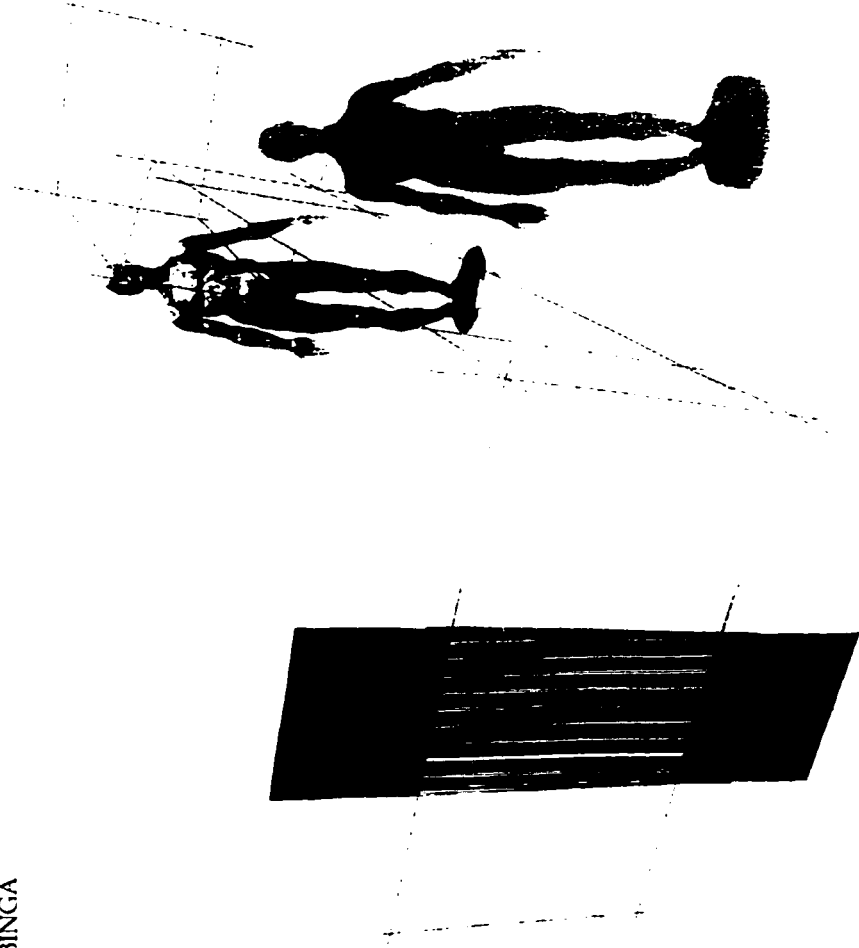


THE TRANSIENT BODY : *an investigation of the human body through design*

CHRIS KUBBINGA





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ABSTRACT

This Master's Degree Project is an investigation into the cultivation of an idea and its translation into architectural form. Using the human body as a theme, my project generated an understanding of the medical encounter that was then translated into the design of a community-based medical clinic. This document is a record of that work, completed over a period of eight months.

The project can be divided into two parts. The first is comprised of a period of research based upon the relationship of the human body to the medical encounter. As a means of generating initial concepts, these ideas were then cultivated through a process of making objects and images that served to develop and clarify these ideas with regards to the architectural project. The focus of the second part is the translation of these ideas into the design of a medical clinic.

In terms of site and program, this project has taken into consideration a range of contingencies that are presented by the reality of designing within a medical and social context.

The purpose of this document is twofold. On one hand, this project represents a body of work that has examined the potential of design to enhance the clinical experience for both the patient and the practitioner. At the same time, this project considers the approach to architectural design in a more general sense. Making architecture is enhanced by the designer's ability to understand human events. The Transient Body is a stage in the refinement of a way of working that seeks to develop the means to further an approach that is both relevant to how we live and translatable into architectural form.

Keywords : Architecture, Clinic design, Clinical method, Design, Imaging, Ocularcentrism, Theory.

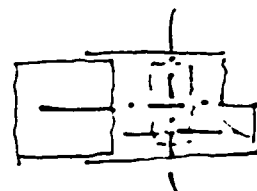
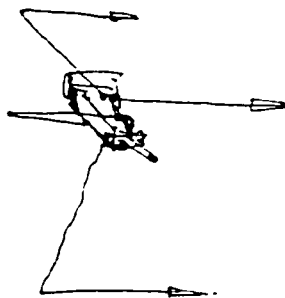
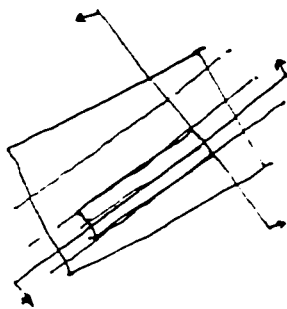
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I would also like to thank the numerous people in the faculty who have made my experience here both enjoyable and engaging: Bill, Cassandra, Darren, Dave, Graham, Hans, Ian, Ingrid, John, Knut, Pete, Richard and Rosa.

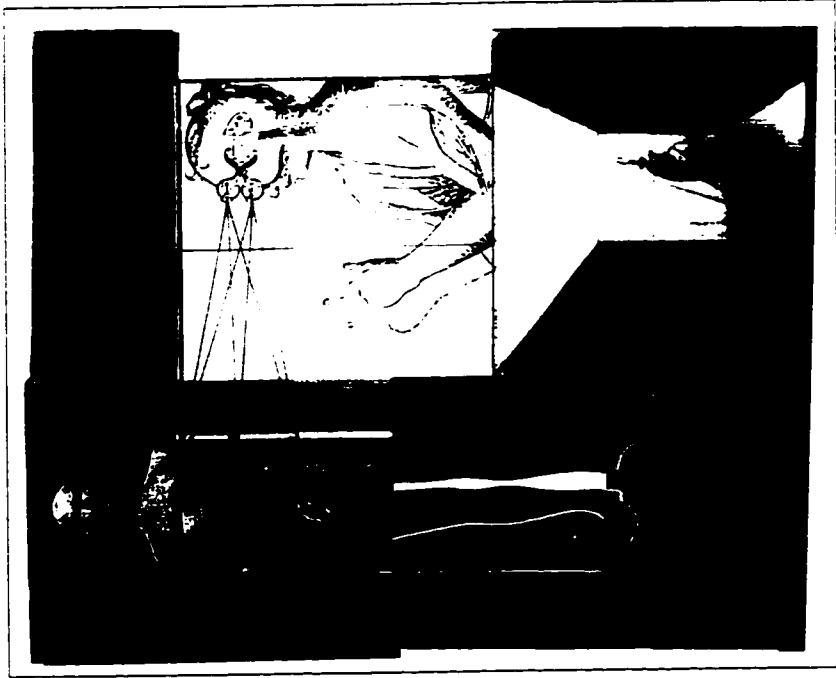
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*The
Transient
Body*

IMAGING THE UNSEEN



Through the medium of our senses, we engage that which surrounds us. Our body is the mechanism through which experience is integrated. The body and the environment are engaged in a perpetual dialogue in which, "the world and the self inform and redefine each other constantly."¹ Our understanding of ourselves is developed through the desire to extract meaning from the experiences that our senses provide. This project begins with the nature of this dialogue and it's potential to change our perceptions of ourselves.

There are many examples of our collective efforts to gain understanding. The existence of history for example, is a manifestation of the desire to understand our collective past. More than simply a record, history provides an *interpretation*. A string of events linked by a general order that seeks to weave together the threads of our past. What is important to this discussion, however, is not the formation of history but the role that the senses have played in the interpretation and understanding of what surrounds us. How through taste, touch, smell, hearing and vision we begin to shape our world.

Diane Ackerman describes the senses as defining the edges of our consciousness which, as explorers, we spend a lot of time skirting. We are constantly pursuing the unknown through our senses, tearing reality apart into "vibrant morsels" to create meaningful patterns.² Within this pursuit, each of the five senses are engaged in the construction of our reality, but by no means do they play an equal role. The eye has clearly been placed at the top of sensorial functions. As Pallasmaa notes, in Western culture there is a sensorial

bias towards vision as the noblest of senses.³ Seeing with one's own eyes is often the basis for the verification of an event. Early classical Greek thought based certainty on vision and visibility. During the Renaissance, the senses were ranked in a hierarchical system with vision at the top and touch at the bottom.⁴

To a large extent, we live in a world that we understand as we have seen it. While experience is layered with sounds, smells and textures, it is vision that has provided the basis for knowledge. In science, the scientific method has made observation the basis of verification. In philosophy, clear vision becomes a metaphor for knowledge, with light as the metaphor for truth. Our adoption of an ocularcentric, or vision based, paradigm has shaped both our relation to the world and our concept of knowledge.⁵ Within the context of the medical experience, this project will consider the impact of an ocularcentric approach on the development of medical knowledge and its' implications on the body in architecture.

In the late seventeenth century, Francis Bacon wrote his *Novum Organum* which denied the authority of ancient writers, referring to traditional philosophical systems as "comedies."⁶ Bacon proposed a new way of organizing knowledge that was not based on the existence of transcendental conclusions. Bacon's writings transformed philosophy. In contrast to the conflict of past philosophical systems, Bacon proposed a system that would result in the development of a single scientific tradition based on the scientific method. Science took on a positivistic outlook. Knowledge was now in a state of constant progress, accumu-

lating experience to be used by intellectuals of the future.⁷

The work of men such as Kepler, Galileo, Descartes and Newton led to the formation of Natural Science, with the development of the scientific method as its means of investigation, which stressed the importance of "the direct study of nature in the light of objective criticism."⁸ Diligent and assiduous observation became the departure point, with experiment as a means to test hypothesis and mathematics as a means of simplification, to distil facts into formulae.⁹ The conflict between this approach and traditional methods used at the beginning of the eighteenth century was considerable. However, with the gradual acceptance of these new ideas, Europeans began to reject the mystical explanations of phenomena in favour of solutions that could be visually verified. It is in the wake of this shift that modern medicine began to emerge.

The seventeenth century presented a paradox in that the Natural sciences were developing broadly and swiftly while medicine seemed to be returning to the attitudes of the Middle Ages.¹⁰ Medical practice was plagued by ill equipped barbers and old army surgeons who possessed little medical knowledge beyond that which they were hastily taught in the army.¹¹ Slow to adopt new techniques, various ailments were still treated with the usual techniques: enemas, blood-letting and purging.¹² Despite advances in medical science, practice was mired by inconsistencies and mysticism. Incompetence was still an issue, the threat of the charlatan was still real.

Modern medicine has proclaimed its origins in

the late years of the eighteenth century.¹³ It was at this time that medical practice was formalized into a profession - one which was based firmly on scientific knowledge.¹⁴ One reason for the creation of a profession was to literally save the patient from the hands of the unqualified practitioner. In the absence of any form of regulation, the quality and credentials of practitioners were varied to say the least. In contrast to earlier practices, doctors of the late eighteenth century approached diagnosis guided by knowledge based on the scientific method as an organizing principle.

The decrees of Marly, issued in March 1709, provide an early example of how French medical practice and education became regulated.¹⁵ In creating a formal body, French doctors made the following oath:



de la Honore Daumier, *Celle from Limagoudeux* 1833

"We wish to enlighten our minds by fortifying ourselves with our collective knowledge; the weakness of some of our number is corrected by the superiority of others; by coming together under a common administration we will continue to arouse competition among ourselves."¹⁶

This recognition of medicine as a collective body of knowledge is important as it implied an awareness of a system of order. Information was organized according to specific parameters. Like history, scientific knowledge was communal, owned and cultivated by humanity; capable of being shared while constantly increasing and growing.¹⁷ Due to this universal nature, medical knowledge became part of a construct that crossed both cultures and borders. As such, medical knowledge existed independent of any individual practitioner. It has become a benchmark, a means to assess the competence of both practitioners and prospective students. The eye, as the basis of the scientific method, had assumed a pivotal role as the means by which all subsequent medical knowledge was verified.

The creation of the medical profession marks the formal acceptance of the scientific method by medical science. In the desire to further cultivate medical knowledge, medical science has been engaged in a process of exploring and refining its understanding of the body within a medical context. Over the past three centuries, increasingly complex techniques and apparatus have been developed as a means to further this exploration. In modern medicine, of which our current medical system is an extension, the existence of these

techniques raises significant issues relevant to our understanding of the body. There is a connection between medicine and our bodies that lies outside the scope of medical science. In developing a relationship between the body and architecture, this discussion will describe the connection that exists between the development of medical knowledge and the potential for this to affect our perceptions of ourselves.

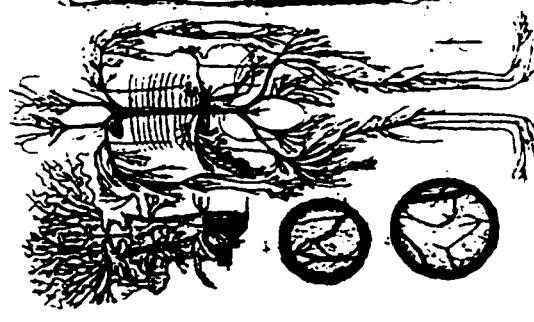
In the translation of theory to practice, the practitioner becomes the means by which the developments of medical science are brought to the patient through new techniques. Just as the eye has influenced the formation of medical knowledge, it is also important to medical practice. In his discussion of the medical clinic, Michel Foucault refers to the ocularcentric nature of practice through his description of "the gaze".

In the traditional medical experience, it is possible to describe the doctor-patient relationship as one in which the patient submits to the "gaze" of the doctor. Foucault's discussion attributes to the "gaze", a significant pathological reorganization of medical knowledge in the nineteenth century. It also marked a transition in language, developing a system of terms to precisely describe that which was previously invisible and therefore inexpressible. The creation of a medical language enabled one to describe what one saw.¹⁸ Beginning with a description of disease as a three-dimensional, mental configuration, the "gaze" became the means by which illness was presented to the doctor. The analogy Foucault uses to describe this configuration is that of a "spatial-mental tree" where the relationship between symptoms and illness are connected in a

similar way that individuals are connected in a family tree. Disease, therefore, could be expressed as a structure that can be mapped in terms of symptoms, acting as signifiers to the illness that is signified. Diagnosis becomes a matter of knowing how all the "branches" interconnect. Within this tree, a particular symptom will only be connected to those illnesses with which it is associated, thereby eliminating a whole range of other illnesses. The identification of an illness is based on a process of elimination.

The training of the practitioner requires an understanding of this tree. In a sense, this construct can also be expressed as a map that is used to trace the origin of symptoms. The "map" of disease is laid over the body, through which the doctor "looks" to perform the examination. It is here that the communal nature of medical knowledge can be seen. As Stafford notes, medical nomenclature has moved towards standardization, creating a new language for the body.¹⁹ The adoption of the "tree" by the practitioner gives them the ability to interpret illness precisely and in a form that could be understood by others with the appropriate medical training. Medical language, therefore, developed a specificity that could describe illness exactly. Through the gaze, the discourse of medicine began to acquire a linguistic precision that did not require the more subjective interpretations of the patient. The medical statement of the problem became the basis for treatment. The question "What is the matter with you?" was replaced with the question "Where does it hurt?"²⁰

The roots of the medicine, therefore are based upon looking and observation. Like the other sciences,



Top: Jean Louis Alibert, *Encyclopédie Dermatologique* (Paris: 1831)
Bottom: John Harris, *Acute and Venous*, 1704

the scientific method has provided medicine with a means of investigation, with the eye as the tool of verification. To further understand it's subject within these parameters, medicine has adopted the use of increasingly complex technical apparatus to extend the range of the eye. Consequently, medical knowledge has also become more complex. Specialization has become necessary in order to further construct an understanding of the body that is already dense. We live in a time where medicine is still looking for a complete understanding of the body. Newer and more powerful technical apparatus probe deeper into the body, continuing a path of study that began over three hundred years ago with the elaboration of a desire to image the unseen.

The observation of the body has long been the departure point for the process of healing. Medical history is rife with images depicting observation as an integral part of practice. The surface of the skin, the eyes, excretions etc. were clues to what was going on inside the body. Eventually the eye needed more information to supplement its developing knowledge. This move from the surface of the body to what lies beneath started with dissection and the study of anatomy. Both have a long history, although it is the revival of anatomy during the Renaissance, with the work of Leonardo DaVinci, that is most relevant. Noted for his "powers of observation and stupendous technical skill", DaVinci approached the subject with no preconceptions, relying solely on his powers of observation and experiment.²¹ Dissection, the act of opening up a corpse and 'poking around' had set medical knowledge on a course of investigation that has become fundamental to modern medicine. Advances in medical

knowledge were significant, ranging from developments in obstetrics to the verification of Harvey's circulation theories in greater detail. The eye was the tool for observation and subsequent abstraction. Through dissection the eye could penetrate the body; exploring and organizing the structures and systems that lie beneath the skin.

The idea of imaging the unseen had a pronounced impact on experimental research in the eighteenth and nineteenth centuries. In an age of positivistic science, the eye was dedicated to the endless task of absorbing experience in it's entirety, and of mastering it.²² Eventually the revelations provided by dissection became common knowledge. Dissection was more valuable as a teaching method than a means of exploration. Science, in its perpetual cycle of observation and recording, searched for means of enhancing the eye's ability to see. The fruit of this labour was the development of technological prosthetics such as the microscope to enhance the eye's power of observation.

The microscope was likely invented in 1590 by the Dutchmen Johannes and Zacharius Jansen, although it is in the seventeenth century that the instrument and microscopical technique was refined.²³ With the introduction of the microscope the idea of looking was taken to its extreme. The power of the eye was multiplied in order to explore the secrets of nature, from the gigantic to the smallest detail.²⁴ What was once imperceptible, was now discovered through the lens, filling the eye of the viewer. The observing eye, hungry for the presentation of new experience, gained entry to a world that had previously been inaccessible. The microscope marks the beginning of a tradition of

which (for the purposes of this discussion) will refer to the body that grounds us in the material world: it is the means by which we interact with our everyday surroundings. The medical body is the frame of reference for the doctor: it represents the means by which illness is understood and treated. The medical experience, therefore, can be expressed as the overlapping of the social and medical bodies during the medical exam.

The implications of being able to physically "reformat" our bodies will inevitably bring into question those qualities that have in the past been considered fundamental to our understanding of ourselves. For example, if medical technology could eliminate multiple sclerosis should the same techniques be used to eliminate obesity? The abortion issue is another example of how medical technology is changing our bodily perceptions. As Barbara Stafford notes in *Body Criticism*, it is through the use of technical apparatus that the possibility of a separable organism is pushed back towards conception.

The possible implications of the Human Genome Project provide a dramatic example of the potential for technology to change the social body. The ability to change ourselves at this level could put our perception of what it means to be human on a slippery slope. While perhaps not as overt, this project considers the effects of medical technology in popular culture and media. As will be demonstrated, the appearance of medical images in various media can, with varying degrees of subtlety, influence our understanding of ourselves.

One characteristic of current imaging technologies is that they produce clear, graphic images. Images

that are easy to read and, in fact, are easily altered to demonstrate specific ideas or relationships. In various forms of mass media the graphic potential of these images are used to clarify a range of ideas, some of which are medical, others relating in a more general way to our bodies or lifestyles. The impact of medical technologies are, therefore, not simply scientific tools. The images that they produce are drawn into a culture that has, through years of looking, developed an affinity for the visual. The images shown here represent random selections from magazines over a period of five months. The prevalence of these images in the mass



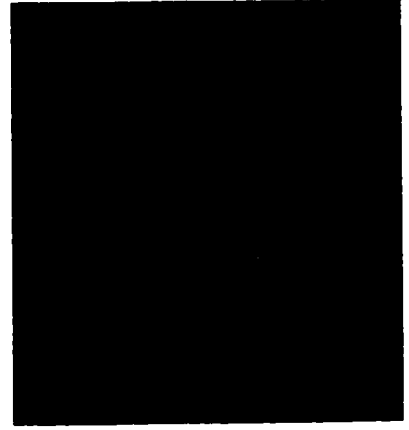
media gives an audience, at the very least, an impression of the technological advances in medicine. When presented in conjunction with stories that talk of the possibility of finding the "meaning of human existence" or events that will "change our philosophical understanding of ourselves",²⁷ these images serve to powerfully relate concepts that may otherwise require background knowledge or be a tedious read.

This overlap between culture and technology is certainly not specific to contemporary times. There are many examples of the overlap between science and society. In a manner similar to the computerized images of contemporary times, microscopic discoveries were both news and entertainment in the eighteenth century.²⁸ Views through the microscope were both a source of knowledge and a cure for ennui, "These novel and enticing sights were intended not only to evoke amazement but (were) to provoke intelligent comment and passionate discussion among the assembled viewers."²⁹ The products of contemporary biotechno-

logical imaging are in a format that makes them visually, and therefore socially, consumable. Stafford draws the historical connection between society and imaging techniques by stating that:

"Lenses and cylinders, originally manufactured in order to understand the universe, supplied the initial impetus for our current spate of mass produced images. They are the ancestors of that digital technology beckoning us to join the illusion."³⁰

The products of this desire to image the unseen therefore, extend beyond the science of medicine. They are consumed by a society that has a developed visual sense. With Stafford's argument in mind, it is relevant to question whether the contemporary tendency towards the increasing fragmentation of the body will have the same impact that dissection and the microscope had on society in the eighteenth century. Dissection and the microscope were the tools of a process of "anatomization", where probing beneath the skin led to

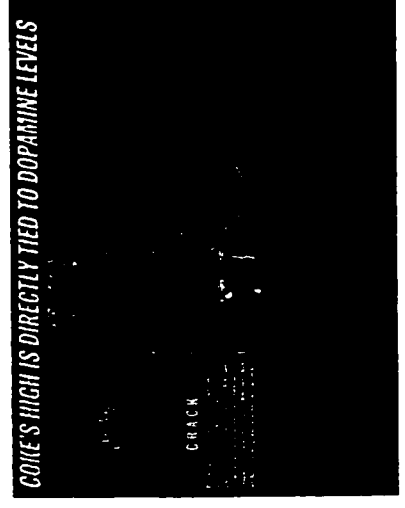
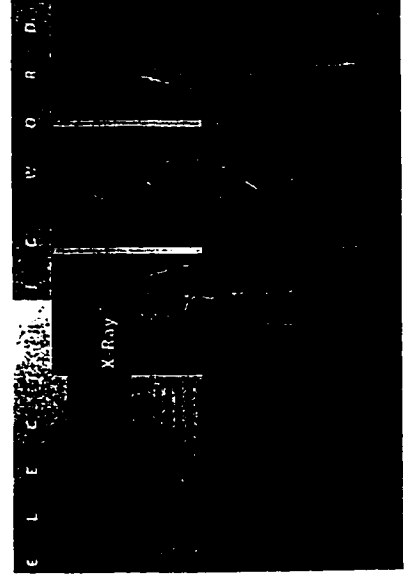


the complete exposure of the body, the result of which was the association of anatomization with a sense of vulnerability, powerlessness and shame.³¹ Though non-invasive, current technologies can effectively turn the body inside out, rendering it nakedly public.³² An awareness of the medical body and the power of biotechnology does not require that one submit to a PET or MRI scan. Like the cadaver, the patient being scanned is the subject. The images produced by these technologies can, however, extend beyond the medical encounter. The presence of these images in popular media (among other sources) will almost certainly have an impact on those who read them.

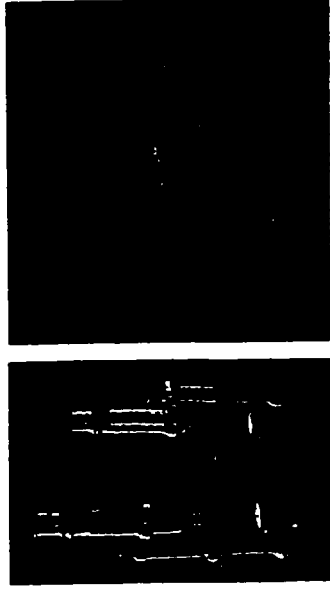
It is not within the scope of this project to provide a detailed account of how the development of biotechnology has affected our culture. What is important is that this idea demonstrates a relationship in which medical science and the patient are linked. Medical science, in its attempts to understand the body within a specific frame of reference, has constructed an

alternative that can, in turn, change its subject by its presence in other contexts. The complexity of medical knowledge may initially seem too distant to affect the perceptions of the individual. However, the use of medical images in various forms of media has served to bring medicine closer. Our perceptions of our bodies are informed by a range of cultural and social influences. The idea of the transient body refers to the tendency for these perceptions to shift as our social and cultural environment changes. The connection between medical imagery and the body is just one example of how external influences can, in effect, change who we are by altering how we see ourselves. Another more publicized example of this relationship can be found in the fashion industry, which creates a body image that has left many people with a sense of inadequacy as they strive to emulate what has been presented to them in magazines.

The Transient Body focuses on the process of translating this idea into the architectural form of the



technological imaging techniques in medicine. Where dissection had revealed the structures beneath the skin, the microscope revealed the nature of *those* structures by allowing the eye to probe deeper. The body, which dissection had started to break down into its constituent systems, was now further fragmented. The power of the microscope, however, was soon eclipsed by the development of the X-ray, with its ability to see through the body. Today, this technology has been supplemented with the complex digital imagery produced by Computerised Axial Tomography (CAT scans), Positron Emission Tomography (PET scans) and Magnetic Resonance Imaging (MRI).



above left: early microscopes

right: MRI scan of the human head

(Maurice Goldblatt MRI Centre, Dept. of Radiology, University of Chicago)

Under the scrutiny of imaging technologies, the body is placed in a process of perpetual subdivision. The establishment of the eye as the means to explain phenomena has resulted in the transformation of the body into ever more minimally visible fragments. One

of the implications of this increasing subdivision is the possibility of commodification, where the body is understood as a series of units or "building blocks". This idea is mentioned with specific reference to the Human Genome Project, which seeks to map each of the twenty-three paired human chromosomes and compile them in the "ultimate genetic compendium". The formatting of the human body into an abstract form such as this makes the manipulation of this information less problematic.²⁵ The findings promised by the Human Genome Project are of particular interest to genetic engineers, who envision the potential to assemble and manipulate the body through the arrangement of what constitutes the building blocks of life. Fundamental questions of what it means to be normal are challenged in light of these new abilities. There are obvious benefits to this technology in terms of an increased diagnostic ability and understanding of disease. However, it is important to consider the increasing possibility that the eye, which has spent years observing the body, may move the hand to alter what it sees.

This project considers the impact of technology on the medical experience. The point where the human body and medical knowledge meet. It is important to note, however, that the idea of technology in the medical experience does not imply that the medical encounter *itself* is technological. The focus of this project is the impact of technology on the medical experience through its potential to change the perceptions of those involved in the medical exam.

In the medical encounter it can be said that the body has two forms. The medical body, as developed in great detail by medical science, and the social body,

clinic. The body analogy in architecture is one that has been commonly used to frame an understanding of why we build. Anthony Vidler, in *The Architectural Uncanny*, talks about a history of the body analogy in architecture. There are three distinct ideas of the body that are of relevance to contemporary architectural theory. They are a) that the building is a form of the body, b) that the environment as a whole, possesses bodily or organic characteristics and c) that the building relates to the states of the body or the states of mind based on bodily sensation.³³ In presenting these theories, Vidler demonstrates what can be considered a tradition of looking at built form as an extension of ourselves. It is inevitable that what we build is a reflection of how we see ourselves, both in relation to each other and our surroundings.

Within the context of this project, the investigation of the human body begins with this idea. It should be noted that this document does not seek to give an account of, or extend an existing theory. Form is generated based upon an understanding of the importance that our perception of an event can have in designing for that event.

In terms of the medical experience, shifts in cultural perception have an impact on the *practice* of clinical medicine. Culture is one of the most important determinants of a patient's interpretation of both their illness and their expectations of the doctor.³⁴ Culture is not solely defined by issues such as religion or ethnicity. It is formed by a range of influences, including the nature of media in a particular society. An individual will reflect the bias of their cultural context. This bias will affect the clinical experience as much as any other

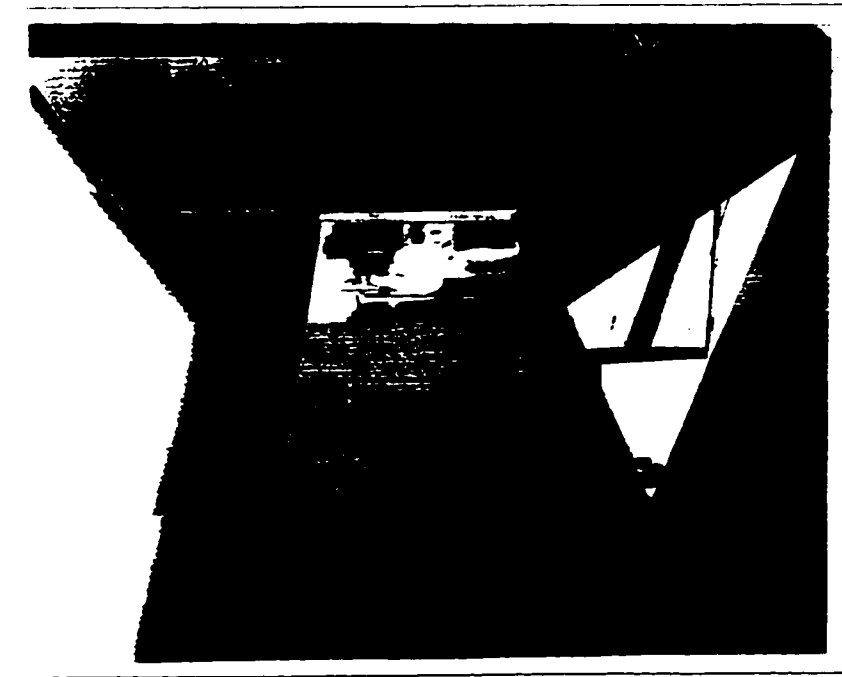
cultural determinant. In a contemporary context, medical technology and the graphic images that they produce have played a role in changing our perceptions of our bodies to a point that the form of the clinic (as a place for the medical encounter to happen) must also change.

This discussion has served as a means to begin to understand the complexity of the medical encounter. By briefly tracing the historical origins of what today constitutes the field of modern medicine, the proposed design of a contemporary medical clinic is informed by the development of medical knowledge, the products of its attempts to better observe the body and the impact of these on the perceptions of the patient. In the Canadian context of socialized medicine the clinic is a place where the patient could be literally anyone. As a place where the social and medical bodies merge, the clinic is a facility that must be able to accommodate the variable nature of the patient. One of the challenges of clinical practice is for the practitioner to accept the existence of interpretations of reality that differ from that of traditional medical constructs and practice, which is based on the organic and pathological. It is the focus of the proposed design to facilitate the meeting of these distinct realities through a consideration of the spatial and programmatic sequence of the clinical visit.

NOTES

- ¹ Pallasmaa, *The Eyes of the Skin*, p. 27.
- ² Ackerman, *A Natural History of the Senses*, p. xv.
- ³ Pallasmaa, *The Eyes of the Skin*, p. 6.
- ⁴ *Ibid.*, pp. 6-7.
- ⁵ *Ibid.*, p. 8.
- ⁶ Pérez-Gómez, *Architecture and the Crisis of Modern Science*, p. 18.
- ⁷ *Ibid.*, p. 19.
- ⁸ Margotta, *The Hamlyn History of Medicine*, p. 98.
- ⁹ *Ibid.*, p. 94.
- ¹⁰ *Ibid.*, p. 98.
- ¹¹ Foucault, *The Birth of the Clinic*, p. 66.
- ¹² Margotta, *The Hamlyn History of Medicine*, p. 94.
- ¹³ Foucault, *The Birth of the Clinic*, p. xiii.
- ¹⁴ Margotta, *The Hamlyn History of Medicine*, p. 98.
- ¹⁵ Foucault, *The Birth of the Clinic*, p. 45.
- ¹⁶ *Ibid.*, p. 46.
- ¹⁷ Pérez-Gómez, *Architecture and the Crisis of Modern Science*, p. 18.
- ¹⁸ Foucault, *The Birth of the Clinic*, p. xii.
- ¹⁹ Stafford, *Body Criticism*, p. 111.
- ²⁰ Foucault, *The Birth of the Clinic*, p. xviii.
- ²¹ Margotta, *The Hamlyn History of Medicine*, p. 73.

- ²² Foucault, *The Birth of the Clinic*, p. xiv.
- ²³ Margotta, *The Hamlyn History of Medicine*, p. 108.
- ²⁴ *Ibid.*, p. 108.
- ²⁵ Stafford, *Body Criticism*, p. 22.
- ²⁶ *Ibid.*, p. 212.
- ²⁷ Lewontin, in *Culture on the Brink* p. 109.
- ²⁸ Stafford, *Body Criticism*, p. 342.
- ²⁹ *Ibid.*, p. 342.
- ³⁰ *Ibid.*, p. 342.
- ³¹ *Ibid.*, p. 48.
- ³² *Ibid.*, p. 48.
- ³³ Vidler, *The Architectural Uncanny*, p. 70.
- ³⁴ McWhinney, *A Textbook of Family Medicine*, p. 93.



THE CONVERTER

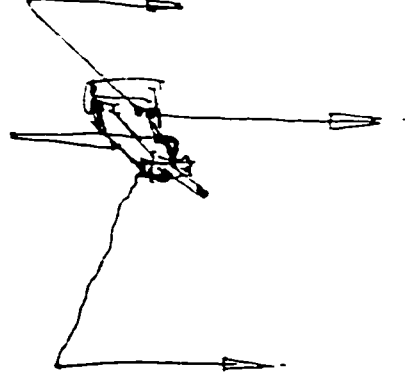
Part of the process of developing this project was to explore the role of alternate media in the generation of architectural form. This section describes what can be seen as an intermediate design stage in which initial conceptual ideas are translated into ideas of architectural significance.

In *Hejduk's Chronotope*, K. Michael Hayes uses Mikhail Bakhtin's concept of chronotope as a means to explain the work of John Hejduk. Chronotope is described as the formation of an "alternate world", one in which the hierarchical or traditional relationships of our world are suppressed in order to facilitate the exploration of concepts in isolation. In many disciplines, competence is developed through the cumulative understanding of initial, simplified concepts. It is a personal belief that this idea also applies to architectural design. Chronotope, as understood in this project, represents a method of inquiry that recognises the complexity of the architectural project. It does not seek to define all aspects of the project, rather it develops a means of approach through the exploration of essential concepts.

This project began with a general focus on the relationship of the human body in medicine. Early research suggested that further investigation should be guided by a thematic focus based on the role of technology in the medical encounter, and the perceptions of the patient during the medical exam. These ideas seemed to be the most relevant to my intentions at the time. The products of this work are an installation entitled *The Converter*, and the series of four collages that begin the chapters of this document.

Although abstract in nature, the works are directly related to the final design. The proposed clinic is a translation of ideas that were developed and refined through the making of this work.

The Converter is an interpretation of an imaging device. Counter weighted, *The Converter* sits suspended in space by four thin cables attached to steel cones. Acting as a form of plumb bob, each cone marks a point on the floor, defining an "interior" space within which the apparatus sits. The generation of this form is a response to the technological presence in medicine. As described in the previous discussion, the influence of medical imaging techniques extends beyond the medical context into popular media that is not normally associated with the medical experience. In setting out to

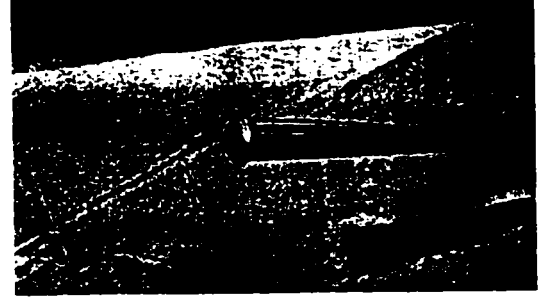
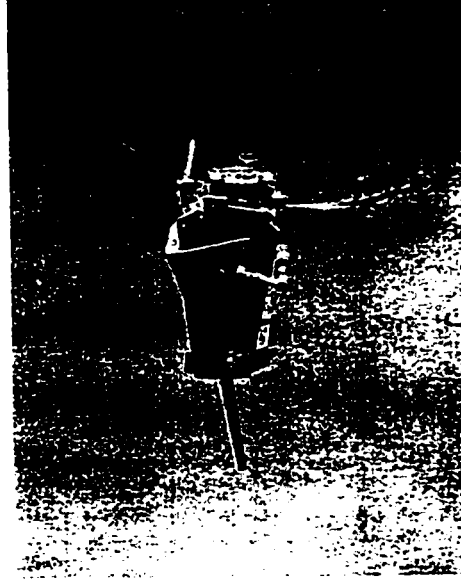


above: concept sketch of *The Converter*

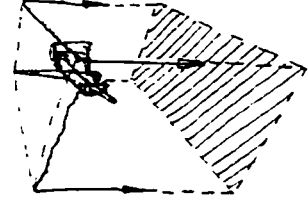
explore a medical apparatus, I realized that it is not the device, but the images that they *produce* that is of relevance to the clinical experience.

In it's uncanny appearance, *The Converter* evokes many of the fears traditionally associated with the medical exam.

The Converter, with it's counterweights, defines an interior space and consequently, an exterior space as well (the space that lies outside the "plumb bobs"). The viewer, in approaching this work, is put into an ambiguous position. Physically, they are clearly in the outside space. However in it's visual appearance, *The Converter* creates an empathic response in the viewer, evoking the fears and anxieties of the medical experience. In looking at the *Converter*, there is the sense that the viewer is looking at an apparatus that is actually designed to look at *them*. This ambiguity, in



left sketch of *The Converter* showing the interior space
defined by the counterweights
above right photograph of *The Converter*
right detail of counterweight/plumb bob



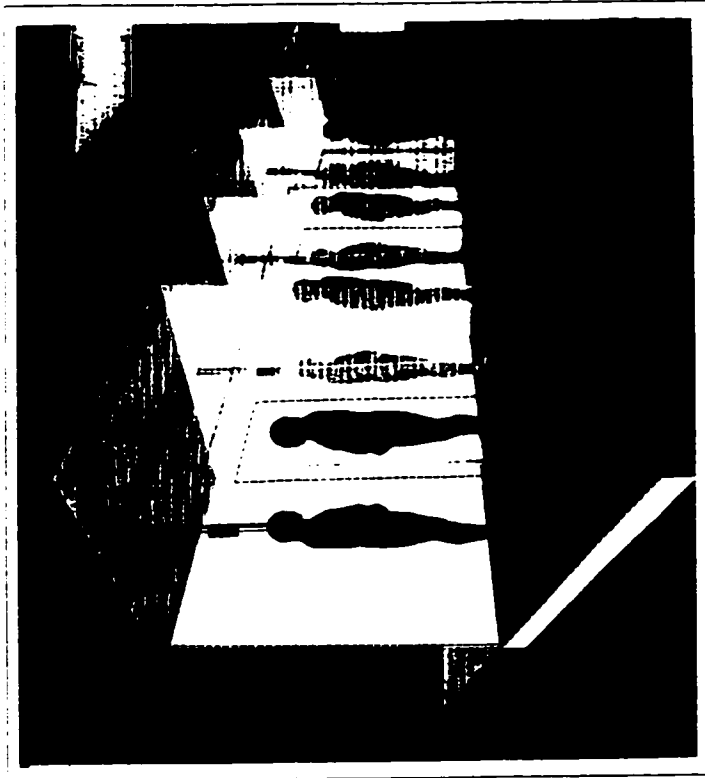
which the viewer can imagine themselves as both an observer and the observed, is one of the fundamental conceptual ideas informing the proposed design. As will be seen in the following chapter, this idea has been expressed architecturally as an expanded threshold. Through which the patient makes the transition from the external world into the private clinical environment.

The series of collages that appear in this document represent graphic "distillations" of conceptual ideas. Collage is a medium that has often been associated with architectural design. It's abstract nature lends itself to both the formal and experiential description of space. The collages in this document, however, use this medium in a different manner. They lie somewhere in between collage, photomontage and painting. In beginning each work, an image that was relevant to the exploration of an idea was selected. For example, the collage entitled *Imaging the Unseen*, was developed around Descartes' diagram depicting the mechanics of an sight. Similarly, *The Converter* used the image of an early X-ray machine. From this image, the collage was developed as initial concepts were considered in architectural terms (i.e. space, scale, opacity). Within this document, these images have been placed in relation to the writings that they helped develop. In this sense, they are the "opening paragraph" of each chapter. Accordingly, the ideas behind their generation are to be found in the text.

In the introduction, I expressed the difficulty in describing an intuitive, abstract way of working. This intermediate stage, in which initial ideas are developed, is perhaps the most elusive in this respect. It is a personal belief, however, that the value of exploring

concepts through means that are not specifically architectural can present ideas in ways that other forms of expression (i.e. writing) may inhibit. As will be demonstrated, the incorporation this process work into the design process has generated ideas that are entirely relevant to the architectural expression.

THE MEDICAL CLINIC



In the current Canadian context of socialized medicine, the medical clinic is part of a system of health care that allocates available medical resources to satisfy the needs of the society it serves. Considering the trend towards the closure and streamlining of larger health facilities, the clinic is becoming more significant as a point of access to the medical system as a whole.

In the recently published *Final Report of the National Forum on Health* it was observed that the Canadian medical system is in a state of transition. Correspondingly, the role of the clinic in the health care system is also changing. The closure of larger health care facilities is in part a response to the economic pressures of maintaining the hospital as the main health care provider. The effects of these closures will lead to decentralization of health services and a shift in focus towards developing facilities that are more community based. As part of an ideal system, the clinic becomes¹ part of this range of community-based services.

It is in this context that the design of a primary health care clinic has been considered. The medical clinic is a place designed to facilitate the medical encounter. As part of a public system its location is determined by its proximity to the community it serves, presenting site conditions that are difficult to relate to in a typically architectural manner. As a functioning facility, the clinic must accommodate the needs of the doctor and patient as well as any apparatus or tools required for the exam. In the primary health care clinic, however, it should be noted that there is little need for complex medical equipment. The clinical environment is still relatively low-tech as its primary function is to assess the needs of the patient so that they may be

directed to the appropriate services.

The development of the idea of imaging the unseen in medicine portrays the doctor's frame of reference as a map that they have been trained to read. The medical encounter could therefore be seen as the process of its application to the body. The key to medical practice, however, is not to simply understand the map, but also to understand the patient. It is the focus of clinical medicine to refine this process. In this capacity the clinic is primarily a place for communication. As a point of entry to the health care system, it is important that the clinic provide an environment that will facilitate proper diagnosis.

The clinic is a place of overlap. It is where the medical and social bodies meet for the medical encounter. However, the clinic must be seen as a place of overlap on a larger scale, between the practitioners and the community that they serve. As the clinic becomes more significant as a means to access the medical system, the ability of the clinician to understand their community will facilitate proper diagnosis and provide better treatment.

Given the precarious situation of the medical system, it is important to understand its organization and use it in a way that is both beneficial and efficient. The proposed design of the medical clinic has reflected these ideas by creating a work environment based upon the clinical experience as a process in which the patient is transformed from a social body into the medical subject.

THE CLINICAL METHOD

The principles of family medicine read as follows:

- a) The doctor-patient relationship is central to family medicine.
- b) The family physician is a skilled clinician.
- c) Family medicine is community-based.
- d) The family physician is a resource to a defined practice population.¹

¹ (excerpts from the *General Information and Regulations on Program Accreditation and Examinations*, April 1993, p 9)

It is in the clinical setting that the framework of medical science is initially related to the body through the clinical skills of the practitioner. The design of a facility must be informed by an understanding of the medical encounter in which both the position of the doctor and the patient are acknowledged. Clinical technique has a developed understanding of this relationship. The proposed design seeks to relate the *place* of the clinic to the *process* of the clinical exam.

In the current context of the primary health care facility, the clinical method is patient-centred, reflecting a desire for the practitioner to understand both the illness and the patient. A patient comes to the clinic with a set of expectations, or agenda, in mind. In simple terms, this agenda is to gain some understanding and/or treatment for a perceived illness or problem. However, the agenda of the patient is influenced heavily by their perceptions of their body, the doctor, the clinical environment and so on. In a patient-centred clinical

method, it is the task of the physician to address this agenda. It is this confrontation that constitutes the overlap of the medical and social bodies. The doctor may think they understand the patient's agenda, but they have no right to make this assumption without appropriate testing. The doctor also has their own agenda that has been referred to earlier in the context of the gaze. This agenda includes, in part, the diagnosis and treatment of illness in terms of the medical frame of reference, the screening for presymptomatic disease and the follow-up of the patient's response to treatment. The patient's agenda, however, is dependent upon the individual's experience with their illness. The illness could be physical or psychological. The patient seeks to communicate the nature of their illness through whatever means possible, including sensations and feelings, disabilities and discomforts, attitudes towards their condition (and the physician) and the effects of the illness on their personal relationships or activities.² Through a patient-centred clinical method, the doctor seeks not only to carry out their own agenda³ but also to address the agenda of the patient.³ This process is obviously complex given the subjective nature of communication, however, it is important because the effective diagnosis of symptoms or illness often depends on the patient's ability to relate a history rather than on the examination and investigation of the body.⁴ It is generally understood that attention paid to the patient's agenda will better fulfil both the doctor's immediate goals in terms of diagnosis and provide for future encounters by developing the doctor-patient relationship over time.

The central importance placed on the patient in the clinical encounter demonstrates the challenges of

practice. The task of the practitioner is multifaceted. The diagnosis of illness requires the application of the knowledge they possess (which is quite specific) to a subject with as many potential variations as there are patients. As has been noted, the ease of diagnosis in the medical encounter is directly related to the ability of the patient to relate information. Traditional notions of the clinical exam as "the confrontation of a gaze and a face, or a glance and a silent body,"⁵ are fast becoming myths. *The medical exam is necessarily biased upon communication.* The doctor can no longer assume the traditional role as the only source of information to patients. For example, there are now instances where the patient claims to know *more* about their condition than the doctor based on information gleaned from external sources such as the Internet.⁶ It is occurrences such as this that demonstrate the potential for alternate sources of information to impact the medical experience by altering the perceptions of the patient. In a more traditional understanding of the medical exam, the relationship between the doctor to the patient was pedagogical. The patient and doctor were seen as "trapped in a common, but non-reciprocal situation."⁷ The doctor was, in a sense, searching for the disease to which the patient was a carrier, peripheral to the encounter. Waiting for the doctor to identify the disease within the framework of medical knowledge, the patient was administered treatment based almost entirely on assessments made by the doctor.

It is this perception of the medical encounter that has contributed to the fear that is often associated with the medical exam. "Fear is almost always present in the medical encounter,...fear of the unknown, fear of death, fear of insanity, fear of disability, fear of rejection."

⁸ As noted in the Forum report it can not be assumed that the patient enters the clinical exam with no preconceived notion of their illness. Perhaps in response to traditional perceptions of the medical exam, in which the patient is displaced, alternate sources of information have become a means by which an individual might achieve a sense of control in the clinical environment. Even if this information is false or misunderstood, to simply dismiss it would be detrimental to the clinical process. The role of the patient is changing, since the patient now demands a greater involvement in the decision making process.

Currently, access to medical information is asymmetrical in terms of what is available to the doctor compared with what is available to the patient. The proposed clinic has assumed that information will be handled electronically with a minimum of paper files. Provision has been made in the design for an Informatics room, where a server will run a network of computer stations located throughout the clinic. It is assumed that this system will provide doctors with access to all required files and information. The introduction of the computer into the clinical environment also has the potential to address the needs of the patient. With the development of a patient interface the computer can play an important role in reinforcing the clinic as a resource to the community. In the proposed design, the computer replaces the traditional resource centre, providing access to information at various points in the clinic. The idea of the medical encounter, which once dredged up connotations of submission and bodily invasion, has instead become increasingly about communication and the exchange of information.

The central focus on the patient in the examination is an issue concerning empowerment, where the control given to the patient in the encounter can enhance the clinical process. Empowerment, in terms of the patients' sense of control, is a condition of health. "We have known for some time that the better off people are in terms of income, social status, social networks, sense of control over their lives, self-esteem and education, the healthier they are likely to be."⁹

Empowerment in the medical context is about the patient achieving a sense of control. In the merging of the medical and social bodies, the preservation of the patient's autonomy can both contribute to the health of the individual and begin to layer the doctor-patient relationship with trust and respect. The patient who feels they have some measure of control in the medical exam becomes a participant in the process. As a participant, the patient will offer their perceptions of their illness more freely if they feel that they play a part in the diagnostic process.

Therefore, the clinical method, and by extension the clinical facility in which this evolving methodology is played out can be expressed as an overlap between medical science and society. The medical body has developed in a manner that is independent of the subjective nature of the patient. It has become a map of recorded observations with a defined premise (the scientific method) and means (the eye). Clinical medicine aims to understand the individual in order to provide better treatment.

Much of the research for this project has been intentionally focused on the medical examination as an

event. The site is in the strip mall, as an acknowledgment of the position of the clinic in contemporary society. Similarly, the program is that of a "typical" clinic. The focus of this project lies not in the potential for architecture to redefine a typology, but in the ability for architecture to work within studied parameters to express and enhance a given event. The previous chapter provided an historical account of the potential biases of medical knowledge and the importance of the clinical method in its application. It also demonstrated the complexity of the medical encounter, using the example of the overlap between society and technology. The same technology that is used by the medical profession to better understand the physical body can also alter how we perceive and understand ourselves socially. The propensity for change is one of the challenges of the clinical method as it strives to accommodate the different realities presented by the patient. This project considers the relationship between the patient and the practitioner to design a clinical environment that will enhance the clinical process through the recognition of the patient as a participant, rather than a specimen.



individuals. The typical medical visit presents a layered experience.

Of major importance to this project was the consideration of the exam room itself. This space must be capable of providing an appropriate setting for a variety of medical encounters. In one exam room it was observed that the size and layout of the room allowed for only one possible position for a patient in a wheelchair; behind the door and in the corner, sitting between the examination bed and a movable cabinet. While size can help to create a sense of privacy and intimacy for the examination, it is a question of how much is enough, considering that the encounter may involve more than two people. In an exam room that is too small not only the physical constraints are problematic but also the impact of the space on the perceptions of the patient as the medical subject.

Perhaps the key observation made during this visit was the realization that communication is fundamental to the clinical process. Not every visit requires a physical examination. However, due to the variable nature of the patient in a primary health care facility, dialogue is usually the primary means of assessment. It is where the encounter begins to take shape. Again, this stage can involve one or several people. For example, the ill man in a wheelchair will respond to subjective questions of his condition, yet it is his wife who discusses the administration of his medication.

It is important to note that in the clinical environment, the event of illness is not necessarily borne by the individual alone. Others, such as family or friends, often play an important role. The degree of involve-

ment may depend on factors such as the severity of the illness or the age of the patient, however, the clinical facility must respond to the heterogeneity of its patients. Proper treatment of most cases require some form of counselling. Even visits that require physical contact begin with a process of conversation and description. The exam room, therefore, must be a place appropriate for both examinations and consultation.

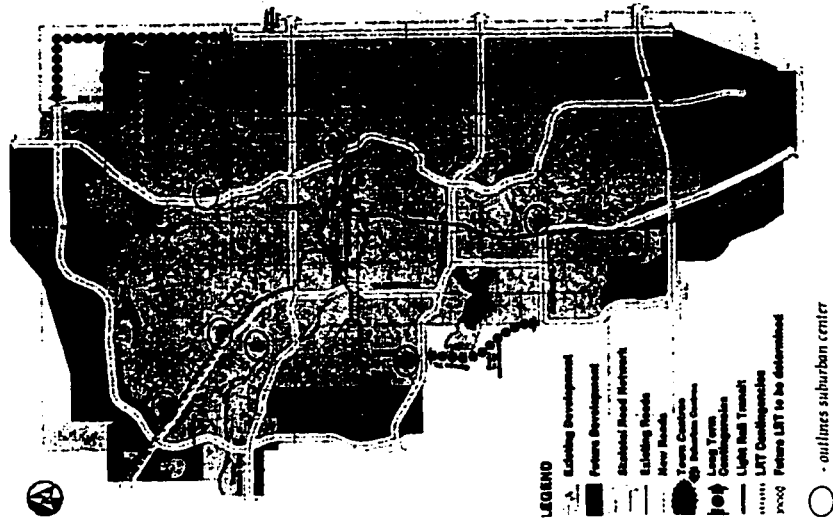
Many of these observations are linked to the importance of addressing and reinforcing the position the patient. The observations recorded during this visit stress the clinic's importance as a resource to both the community and to the medical system by connecting the needs of the patient with the appropriate services. As a place of overlap, therefore, the clinic is not simply an extension of the medical system into the community. It sits in between, acting as a point of entry to the medical system through strengthening its ties to the community.

THE SITE

As part of a national health care system, the clinic helps to fulfil the mandate to provide care to all citizens. As such, a clinical facility must be located where it can best serve its perceived community. In many North American cities, the appropriate site often presents itself in what have become known as hubs or power centres. Figure 1 shows several of these centres in suburban Calgary, Alberta. As one of approximately fourteen designated centres in the city, the power centre is the commercial focus of a community.

Typically, the power centre is comprised of a mixture of retail, commercial and office space. Sitting in the midst of suburban development, the large scale of these centres often reflects the size of the communities they serve. As can be seen in the provided example, the power centre is easily accessible by both car and public transit, considerably extending the area that it can serve. Huge retail "boxes" sit in a sea of parking designed to accommodate peak shopping periods. In addition to the large malls and super stores, the strip mall offers rentable space to smaller tenants. Designed to offer flexible, usable space to whoever wishes to rent it, these spaces are conceived of as a shell; an enclosure generated by the dictates of building codes. They are spaces determined by construction cost and rental rates. However, for reasons that are both economic and demographic, the power centre offers an excellent location for a community-based medical clinic.

Architecturally, these sites present a condition that might be considered impoverished in many respects. The power centre has more in common with

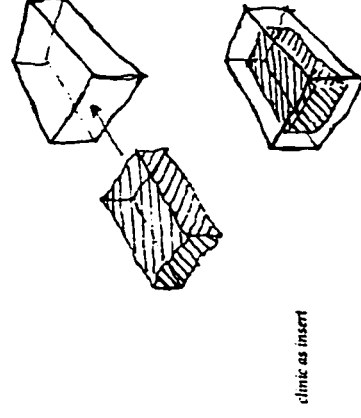


above: map of Calgary showing town and suburban centres
(excerpt from City of Calgary Co-Plan)

other power centres elsewhere in the city than it does with its immediate surroundings. In a manner similar to the fragmentation of the body that has occurred within the evolving context of both medicine and technology, the power centre is an example of the increasing fragmentation of the urban city. The suburban power centre sits isolated in the midst of the communities that it serves. Interestingly, while the means of access to these centres makes them economically viable, it also serves to sever them from their adjacent context. In many cases, the power centre sits as a detached island, proximal to a community yet restricted to a commercial "zone". The uniformity and isolation of these spaces presents a condition that has specific architectural implications. The importance of a contextual fit in architectural design often disqualifies the power centre as an unfortunate suburban reality. However, these sites warrant attention as they are, in many cases, places of focus in the suburban landscape. A major challenge of this project was to recognize and work within the language of the strip mall to provide for architecturally meaningful experiences.

Although the project has no specific location, the hypothetical site is of a size and scale that is typical of a commercial strip mall space, measuring 13 m x 25 m for a total area of 325 m². The design proposes some modifications to the existing shell that will change the space permanently. One aspect of this project is the possibility that subtle changes to these spaces can, over time, begin to change the monotony and homogeneity of the strip mall.

The design of a clinic for a commercial space such as that found in the strip mall presents a set of



clinic as insert

parameters that must be incorporated into the design. In the proposed design the form has been considered to be an "insertion" into a strip mall site.

These contingencies presented by the site included a consideration of store frontage as the significant dimension of the space. The structural configuration of a typical strip mall space uses steel joists to span a space module designed to minimize the number of vertical supports. Therefore, the partitioning of the space in terms of width is quite flexible, accommodating the needs of any prospective renter. Rental rates are often determined by the width of a space given the fact that it is the variable dimension. As a result, store frontage was considered to be the critical dimension in the layout of the clinic.

One of the themes of this project was to consider the potential for design to relate to the architectural language of the strip mall. As noted, the strip mall space is built using normative techniques that are

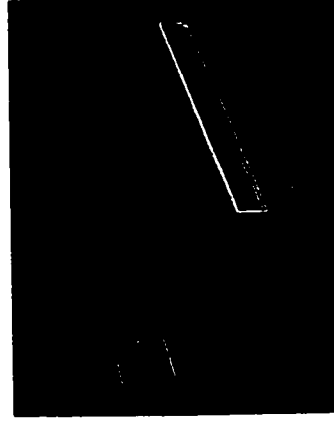
determined by the economics of building. For example, one of the design issues was how to respond to the storefront glazing system that forms the front enclosure of the existing shell. Architecturally, the connection of interior partitions to this system is difficult because the mullion widths are typically thinner than the width of a partition wall, thereby preventing any sort of simple connection. Also, the scale of the system, with its serial rhythm of mullions, relate more to the facade of the entire strip mall than to any specific space. Although problematic to the design, it is not feasible to simply suggest that this element be removed or drastically altered. Since this is a rentable space, the existing shell and services have been minimally changed. The response of this project was to leave the storefront glazing untouched, using it instead as a means to convey the sense that the clinic is an insertion. It sits within the shell. The skew of the reception and doctor's offices become a secondary, interior facade forming the front of the clinic. The storefront system remains a

continuous glazed element that is part of the strip mall shell. The clinic itself sits within this shell.

The presence of daylight in the clinical environment was an important design consideration. In contrast to the light of fluorescent or incandescent fixtures, daylight can become an element of orientation. Natural light creates a less stressful environment for the patient by providing a perceptual connection to the outside. Part of the challenge of this site was to determine a way to bring light into the clinic.

Architecturally, light is one of the few surrounding elements that has been used in this project to give the clinic a sense of place. The subtle fluctuations of light based upon time of day, or weather, are brought into the exam room through a "sleeved" skylight. In doing this the external environment can begin to layer the clinical experience. Using light as an element of orientation, the exam room has been configured to provide an opportunity for the patient (or practitioner) to "extend" themselves beyond the immediate space.

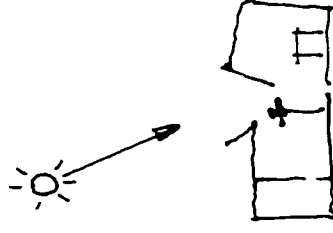
In terms of the existing strip mall shell, the only element which allows light into the space is the storefront glazing. As can be seen in the section, the doctors offices and reception are positioned to take advantage of the natural light that enters through the storefront glazing. This is due to the fact that the doctors and receptionists spend a considerable amount of time in the clinic. This placement is conceptually consistent with the idea of expressing the services of the clinic as a long "bar" element. As will be discussed in the program, this bar acts as a threshold to separate the intermediate, semi-public space of the waiting room



above: model representing a 15m wide section of a typical strip mall

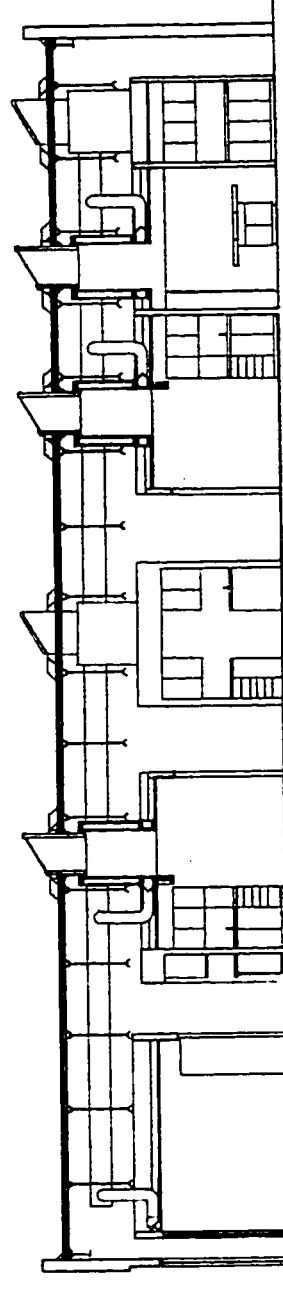
from the more private exam rooms. Beginning with the doctor's offices, this element sits at a skewed angle within the strip mall shell, rotating ninety degrees at the reception desk and continuing to the back of the space where it punctures the rear wall, letting daylight into the staff room.

The strip mall has presented a context that has had a definite impact on the design approach. The design of the clinic, therefore, can be seen as the process of expressing the architectural idea within the contingencies presented by a realistic site.



above: sketch showing idea of bringing light into exam rooms.

below: section through clinic showing placement of offices in front and exam room design based on above sketch.



3 SECTION THROUGH EXAMINATION ROOMS

THE PROGRAM

The design of the proposed clinic is based upon a programmatic reorganization guided by an understanding of how the nature of the doctor/patient relationship changes during the clinical encounter. A visit to the clinic, therefore, can be seen as a transformation of the patient from an autonomous social body into a medical subject during the physical exam.

The process of becoming the medical subject refers specifically to the meeting of the social and the medical bodies. As discussed earlier, the social body is the patient, who brings to the clinic their particular illness. The medical body refers to the practitioner's understanding of the body through a medical framework. The patient as the medical subject is greatest during the physical exam, however, it must be noted that this transformation is not always complete. As a point of access to the medical system, not every consultation requires a physical exam. In the context of this project, the degree to which the patient becomes the medical subject is determined by the patient's role in the diagnosis of their condition. As the exam becomes more physical in nature, communication between the doctor and patient is often reduced. The subjective nature of the patient's descriptions are deferred. Short answers in response to manual probing are sufficient as the practitioner explores, comparing the body of the patient to the "map" of the medical body. It is at this point that the patient is the most isolated in the medical encounter. The role of communication at this stage is limited, separating the thoughts of the doctor from those of the patient.

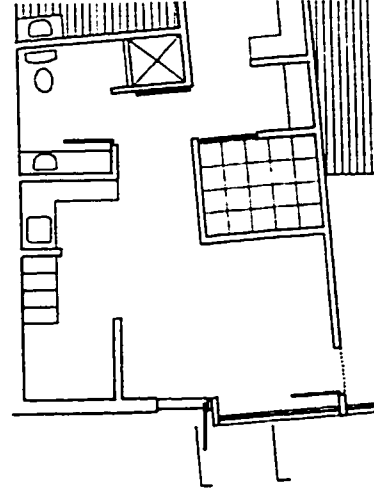
The expression of the medical encounter in these terms serves as a means to convey an impression of the medical exam as one which is often an intense human experience. For many, the clinic is a place that is often associated with a certain amount of fear and anxiety. A physical exam is often required to support accurate diagnosis, however, given the contemporary medical context the roles of the patient and doctor are changing. The clinical visit is a communicative process in which traditional constructs of the doctor-patient relationship are no longer relevant. The proposed design creates an environment in which the *form* of the clinic becomes a means to acknowledge the importance of communication in the clinical experience.

The program of the clinic has been based upon observations made at The University of Calgary Medical Clinic at Sunridge Mall in Calgary. Through visits to the facility and a meeting with the clinic's business manager, Ms. Lee Simons, a program was developed for three practitioners to operate their practices. The design consists of six exam rooms and supporting facilities to serve approximately six thousand patients (two thousand patients per doctor). It is assumed that support staff will consist of a receptionist and three nurses, acting as assistants to the doctors. The receptionist will coordinate the booking and arrival of patients and perform administrative tasks. The nurses will coordinate the movement of patients in and out of the exam rooms while assisting the doctors by performing various medical tasks ranging from the preparation of patients to minor medical procedures. The combination of three practitioners in one facility is based upon the reality of operating a practice. By sharing facilities and equipment, the cost borne by each practitioner is

reduced. The full program is listed in Appendix 1.

In addition to the spaces required for the proper functioning of the clinic, the program has also incorporated a staff area consisting of a sitting room, kitchenette, locker storage and a washroom with shower facilities. The priority given to the staff areas in this design has been informed by the nature of the medical encounter. This design has sought to provide spaces for the staff to develop a dialogue that is independent of the formal clinical setting. The potential benefits of this dialogue can facilitate a relationship among the staff in which work-related issues (among others) can be shared and discussed without the presence of the patients. Just as communication is important to the medical exam, a dialogue among the staff can also contribute to the functioning of the clinic.

The proposed design has incorporated the use of

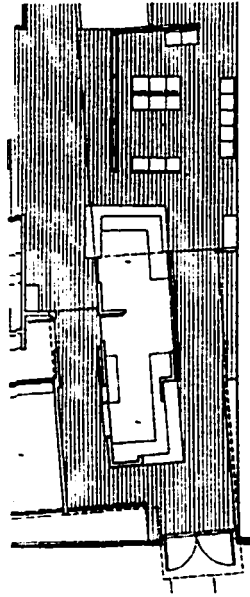


above: staff area

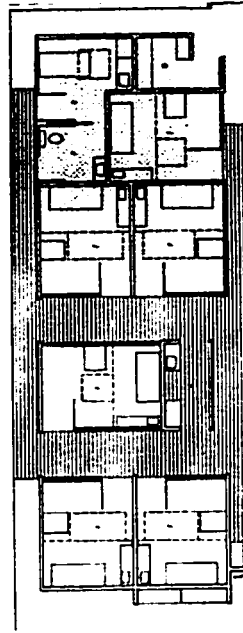
the computer as both a filing system and resource for information. Reflecting the current trend towards a paperless office, there are computer terminals at various points in the clinic. The Informatics room, located beside the lab/storage space, stores the server to which all terminals in the clinic are connected. Terminals are located at the reception and nurses station, doctor's offices, the waiting room and in each of the exam rooms.

The computer has the potential to be a usable resource for both the patient and practitioner. Terminals in the exam room and offices can provide immediate access to detailed patient records and information. For the patient, it can act as a resource which can be accessed in the waiting room, from within the exam room, or as they are leaving the clinic. In this manner, the computer serves as a potential resource for information at all stages of the medical encounter. Through a user friendly interface, the patient should be able to access and obtain a hard copy of information on a wide variety of topics, including services that the clinic does not offer. The ability for computer systems to facilitate the transfer of information makes them ideal as a means to provide cohesion to primary health services as they become increasingly decentralized and community-based. The computer, therefore, can help the clinic become not only a point of access to medical health care, but also act as a local source of information to the wider range of related services.

The spatial organization of the clinic is based upon the movement of the patient through three distinct stages of the medical experience. They are; arrival and reception, waiting and consultation/exam.



reception and waiting



examination area



clinical services

Programmatically, the spaces of the clinic have been arranged to reflect this sequence. The subdivision of the medical experience is based upon perceived changes in the nature of the patient as they move from the front door to the exam room. These changes are largely based upon the doctor-patient relationship during the medical visit. As discussed, traditional notions of the medical experience reflect a hierarchical relationship between the doctor and patient. As a meeting of the medical and social bodies, it is perhaps more accurate to suggest that the social body is *obscured* by the medical body. The design of this clinic reflects an understanding of the medical encounter in which an emphasis on communication can facilitate a meeting that is as equal as possible. Going beyond the clinical method, this project uses architectural form to reflect this idea.

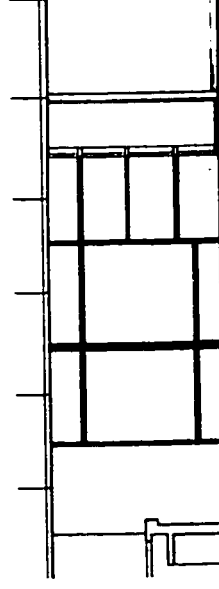
The clinic is best described by tracing the path of the patient through the project. As noted earlier, the facade of the clinic actually sits independent of the facade of the strip mall shell, expressed by a 4° skew of the service element. Entry into the clinic, therefore, can be described as a point of re-orientation. Both visually and spatially, the patient moves from the geometry of the (public) strip mall to the orientation of the (private) clinic. The reception area is positioned at the corner of the service element nearest to the front door. In a traditional clinical environment, the reception desk is often the main threshold of the clinic. In the proposed scheme, this has been extended. Rather than acting as a threshold, the reception area has been articulated as a point, sitting parallel to the patient as they move from the front door to the waiting area. The subdivision of the medical experience begins with this extension of the arrival.

After checking in with reception, the patient moves deep into the space to the waiting area. Both spatially and conceptually, the transition from the reception to the waiting area represents what could best be described as a liminal state. The patient has physically entered the building but has yet to enter the clinic. As a means of expressing the autonomy of the waiting patient, the waiting area is an interstitial space, with a visual connection to the outside and the clinic. The clinic is viewed through a large glass screen that offers a partial, abstracted view of the clinical operations on the other side.



right: the abstracting qualities of patterned glass.
below: Barnett Newman, *Vu Hierolcus*
Subliminus, 1950 - 51. Collection of
The Museum of Modern Art, New York.
bottom: elevation of glass screen in waiting room.

As can be seen in the plan, the glass screen begins as a glazed wall of the doctor's offices, allowing natural light to enter these spaces. From here it continues past the offices, becoming a free standing element that partially encloses the reception desk before continuing back into the clinic to surround the waiting room. Conceptually, the screen is an infolding of the storefront window, marking the transition from public to clinic. The screen is made of patterned glass that, due to its irregular surface, abstracts that which lies behind it. It does not rely on translucence to obscure, rather it alters what passes through it in such a way that it translates only colours and movements. The waiting patient becomes an observer, watching the clinic without violating the requirements of privacy. The construction of the screen is layered, comprised of a system of metal and wood elements holding glass panels. The arrangement of the mullions vary with its position in the clinic. For example, the section of screen between the reception and nurses station has a dominant horizontal pattern to communicate the transitional quality of the space. In the waiting room, however, the

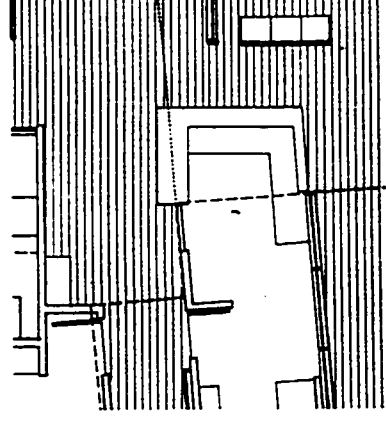


THE NURSES STATION

mullions are reconfigured to create a viewing screen which looks into the exam room area. The view presented through the screen is altered by the qualities of the glass.

The articulation of the screen as an infolding of the public storefront culminates in an abstracted representation of the clinic which the patient can observe without violating the requirements of privacy. It is a means of creating a sense of delayed entry. In many respects, the viewing screen is analogous to the painting *Vir Heroicus Subliminus*, by Barnett Newman, which consists of a red field with thin vertical "zips" of contrasting colour. The "zips" are seen as the glimpse of another dimension that lies *behind* the red surface. Similarly, the glass screen gives an abstracted glimpse of the clinic through the glass panels and thin gaps between them. The division between the place of patient as a social body and the place of patient as medical subject is reduced to a glass plane, the difference between which is reinforced to the waiting patient.

The nurses station sits in between the waiting and exam room area. Conceptually it is a gate, marking the transition from the (semi-public) waiting room into the private space of the clinic. Comprised of a desk and space for organizational and administrative tasks, the nurse's station emerges from behind the glass screen into the waiting area. It marks the significant transformation of the body in the clinical process. The waiting room is the space where the patient observes the clinic through a glass screen. Entry into the clinic occurs at the nurses station where the patient moves from the position of being an observer to one of being observed. In the waiting room the patient sits with clear visual access to the public realm outside. They have yet to pass through any architecturally defined threshold that severs a visual connection to the outside. It is only in moving past the glass screen that the patient becomes immersed in the clinical environment.



the nurses station

doors. For example, the emergence of the nurse's station from behind the glass screen creates the potential for visual contact between the practitioner and the patient prior to the consultation. It is a meeting of independent people as opposed to the more formal exam room encounter where, despite the clinical skills of the doctor, there may be hierarchical overtones of the more traditional medical relationship. This overlap reinforces the significance of transition on an experiential level. The perceptions of the patient define the nature of the space.

The nurse's desk has been positioned so that the flow of patients can be controlled by the fact that the nurse can see patients both arriving and leaving. As one patient leaves, preparations can begin for the next. While acting as a threshold, the nurse's station is also a place of overlap. It is the only clear spatial transparency between the waiting and exam room areas. As such, there is the possibility that communication between the doctor and nurses at the station can be observed by the waiting patient. The opportunity for a visual connection across what has been defined as a significant point of transition (from waiting area to clinic), layers the medical experience.

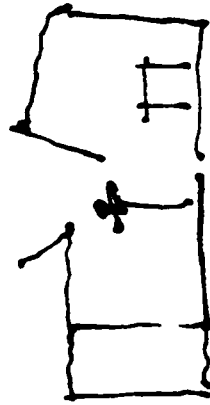
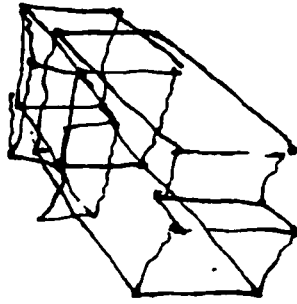
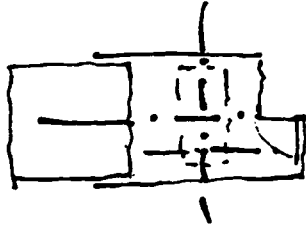
The proposed design has worked with the idea of an expanded threshold. Although conceptually defined as distinct, the articulation of from softens these divisions by extending visual access. For example, from their intermediate position, the waiting patient can see both outside and into the exam room area. This idea of visual extension during the clinical visit is the means by which the patient understands their relative position in the medical experience. If we consider the patient outside of the clinic to be most autonomous (in a medical sense), the patient is the least autonomous during the physical exam.

The subdivision of the medical experience in this project allows this transformation to be expressed in architectural form. The description of spaces (based upon the relative autonomy of the patient) is used to explain a spatial sequence. In reality, this sequence is not so clearly defined. A complexity is created through form and materials that allows for these distinctions to be defined through experience rather than walls and

THE EXAMINATION ROOM

Moving past the nurse's station the patient enters a large space within which the exam rooms sit. They are articulated as self-contained blocks sitting within a larger space defined by the existing strip mall shell. To reinforce the independence of the exam rooms, the ceiling of the space has been left open to take advantage of the height of the existing shell. Up above, the services for the exam rooms and doctor's offices run through the spaces of the open web steel joists. Visible extensions from the exam rooms run to the underside of the steel decking, bringing daylight into the exam room space. The layout of the exam rooms has been determined through a consideration of the existing shell, the spatial requirements of the exam room, and the nature of the medical encounter.

The configuration of the exam rooms is in direct contrast to more institutional clinical environments. In order to use space efficiently, exam rooms are often fed from a single corridor. Although this strategy uses space efficiently, it creates a clinical experience that is often characterized by movement from the waiting room to the exam room through long corridors that are both claustrophobic and disorienting, culminating in a small room where the patient sits among the equipment required for the physical exam. In the proposed design, the exam rooms sit as objects. Moving past the glass screen into the exam room area, the patient crosses a corridor that can be considered to be the main circulation route of the clinic. The ends of this corridor are terminated at each end by patterned glass panels that look outside. Travelling along the corridor, these panels terminate the passage while providing a connection to



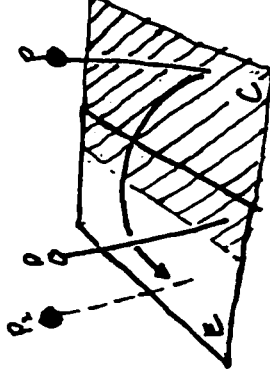
concept sketches of the examination room

the outside. Patients will typically cross this corridor as they move from the waiting area to the exam room. In this case the panels now serve to accentuate transition into the clinic. The patient is within that which they had previously observed.

The patient's perception of the exam rooms are defined largely by the proportions of the larger space within which they sit. Expressed as a detached block, the exam rooms become objects. While perhaps subtle, it is design considerations such as this that serve to redefine the clinical environment as one that is non-institutional, alleviating the reservations of the patient and thereby promote the clinical process.

The interior of the exam room is slightly larger than a typical examination room, measuring almost three metres wide and four metres deep. This slight increase in size allows the room to be configured such that there is a defined consultation space and a separate examination space. It is this distinction between the consultation and exam that the final subdivision of the medical experience is made. In a typical exam room consultation and examination take place in a space that is necessarily configured for the exam. The scenario described earlier (where the patient sits among the apparatus required for the physical exam) is an experience that is typical of many exam rooms. It is here that the disparity between the goals of the clinical method and the clinical space can be greatest. The apparatus necessary for the physical examination has an overt presence. As has been observed, the process of consultation and assessment often takes place in the midst of this apparatus.

This design has reconfigured the exam room, creating a place for consultation that is independent of the place for examination. In doing this, the space becomes more about the communicative nature of the medical encounter until it is determined that a physical exam is necessary. The plan of the exam room has been generated using the physical positions of the doctor and patient during the exam. As depicted in the sketch, the position of the patient changes with the necessity of the physical exam.



Above: sketch showing the movement of the patient for the physical exam

- E - examination area
- C - consultation area
- D - doctor
- P - patient position (consultation)
- P₂ - patient position (examination)

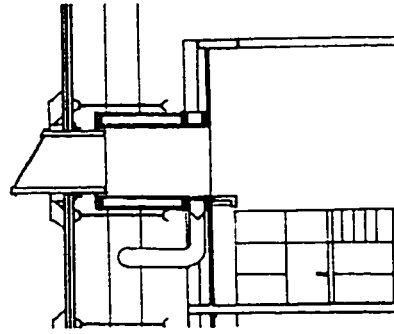
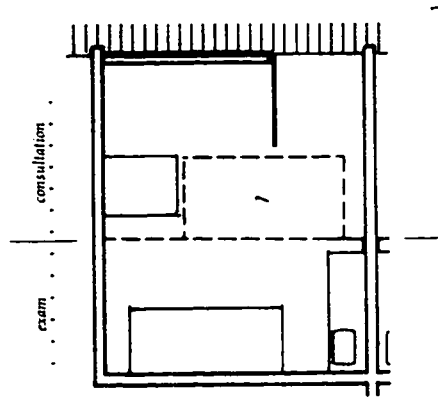
This shift marks the final transition in the medical experience. During the physical exam, the patient enters a scenario where their participation in the diagnosis will likely be reduced as the doctor applies their knowledge to the problem. This does not imply that the experience will be unpleasant, however, it is the place in which the patient will likely feel

somewhat objectified. The subtle division of the exam room can be a means to provide, within the same space, conditions that will facilitate both the consultation *and* the exam.

The transition from consultation to exam is also delineated in section. Daylight has been brought into the space through skylights that extend up through the structure and roof of the existing shell. The presence of daylight in the exam room is important, both as a means of orientation to the patient and to contrast the artificial light of the clinic. The position of the skylights in the exam rooms is determined by the size requirements of the rooms, their position relative to the structure of the existing shell, and the experiential quality of the space. As can be seen in the plan, the skylights are positioned in a manner that acknowledges the subdivision of the encounter.

The consultation area is simply laid out to accommodate patients and the doctor comfortably. Apart from chairs and doctors stool, the only other furniture element is a small table that projects from the wall to provide not only a place for writing but also a computer monitor that can be used by either the patient or the doctor. There is a surface for writing on the wall, behind the monitor, allowing for the use of drawn images to further reinforce any ideas or difficult concepts.

The examination area has been designed to accommodate all the apparatus required to complete a physical exam. The division between the exam and consultation areas is marked by a curtain that can be drawn across to ensure privacy of the exam when



the exam room: 1 plan
2 section

needed, or to act as a shading device for ocular exams.

The subdivision of the medical experience in this project has been informed by an idea in which the patient can become the medical subject. The fear and anxiety that is often associated with the medical experience can be attributed to a perceived loss of autonomy that is associated with this transformation. In a contemporary medical context, there are indications that a traditional medical practice must respond to external pressures that are affecting the role of health care in society. The design of this project has examined the form of the medical clinic as a means to create a clinical environment that can play a meaningful role in the evolution of the primary health care facility.

NOTES

¹ National Forum on Health, *Canada Health Action: Building on the Legacy*, vol 1., p. 12.

² McWhinney, *A Textbook of Family Medicine*, p. 112.

³ *Ibid.*, p. 112.

⁴ *Ibid.*, pp. 87-88.

⁵ Foucault, *The Birth of the Clinic*, p. xv.

⁶ National Forum on Health, *Canada Health Action: Building on the Legacy*, vol. 1., p. 19.

⁷ Foucault, *The Birth of the Clinic*, p. xv.

⁸ McWhinney, *A Textbook of Family Medicine*, p. 118.

⁹ National Forum on Health, *Canada Health Action: Building on the Legacy*, vol 1., p. 15.

CONCLUSIONS

This project has approached the architectural design of the medical clinic through a conceptual investigation of the human body in the medical encounter. The development of the idea of imaging the unseen, with its implications on contemporary medical practice, has explored the conditions within which the medical clinic exists.

The medical encounter is marked by the transformation of the patient from a social entity into the medical subject, which can also be expressed in terms of a movement across a threshold. The value in this understanding of the medical experience is that it expresses an idea in a way that can meaningfully describe an event through an expression in built form. In the clinic, this becomes the movement of the patient from the public to the private realm.

Rather than present a new architectural type, this project considers the potential of architecture to work within an existing context. The means of exploration used in this project reflects an approach to architecture that derives understanding through work that is not necessarily architectural, but has architectural relevance. It is a personal belief that the ability to develop ideas in this manner can generate architectural form that has a stronger relationship to the context within which it will sit. In the context of the medical clinic, the design process of this project has explored the potential for architecture to meaningfully relate to the complexities of the contemporary medical experience.

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APPENDICES

APPENDIX 1

PROGRAM LIST WITH SIGNIFICANT ROOM AREAS

Room # on Plan - 1 - Doctor's Office - 10 m ²
2 - Reception Area - 30 m ²
3 - Nurse's Station - 12 m ²
4 - Waiting room - 19.25 m ²
6 - Preparation Area - 4.5 m ²
7 - Exam room - 10.15 m ²
8 - Procedures Room - 8 m ²
10 - Storage/Dirty Utilities - 5.5 m ²
11 & 12 - Staff Area - 16 m ²
14 - Informatics - 4 m ²
15 - Lab/Storage - 9.5 m ²
Total Area - 325 m ²

APPENDIX 2

PROJECT DRAWINGS

PLAN

PLAN (INFOMATICS)

PLAN (PROGRAMMATIC OVERLAYS)

PLAN (PUBLIC AND PRIVATE DIVISIONS)

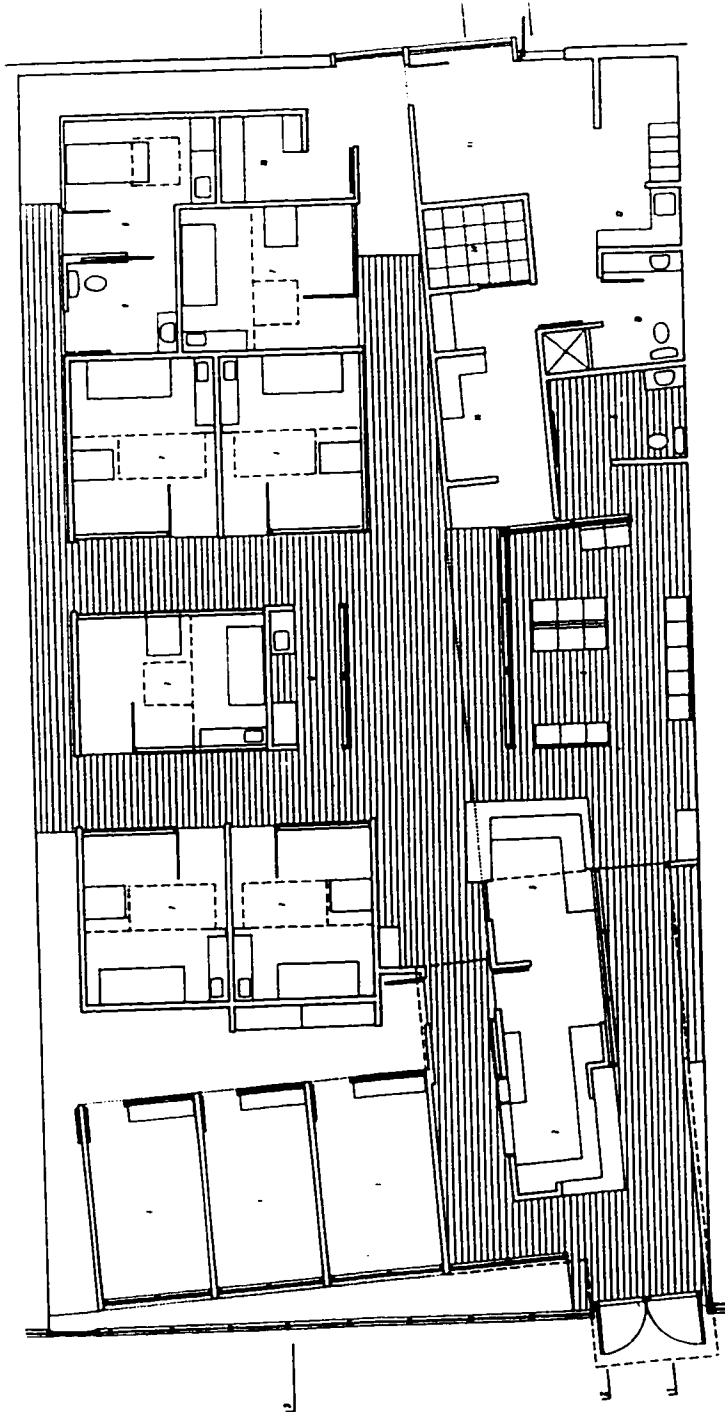
SECTION (THROUGH WAITING AREA)

SECTION (THROUGH RECEPTION AND NURSES)

SECTION (THROUGH EXAMINATION ROOMS)

MODEL (SHELL, PLAN, FACADE)

MODEL (NURSES STATION, WAITING, STAFF)

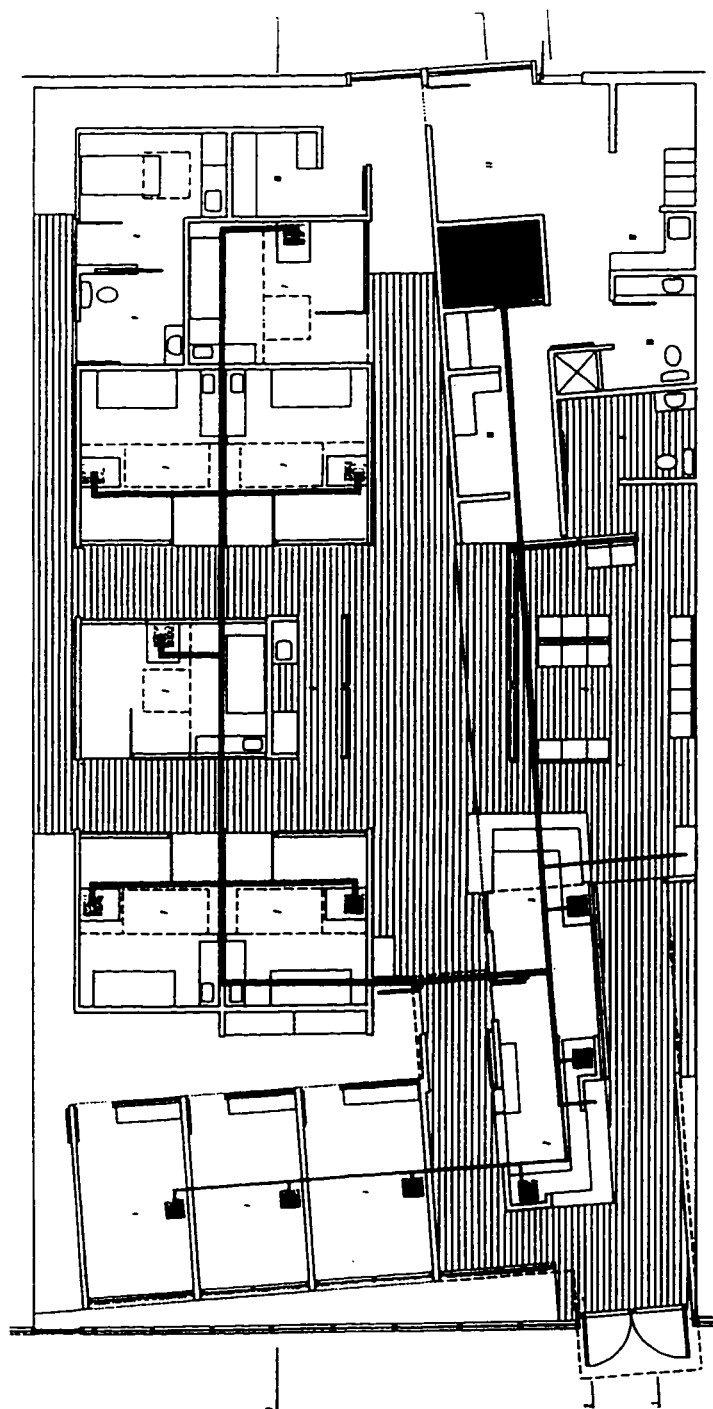


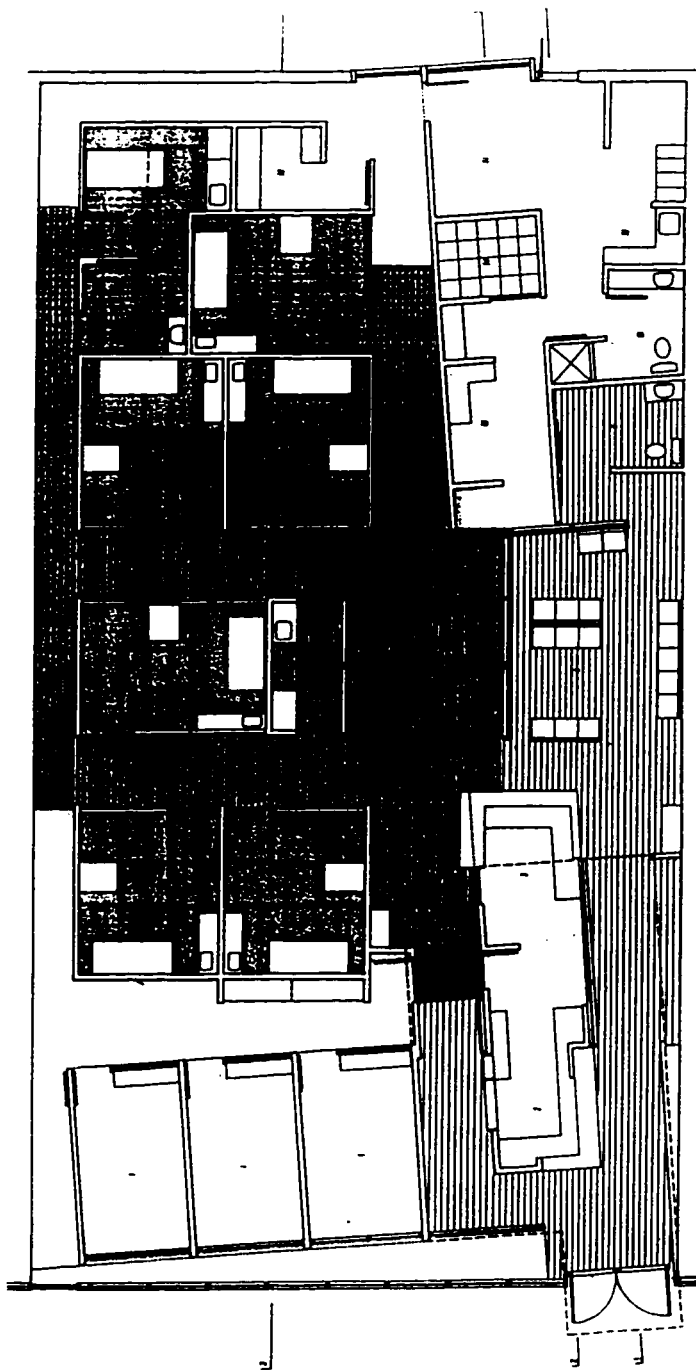
11 STAFF ROOM
12 ATTENDING
13 NURSE
14 MEDICAL
15 LABORATORY

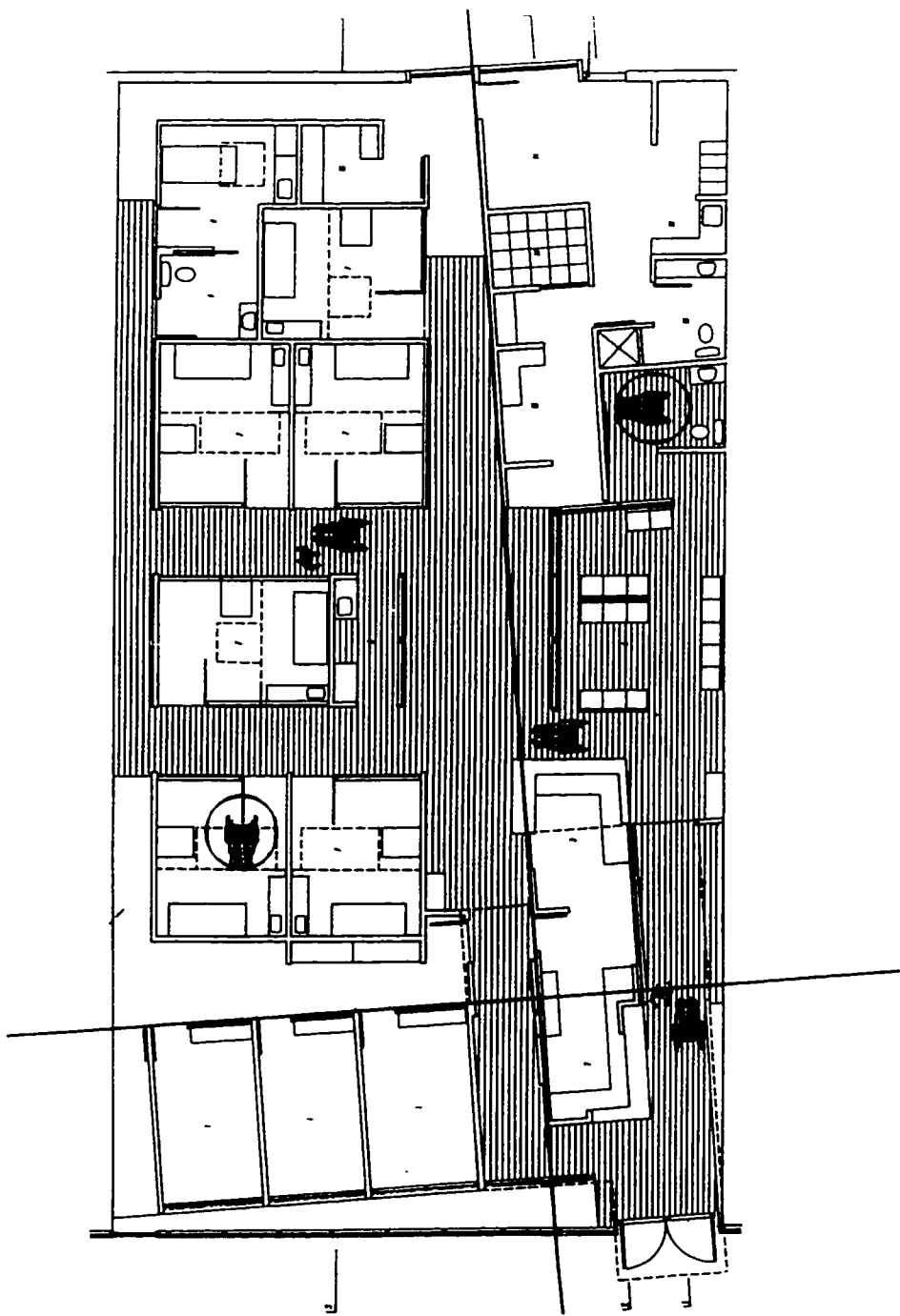
16 PREPARATION AREA
17 EXAMINATION ROOM
18 PROCEDURE ROOM
19 WAITING AREA
20 HYGIENE UTILITY

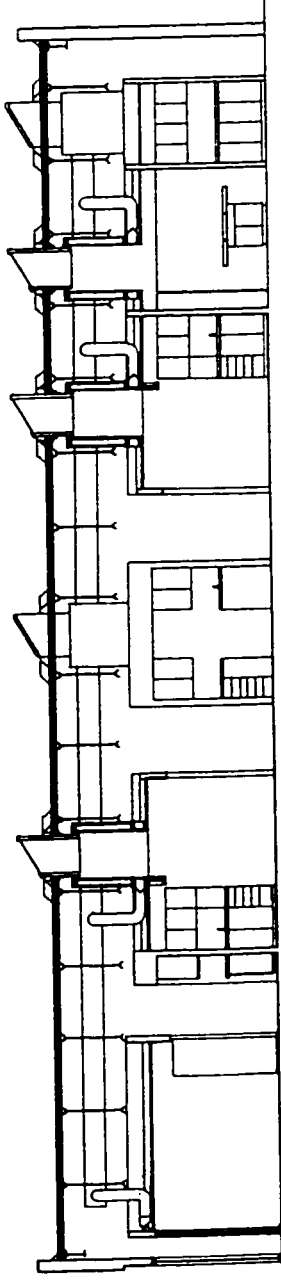
1 DOCTOR'S OFFICE
2 WAITING AREA
3 NURSE'S STATION
4 WAITING AREA
5 HALLWAY

PLAN
1 2 3 4 5

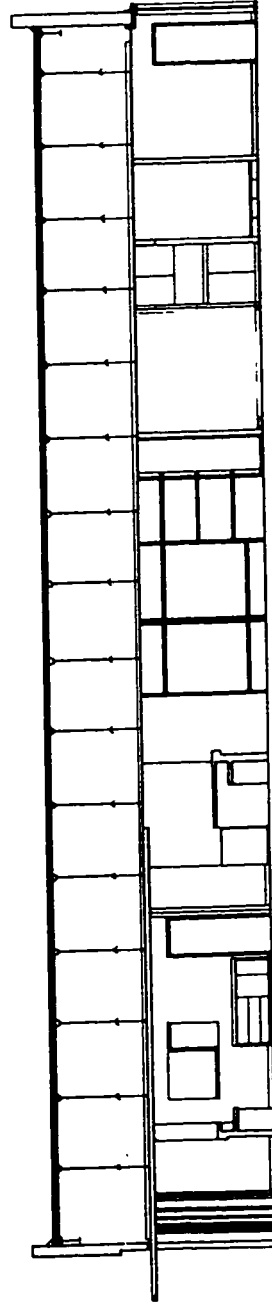




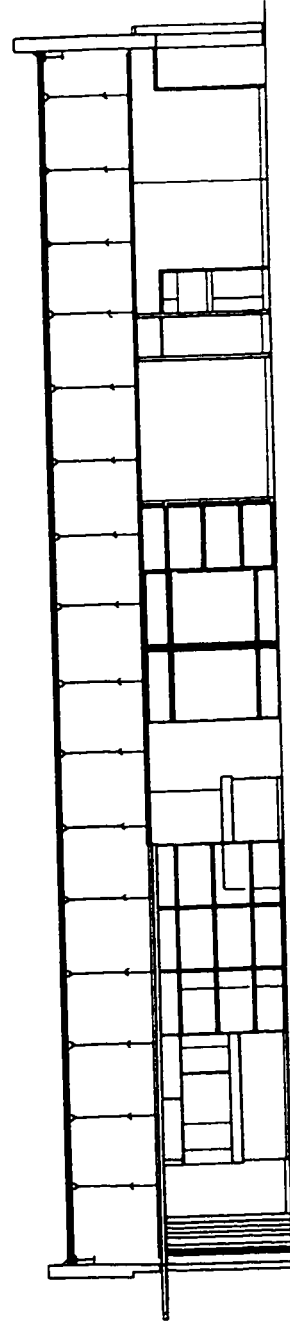




3 SECTION THROUGH EXAMINATION ROOMS

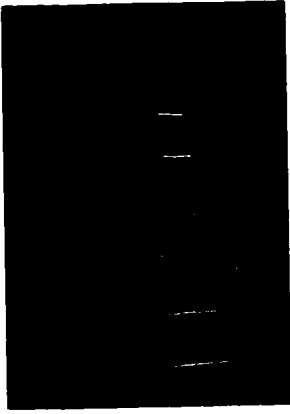


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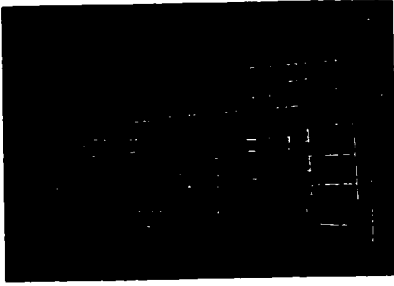


1 SECTION THROUGH WAITING AREA

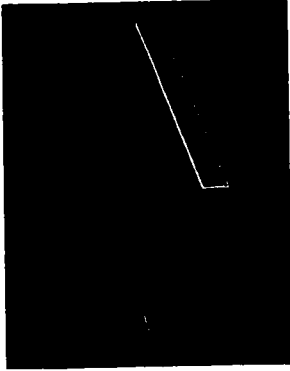




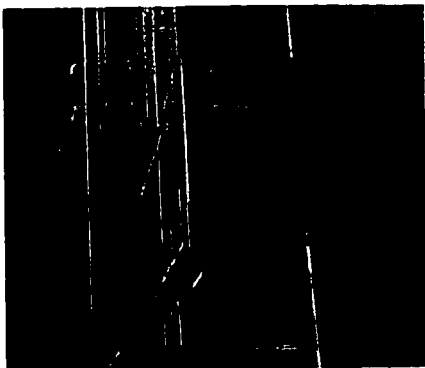
facade



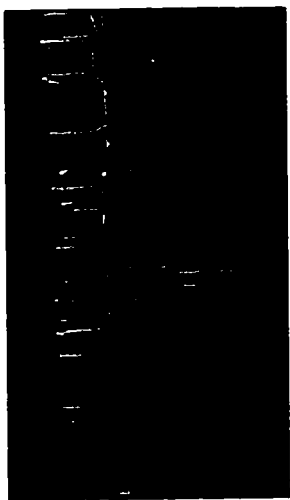
plan



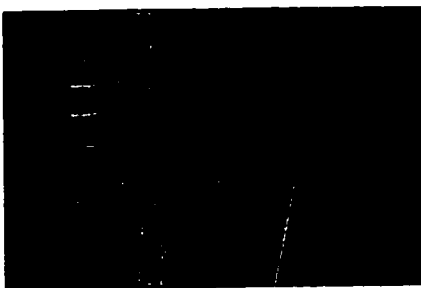
shell



staff

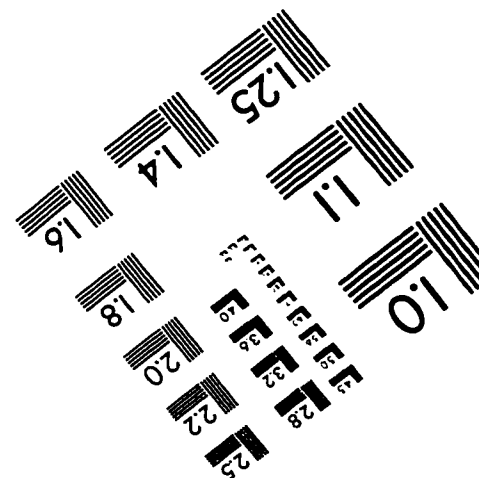
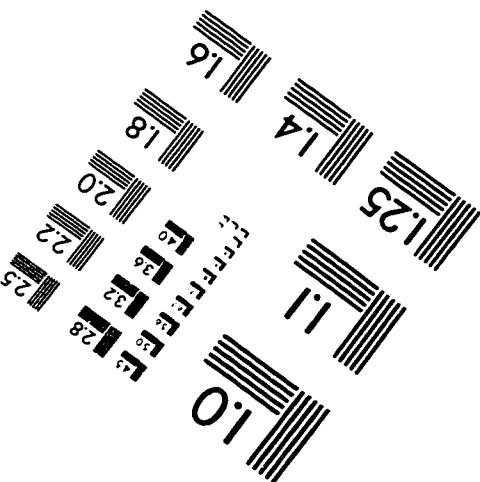
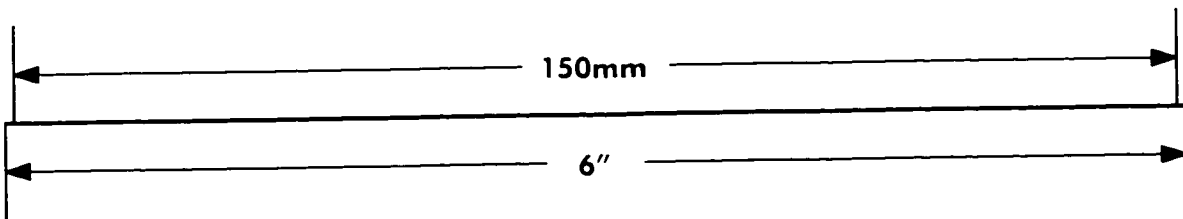
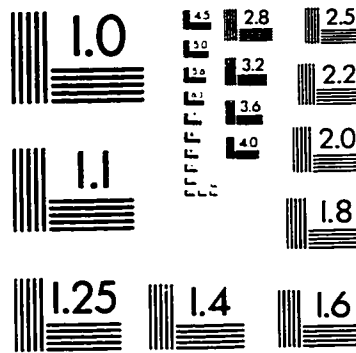
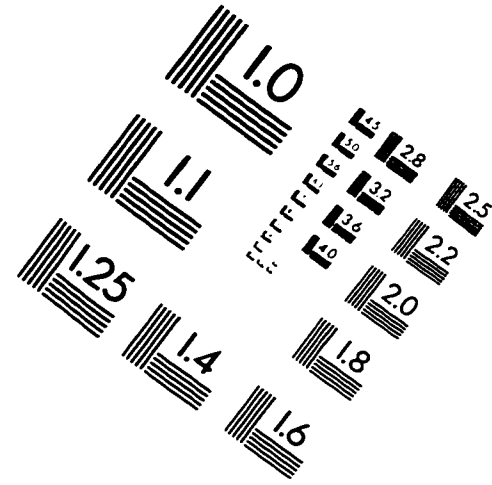
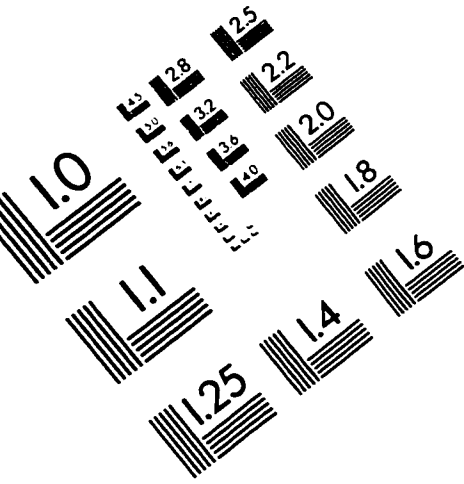


nursing



nurses

IMAGE EVALUATION TEST TARGET (QA-3)



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