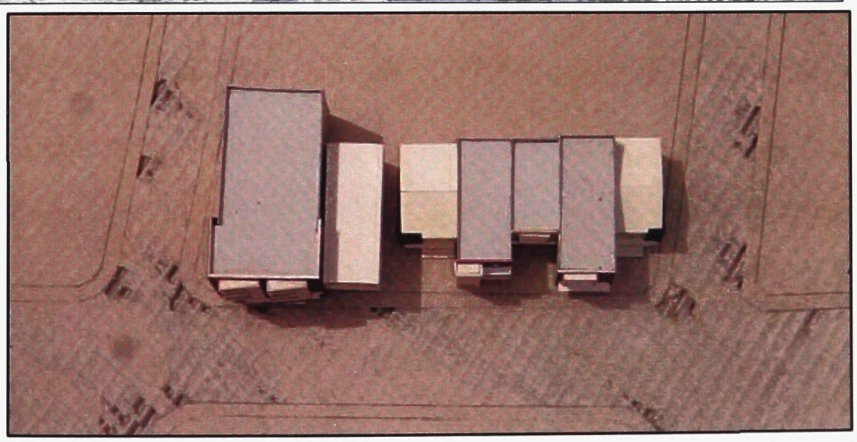
24: Massing Models of Preliminary Architectural Moves

Four blocks of Scott Street.

Once a preliminary massing of basic moves was created, the buildings themselves were modeled with facades details to understand how much difference and repetition would be needed to create a street front that was seen and understood as a whole, but also balance the variation to create a sense of depth, character and visual interest. All the while, understanding that each action will cause a reaction and registering that impact on the Mechanicsville neighbourhood as a whole. The beginning of material suggestions and differentiation were also explored.

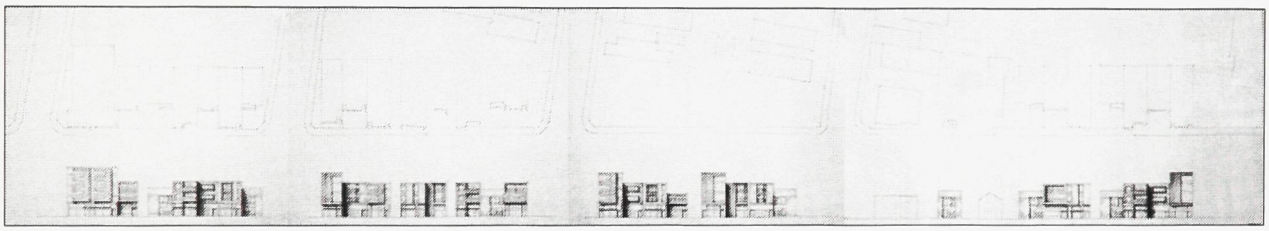
25: Models of buildings with facade detail placed on the site. (3 of 4 blocks shown).

26: Detail of Block 1 Models on site.

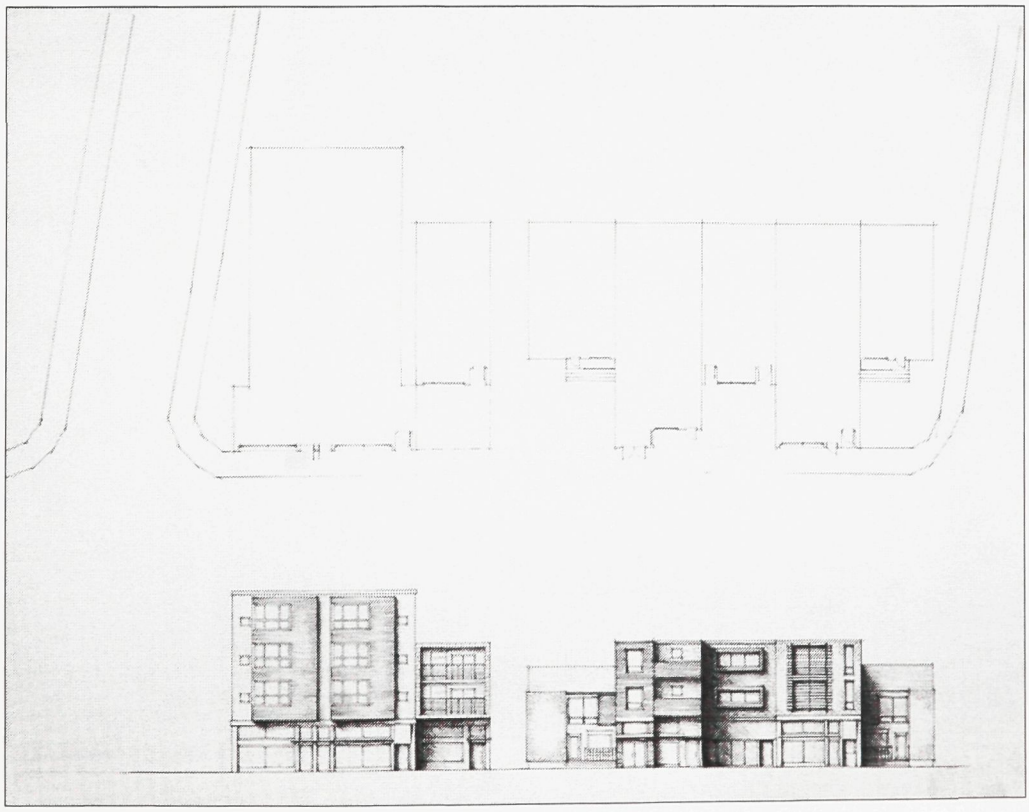


27: Aerial view of Block 1 Models on site

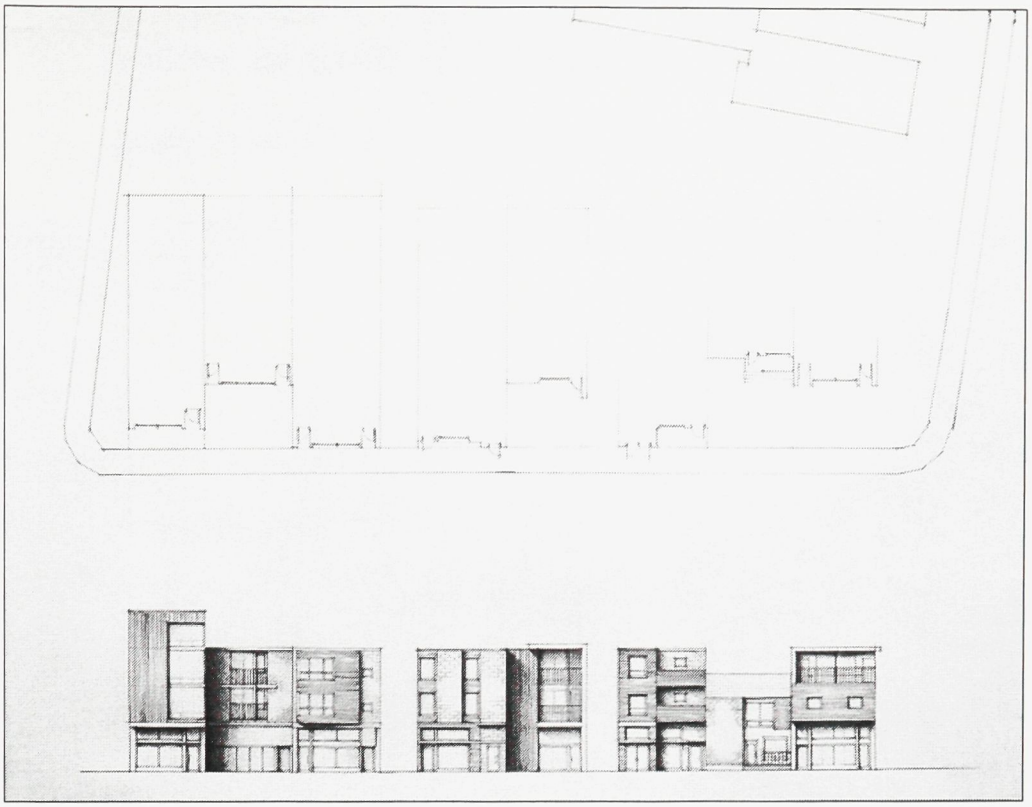
The next layer of investigation was an analysis and critique of the models which revealed that there was too much variety within the façades of the 'wall', impeding an impression of a whole. Drawing the façades at 1:125 scale with the vocabulary and material palette engaged within the layers of the neighbourhood investigations as well as fenestration and commercial fronts – while reducing the number of variations – helped determine an overall quality and texture for the Scott Street wall which also lent the perception of the 'wall' as a whole.



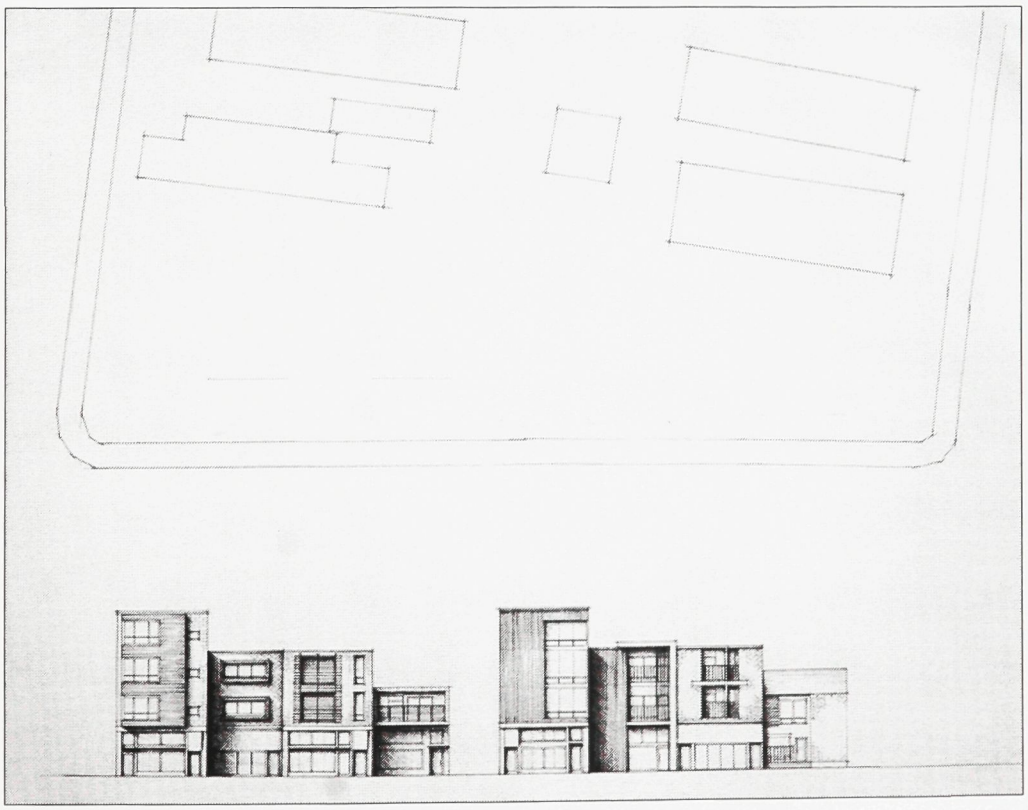
28: Scott Street Façades and Plans of 4 Blocks. 1:125



29: Scott Street Facades and Plans of Block 1. 1:125.

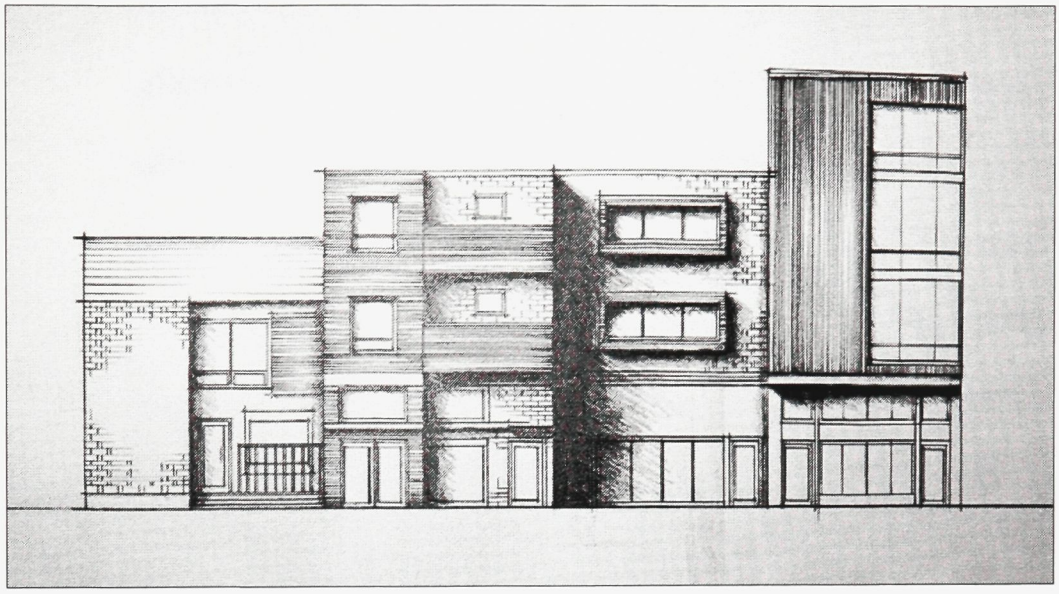


30: Scott Street Façades and Plans of Block 2. 1:125



31: Scott Street Facades and Plans of Block 3. 1:125.

After the establishment of the large architectural gesture of the wall for the benefit of Mechanicville and the improvement of Scott Street, it became necessary to look at the architecture itself



32: Vignette of Scott Street Façades. 1:125

and its impact on the surround housing. The space created around and behind the buildings became an opportunity to create urban green space for the residents. The back of the buildings, usually regarded as an areas for the more unsightly activities, became the front of the buildings for the residents and the urban green space became a pedestrian street and front lawn. The busy artery of Scott Street necessitated a wide birth of sidewalk, making it more interesting and practical to place the entryways to the commercial and office spaces of the ground floor on the side street of corner buildings and the side of buildings which are accessible because of the setbacks. The façades would still

remain vibrant with ample window area. The buildings which are strictly residential would have access only from the back along with the residential entryways for all other buildings, dismantling the hermetics of 'front' and 'back'. As an alternative to the layered or large programmatic blocking approach of typical zoning in an urban plan, the zoning of this project becomes a gradation out from the centre. The more commercial and public spaces are places at the corners and the more private areas are clustered toward the middle; access to the

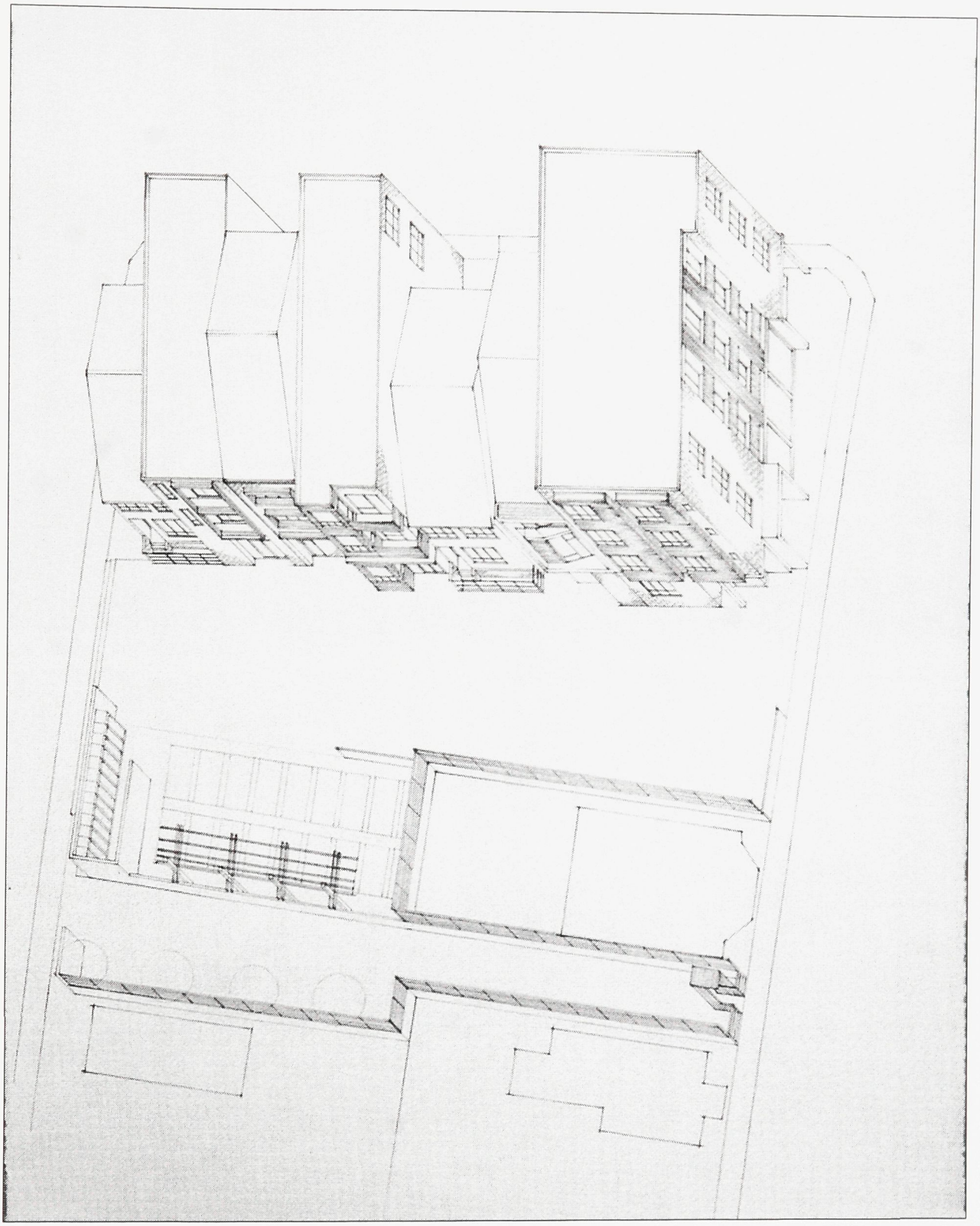
33: Buildings plan with urban space

residential units is from the back, the commercial/ office provide a buffer to Scott Street and its façades remain a protective barrier wall to mediate the two conditions of commercial and residential.

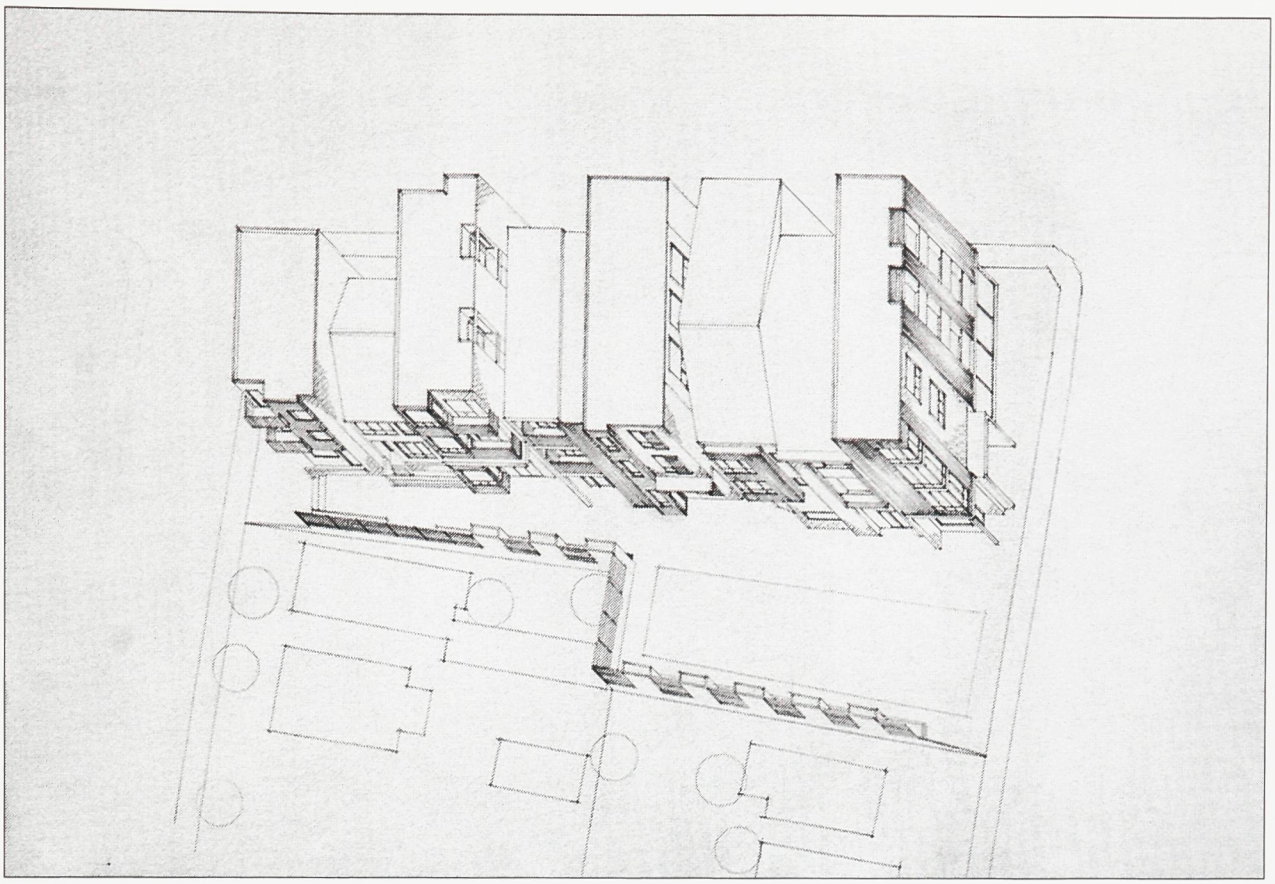
The overall architecture is specific to the site and each building is specific to its condition on the street, where it sits and how accessible it is.

Project Design –

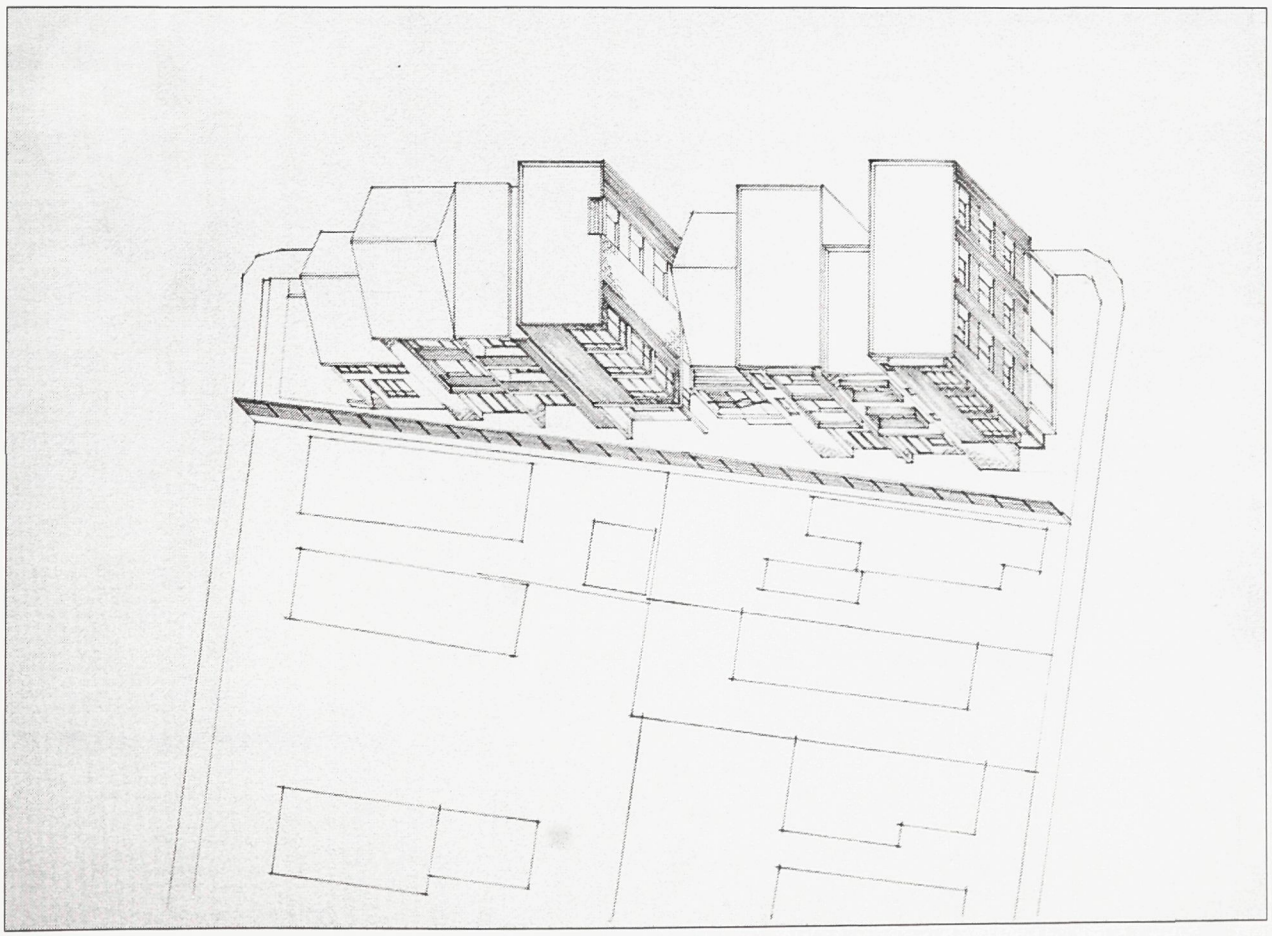
The aim of the project was to create an architecture which combined the concepts of urbanity and density with those of tranquility and community. The resulting buildings oscillate between public and private, between open and closed and attempt to merge elements of both small and larger scale. The alleyway perforations allow views and access through the buildings from Scott Street. This creates a close relationship with the neighbourhood behind and in the forefront – an area which is dominated by an unstructured mix of single-family houses. The green space behind the buildings became an important element, seen as continuous, it ties the blocks together. At the same time, however, due to the lot sizes the green space is of different sizes for each block, leading to a distinct condition and program for the green space of each block.



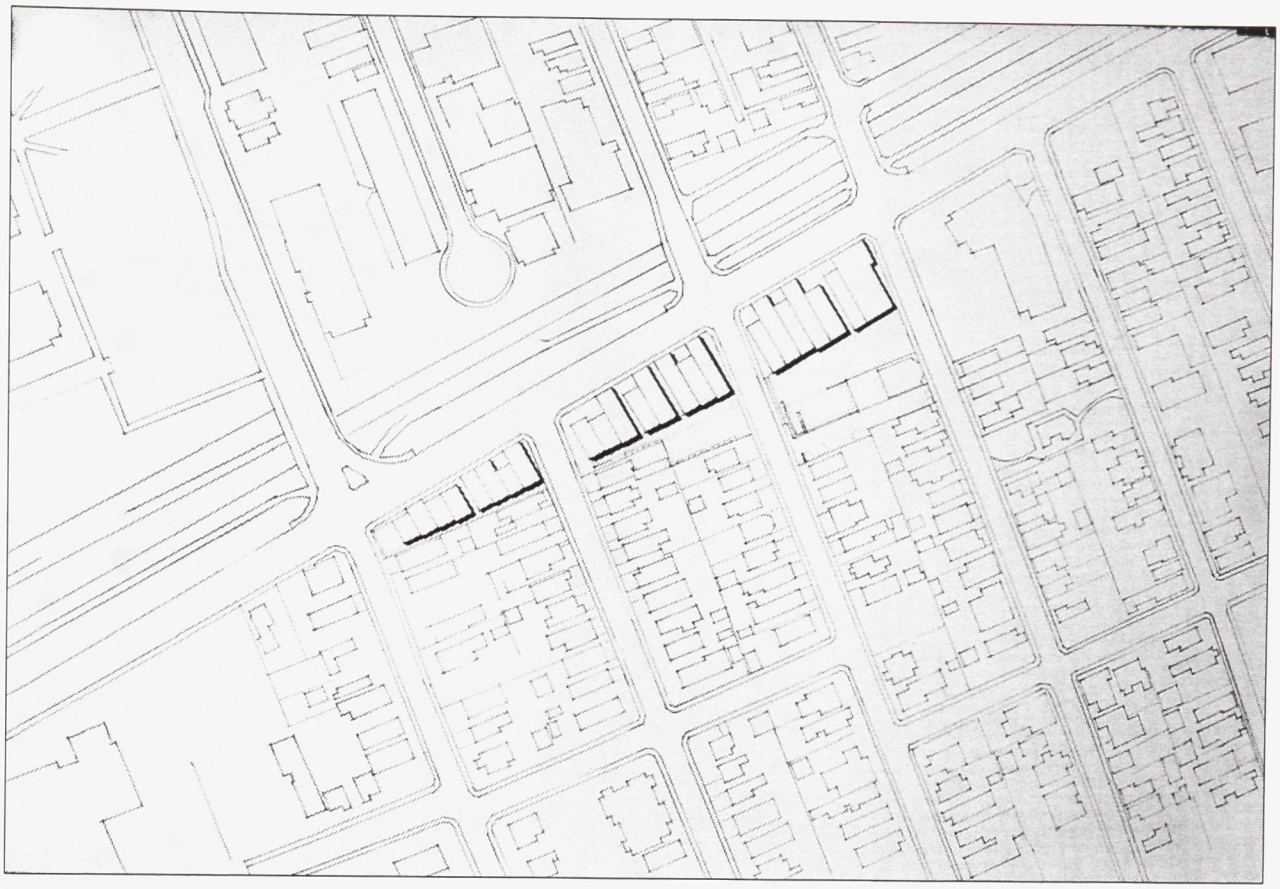
34: Block 1 Axonometric. Green Space includes dog run, public garden and open space. 1:125



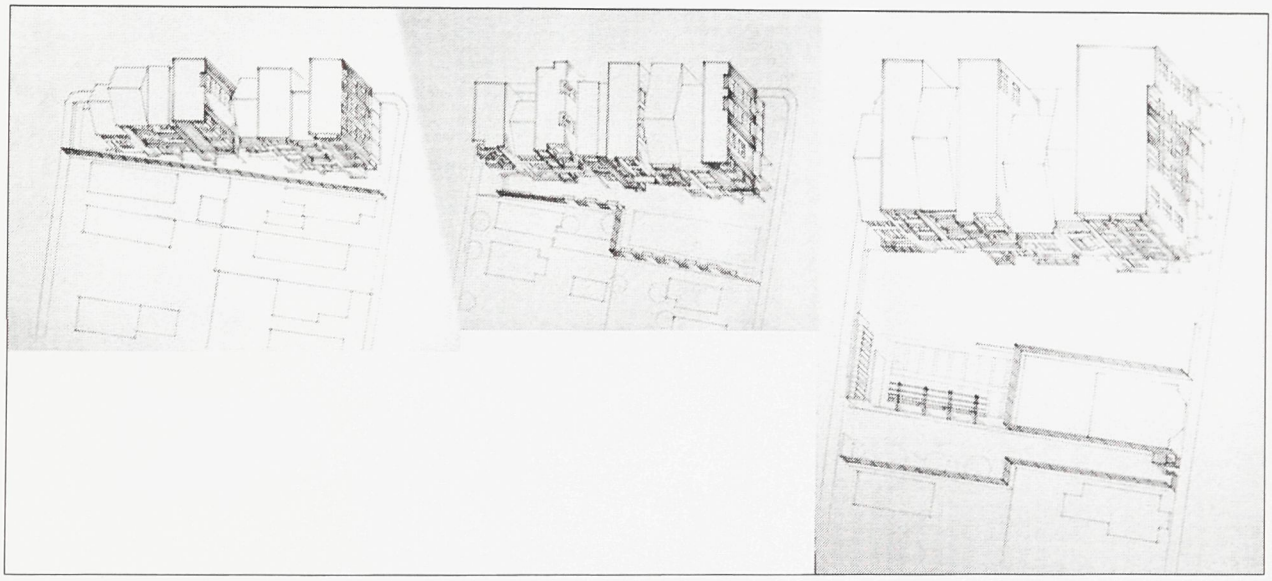
35: Block 2 Axonometric. 1:125



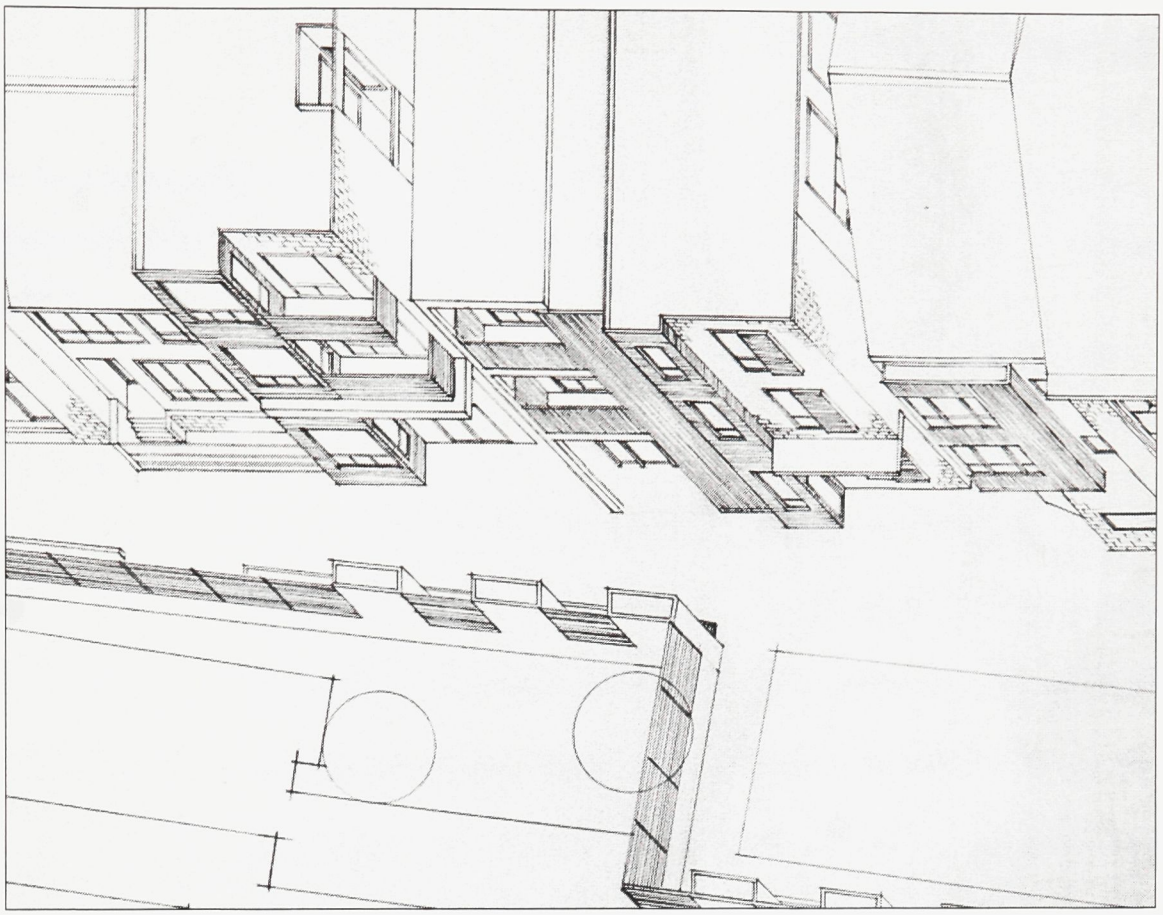
36: Block 3 Axonometric. 1:125



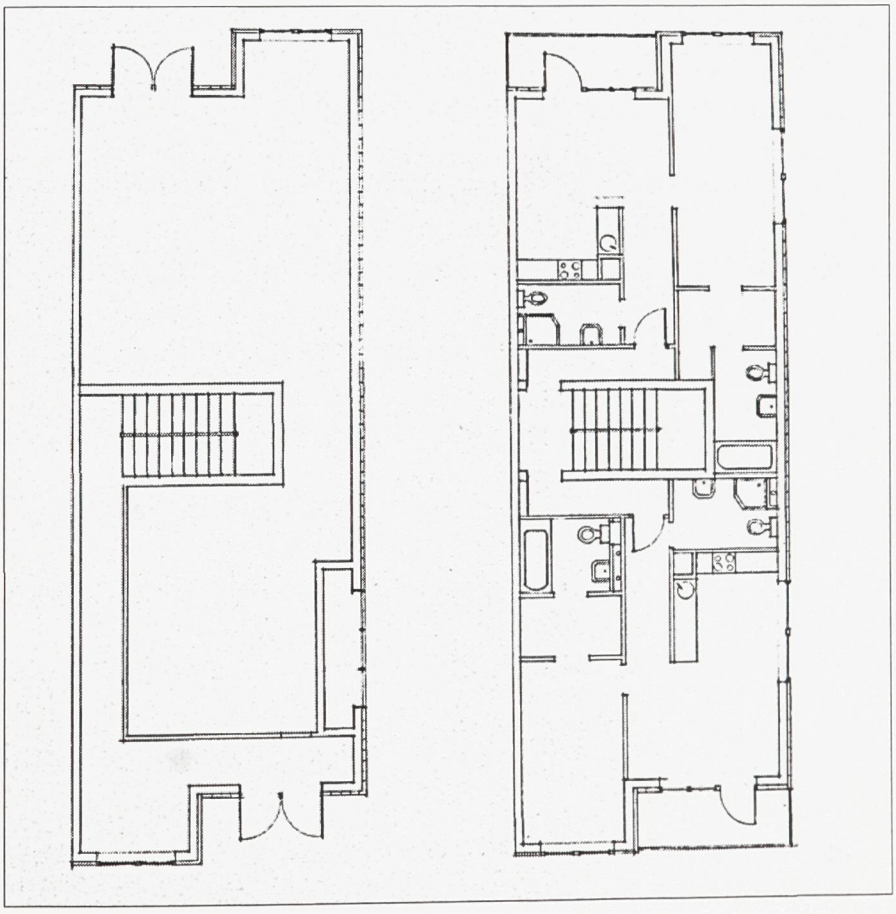
37: Site Plan 1:500



38: Blocks seen together. 1:125



39: Block Detail



40: First and Second Floor Plan of a Building within Block 2.

1st Floor contains Commercial Space

2nd Floor contains 2 – one bedroom apartments

Conclusion

Before he tries to apply his skills to the patient, the careful doctor must not only know the illness which he wants to heal but also the habit of the man in health and the nature of the body.

— CICERO, De oratore[103]

The history of medicine shows the rise of modern pathology in the sixteenth and seventeenth centuries was connected to the abandonment of Greek medicine and the ideas expounded in the Hippocratic Corpus. A revolution in the conception of disease, developed on an anatomical and etiological basis, occurred at this time. The emergence of modern medicine has changed the focus of medicine in a more or less irrevocable way. With this modern form of medicine, the accurate diagnosis and classification of cases came to the fore. Disease is seen as an objective entity, in which external symptoms correlated with internal infected organs or tissue. This is in contrast to former notions of balance or the body as a whole. Thus, as Jewson puts it, the sick man effectively 'disappeared' through the advent of modern medicine, later to be microscopically or micro-organismically transformed, via laboratory medicine, into a collection of cells, with medical

[103] Cicero, *De oratore,* 2.186. Trans. James M. May & Jakob Wisse (New York NY: Oxford University Press, 2001).

practice itself, effectively becoming an 'appendage to the laboratory.'[104] The sick man was at the centre of immanent cosmology for the Greeks. As we have seen, Hippocratic medicine was a comprehensive art, where disease was an unbalance of the body, an unbalance which had to be remedied in order to restore efficient functioning and to preserve the harmony of form and function. Balance is revealed as something that can be carefully adjusted. Propitious medicine is an act of adjusting and balancing the course of our lives with the vital forces in the world.

Hippocratic medicine as an analogical model brought to the contemporary architectural condition provides an alternative strategy for architecture of renewal. The determination of an appropriate architectural catalyst for revitalization of Mechanicsville was cultivated from my study of Greek medicine; the significance and value of prognostication as well as the value of understanding the differences displayed by the sick individual, compare not to a general norm condition but to a singular condition normal for each patient, a *physi*. The analogical model of Greek medicine – a holistic, balance relation of part to whole approach – can aid in the making of healthier cities. The project produced herein creates a balance within itself that is appropriate

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[104] N.D. Jewson, "The Disappearance of the Sick Man from Medical Cosmology, 1770-1870", *Sociology* 10, no. 2 (1976): 230.

to the specific area; each part is treated and related to the whole – of itself and the larger community – and if extended could move from the minute detail to city scale.

When properly administered, medicines make those who are ill, well…this same is needed by the ill state of building, that is a doctor architect who knows perfectly what construction is.

Leonardo, codex Atlanticus 270r
(*translation, Esther de Vecsey, 1983)*

Works Cited – –

Ackerman, James S. *The Architecture of Michelangelo: texts and plates.* New York, NY: Viking Press, 1960.

Argan, Carlo Giulio and Bruno Contardi. *Michelangelo Architect.* New York, NY: Harry N. Abrams Inc., 1993.

Aristotle. *Physics*. Translated by Robin Waterfield. New York: NY: Oxford University Press, 1996.

Brock, Arthur John. *Greek Medicine: being extracts illustrative of medical writers from Hippocrates to Galen.* New York, NY: Dutton, 1929.

Cicero. *De oratore.* Translated by James M. May & Jakob Wisse. New York NY: Oxford University Press, 2001.

Cherniss, Harold. "Plato, 1950-1957." *Lustrum* 4 (1959): 139-141.

Edelstein, Lugwig. *Ancient Medicine; selected papers of Lugwig Edelstein.* Edited by Owsei Temkin. Translated by C. Lilian Temkin. Baltimore, MD: Johns Hopkins Press, 1967.

Gasset, José Ortega y. *Mission of the University.* Edited and translated by Howard Lee Nostrand. Princeton, NJ: Princeton University Press, 1944.

Grube, G.M.A. "Greek Medicine and the Greek Genius." *Phoenix* 8, no. 4 (1954): 123-135.

Gwilt, Joseph. *The Architecture of Marcus Vitruvius Pollio in Ten Books.* London, UK: John Weale, 1868.

Hippocrates. *Hippocrates Vol. I-X.* Translated by W.H.S. Jones. Cambridge, MA: Harvard University Press, 1923.

- - -. *The theory and practice of medicine.* Edited by Emerson Crosby Kelly. New York, NY: Philosophical Library, 1964.

Holmes, Liz, "Architect Rem Koolhaas warns of the 'sloppy' and 'uncritical,'" *Cornel News*, April 25 (2005).

Jewson, N.D. "The Disappearance of the Sick Man from Medical Cosmology, 1770-1870." *Sociology* 10, no. 2 (1976): 225-244.

Jouanna, Jacques. *Hippocrates.* Translated by Malcolm B.

DeBevoise. Baltimore MD: The John Hopkins University Press, 1999.

Klassen, Helmut. "Michelangelo: The Image of Image of the Human Body, Artifice, and Architecture." In *Chora vol.1* edited by Alberto Perez-Gomez and Stephen Parcell. Montreal, QC: McGill-Queen's University Press, 1994.

Klein, Jacob. *Greek Mathematical Thought and the Origins of Algebra.* Translated by Eva Brann. New York, NY: Dover Publications Inc., 1992.

Larsen, Svend Eril. "Self-Reference: Theory and Didactics between Language and Literature." *Journal of Aesthetic Education,* 39, no. 1 (2005): 13-30.

Leaning, John. *Hintonburg & Mechanicsville.* Ottawa, ON: Hintonburg Community Association, Inc., 2003.

Leatherbarrow, David. "Sitting in the City, or The Body in the World." In *Body and Building* edited by George Dodds and Robert Tavernor. Cambridge, MA: The MIT Press, 2002.

Levine, Edwin Burton. *Hippocrates.* New York, NY: Twayne Publishers, 1971.

Longrigg, James. *Greek Medicine: from the heroic to the Hellenistic age: a source book.* New York, NY: Routledge, 1998.

Lund, Fred B. *Greek Medicine.* New York, NY: AMS Press Inc., 1936.

Major, Ralph H. *A History of Medicine.* Springfield, ILL: Charles C. Thomas, 1954.

McClure, M.T. "The Greek Conception of Nature." *The Philosophical Review* 43, no. 2 (1934): 109-124.

McEwen, Indra Kagis. *Vitruvius: writing the body of architecture.* Cambridge, MA: MIT Press, 2003.

Moon, R.O. *Hippocrates and his successors in relation to the philosophy of their time.* New York, NY: AMS Press, 1979.

Murray, Linda. *Michelangelo.* London, UK: Thames and Hudson, 1980.

Newell, Christina. *Hintonburg: A Working Class Streetcar Suburb at the Turn of the Century.* Ottawa, ON: The Historical Society of Ottawa, 1995.

Nutton, Vivian. *Ancient Medicine.* New York, NY: Routledge,

2004.

Orfances, C.E. "From Hippocrates to Modern Medicine." *Journal of European Academy of Dermatology and Venerology* 21 (2007): 852-858.

Pagel, Walter. "Prognosis and Diagnosis: a comparison of ancient and modern medicine." *Journal of the Warburg Insititute* 2, no. 4 (1939): 382-398.

Plato, *Charmides*. Translated by Benjamin Jowett. New York, NY: Hard Press, 2006.

- - -. *Phaedrus*. Translated by Benjamin Jowett. Champaign, ILL: Project Guttenberg; Boulder Col: NetLibrary, 2007.

- - -. *Laws*. Translated by Benjamin Jowett. London, UK: Oxford University Press, 1952.

Porter, Roy. *The Greatest Benefit to Mankind: a medical history of humanity*. New York, NY: W.W. Norton & Company Inc., 1997.

Rykwert, Joseph. *The Dancing Column: on order in architecture*. Cambridge, MA: MIT Press, 1996.

Schultz, Bernard. *Art and Anatomy in Renaissance Italy*. Ann Arbor, MI: UMI Research Press, 1985.

Smith, Wesley, D. *The Hippocratic Tradition*. New York, NY: Cornell University Press, 1979.

Strauss, Walter L. *The Human Figure by Albrecht Durer: The complete Dresden sketchbook*. New York, NY: Dover Publications, 1972.

Summers, David. *Michelangelo and the Language of Art*. Princeton, NJ: Princeton University Press, 1981.

Temkin, Owsei. "Greek Medicine as Science and Craft." *Isis* 44, no. 3 (1953): 213-225.

Vesely, Dalibor. "The Architectonics of Embodiment." In *Body and Building*, edited by George Dodds and Robert Tavernor. Cambridge MA: The MIT Press, 2002.

Vitruvius. *De Architectura. Vol I-II*. Translated by F. Granger. Cambridge MA: Harvard University Press, 1956.

- - -. *Ten Books on Architecture*. Edited by Ingrid D. Rowland and Thomas Noble Howe. Cambridge, U.K: Cambridge University Press, 1999.

Wright, F.L. *The Natural House*. New York, NY: Horizon Press, 1954.