

*Wayward As the Minnebaha
With Her Moods of Shade and Sunshine*
by Susan Morgan

B.S. Architecture
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in Partial Fulfillment of the Requirements
for the Degree of

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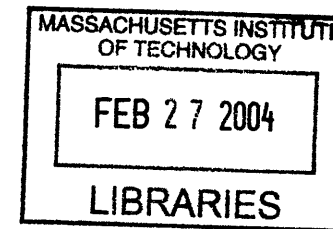
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ABSTRACT:

In a world which is increasingly occularcentric, architecture has the opportunity to reinvigorate experience with designs based on the perceptual systems of the human body. In comparison with the sense organs of other animals, humans are capable of acquiring information about the world almost equally with one sense as with another, for while vision is greater over distance, touch and hearing have more emotive capacity. Architectural design which is created specifically to engage the senses will not only be more physically fulfilling, but socially, culturally, and psychologically as well.

Henry Wadsworth Longfellow's poem *The Song of Hiawatha* is used as reference for the design as it creates a tangible fictional world through the use of a memorable cadence. In addition to providing a structural background, the poem is also linked to the site: the Minnehaha parkway in Minneapolis, Minnesota, and the program: a library and an American Indian cultural museum. Each of the senses was considered to be a tool in design: sound shaping form, touch defining materials, sight defining vistas and light, and hearing refining volume and form. The final design uses a continuous ramp system as the meter of experience, allowing for various spaces to acquire unique characters as the building descends from street level underground and out to Minnehaha creek.

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Should you ask me, whence these stories? Whence these legends and traditions,

With the odors of the forest, With the dew and damp of meadows,

With the curling smoke of wigwams, With the rushing of great rivers, With their frequent repetitions,

To See Anew

Architecture, the beauty of buildings and their craft, is inescapable. We wake, work, play, and sleep, moving, passing, and inhabiting architecture of humble and noble doing our whole lives. There are places we remember, places we return to, because of how they made us feel, or because of how someone or something else made us feel while we were there. There is power to building, and great creative possibility; architecture has the potential to enrich even the most common of experiences, to become a part of our private and our collective memory.

Technology has afforded architecture products to allow streamlining, both in construc-

tion and in spatial creation, resulting in spaces that are efficient, clean, and all too often forgettable. As Le Corbusier wrote, however, "the purpose of architecture is to move us."¹ This project began as a rising conviction that as the world grows increasingly visually dominant, the human body and mind might find both greater stimulation and more satisfaction in a world that purposely engages each of the senses. Architecture can engage and enrich both the present and its memory and this project seeks to achieve both ends by using the senses as a means of discovering architectural form and experience specific to place.

And their wild reverberations As of thunder in the mountains?

1 Norberg-Schulz, Christian. Genius Loci: Towards a Phenomenology of Architecture. Rizzoli, New York: 1984. 6.

From Phenomenology

Pairing the senses with architecture immediately calls for a brief reflection and background into phenomenology, a 20th century philosophical movement based on experience as the foundation of knowledge and consciousness. Phenomenology spread into architectural theory and in that realm is now closely aligned with sensually rich architecture.

The accepted originator of the phenomenological philosophy is German philosopher Edmund Husserl. Preferring to avoid scientific reasoning and rationality, Husserl gave primacy to the idea that seeing is the “abso-

lute givenness”² of a thing. He believed that every experience, intellectual or not, has as its essence a pure phenomena, its own reality. Thus, in answering the question how is the veracity of something known? It is known because it can be perceived. Husserl interprets *a priori* knowledge as that which comes from the essence of the thing as we see, determine, and distinguish it. He cautions against too much intellectualizing, preferring that intuitive knowledge be the primary method of bringing understanding to reason.

This last, concerning intuition, begins a foundation for phenomenology as it is applied in this thesis. The design is based on the

notion that the occupants bring something to the architectural experience, and that it is possible to design for the knowledge base of their perceptions and intuitions. Theoretically, a built environment which is rich in varied and well-articulated spaces will result in the user having a more meaningful stay.

Husserl’s phenomenology serves as a foundation for the language-centered discourse of Martin Heidegger, also a German philosopher of the early 1900s. Heidegger uses etymology to study and explain being in the world. His writings develop an understanding of the essence of things, and of man, through the examples of theorists, philosophers, and poets. Parallel

I should answer, I should tell you, “From the forests and the prairies,

2 Husserl, Edmund. Hardy, Lee trans. The Idea of Phenomenology. Kluwer Academic Publishers, Dordrecht: 1999. 24.

to Husserl's distillation down to the essence of the thing, Heidegger's phenomenological reduction returns to the "being of the being."³ Throughout his study there is an awareness of the tie between being and dwelling, and in a number of essays, Heidegger constructs a new understanding of building as it is rooted in the notion of dwelling. In the essay *Building, Dwelling, Thinking*, he speaks of how dwelling is the right of mortals, and he places mortals in a fourfold relationship with the earth, the sky, and the divinities. Further descriptions of this are enhanced by his reminder that for the Greeks, boundary did not stop or enclose a thing, but that it was the point at which some-

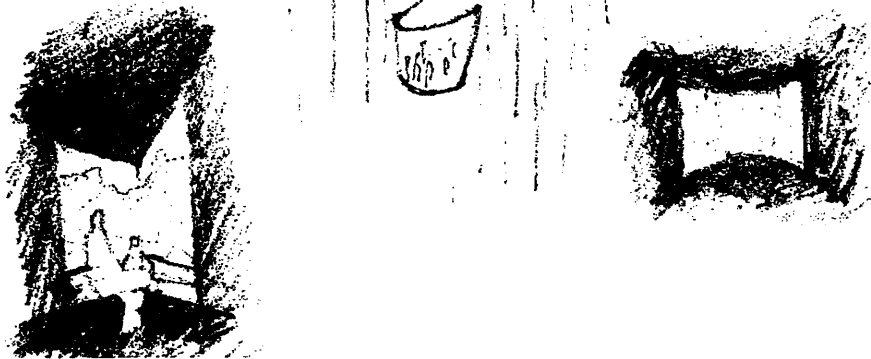
thing begins its presencing. Heidegger views buildings as the means by which space is created for the fourfold relations. Boundary and building are both linked, and privileged, as they afford the opportunity for man to be in the world.

Heidegger's fourfold relationship between man, earth, sky, and the divinities is herein translated as a threefold relationship; the architectural expression of this building came from a desire to balance the built presence of man against the weighty presence of the glacier-etched land and the endless Midwestern sky. Ideally, the building will be sited in such a way that as a whole, earth, building, and sky are bal-

anced as experienced by the occupants, such that no one element seems out of place or subverted by the other two. Heidegger spends a fair amount of time trying to approach a fundamental understanding of dwelling, an understanding which can best describe the almost primal connection between man and his surroundings. There is an element of spiritual connection, of worldly "rightness" to inhabitation as he describes it. The description is an attractive one, especially in light of the many mundane interactions that people have daily with uninspired architecture. The quite obvious goal of designers is to create the sorts of places that Heidegger believes can inspire

From the great lakes of the Northland, From the land of the Ojibways,

3 Heidegger, Martin. Hofstadter, Albert trans. Poetry, Language, Thought. Harper & Row, New York: 1971. 21.



dwelling and a strong connection to place.

While Heidegger dabbled with phenomenology and its application to architecture, the writings of French philosopher Maurice Merleau-Ponty have more abstract connections to the field. Merleau-Ponty is more forceful in his writings than Husserl, staunchly advocating that perception is the foundation for rationality. The idea can be expanded as the supposition that the mind and the consciousness are lived through the body, and that perception is a dialogue between the body and the world. This subject-object dialogue draws heavily on the Gestalt psychology of the time, which proposed an inseparable figure-background rela-

tionship. Just as Heidegger believed that man continues to “be,” regardless, Merleau-Ponty advocates that the body should not be removed from its surroundings, and that an understanding of both relies on the presence and comprehension of each

The work of Merleau-Ponty brings two very intriguing ideas to the design table: one is his use of the Gestalt figure-background, and the second, his belief in the body as medium for the mind and consciousness. The idea of a figure being inseparable from a background can be literally understood in an architectural context as the occupant being inseparable from the building, and vice versa. This implies, then,

that an architect must carefully consider the occupant as an element of design, and to consider how occupation can help create space. With such an understanding, then, it must also be understood that the building cannot truly be measured until it is inhabited, or until it is represented in such a way that bystanders—the designer, reviewers, people who do not know the project, can imagine themselves inhabiting the unbuilt place, and then can justly judge the merit of the architecture. The subject-object relationship can also be understood at a different scale, one that can be judged also as above: the balance and connection between building and land must be so convincing that neither

From the land of the Dakotahs, From the mountains, moors, and fen-lands



seems complete when removed from the other. The body as the element which is in dialogue with the world is contrary to the more commonly held notion that the mind is the medium through which experience and perception are mediated. Merleau-Ponty's persuasive argument inspires an architecture which, although it can be intellectually rewarding, must be stimulating and engaging to the body. Understanding the body and how it experiences the world and translates interaction into response and memory becomes primary in supporting this idea into three-dimensional, experienced space.

As previously mentioned, phenomenology

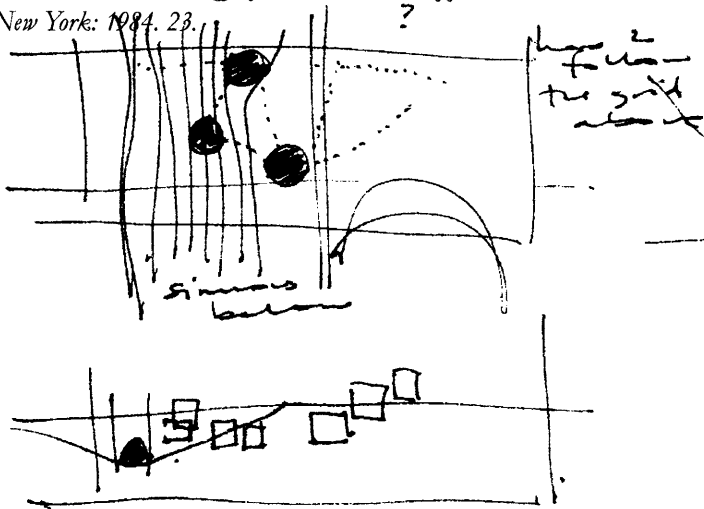
has been slightly transfigured in its application to architecture, although it can be said that this has been handled deftly, especially by noted author Christian Norberg-Schulz, who ties together Heidegger's understanding of being with Merleau-Ponty's body in context using his own articulation of building and dwelling. The clarity of architectural phenomenology is achieved first through the definition of place as phenomena which cannot be reduced to any of its properties without losing its essence. Norberg-Schulz uses the Roman concept of genius loci to express this nature; he believes, as they did, that each place has a particular spirit that determines its charac-

ter. He advocates building in response and dialogue to this spirit, noting that in respecting the character of a place will yield a building which enriches its environment. Just as an individual place has an essence, Norberg-Schulz researches and investigates the nature of the landscape that connects places. An understanding of the environment in which we live allows us for a meaningful relationship between man and land, a moment in which we feel "at home."⁴

If Merleau-Ponty's work suggests a serious attempt to place the building indissolubly into the site, then Norberg-Schulz seems to suggest that this can best be achieved when place is understood first, and design begun second.

Where the heron, the Shuh-shuh-gah, Feeds among the reeds and rushes.

4 Norberg-Schulz, Christian. *Genius Loci: Towards a Phenomenology of Architecture*. Rizzoli, New York: 1984. 23.



The identification of the genius loci of a place might initiate from a historical perspective, but it must also come from an intimate knowledge of the place. Minneapolis, Minnesota was chosen as the site for this project because it is where I grew up, and I feel that in some ways I know the genius loci of the place, even if perhaps it is hard to put into words. Further on in this text, efforts will be made to acquaint the reader with Minnesota historically, as an experiential history relies on direct contact.

This dance then, from seeing to perceiving, from being to dwelling, is centering in on a fundamental idea: that an evocative experience between man and world occurs when per-

ception is used to understand context. The underlying subtext, of course, is that there is a dialogue between both man and world, and that this is a heightened exchange when the essences of each are acknowledged and appreciated. Contemporary architectural writer Juhani Pallasmaa speaks of the import of this idea in architecture: "In memorable experiences of architecture, space, matter, and time fuse into one single dimension, into the basic substance of being, that penetrates into consciousness...Architecture is the art of reconciliation between ourselves and the world, and this mediation takes place through the senses."⁵

These theories of perception and dwelling

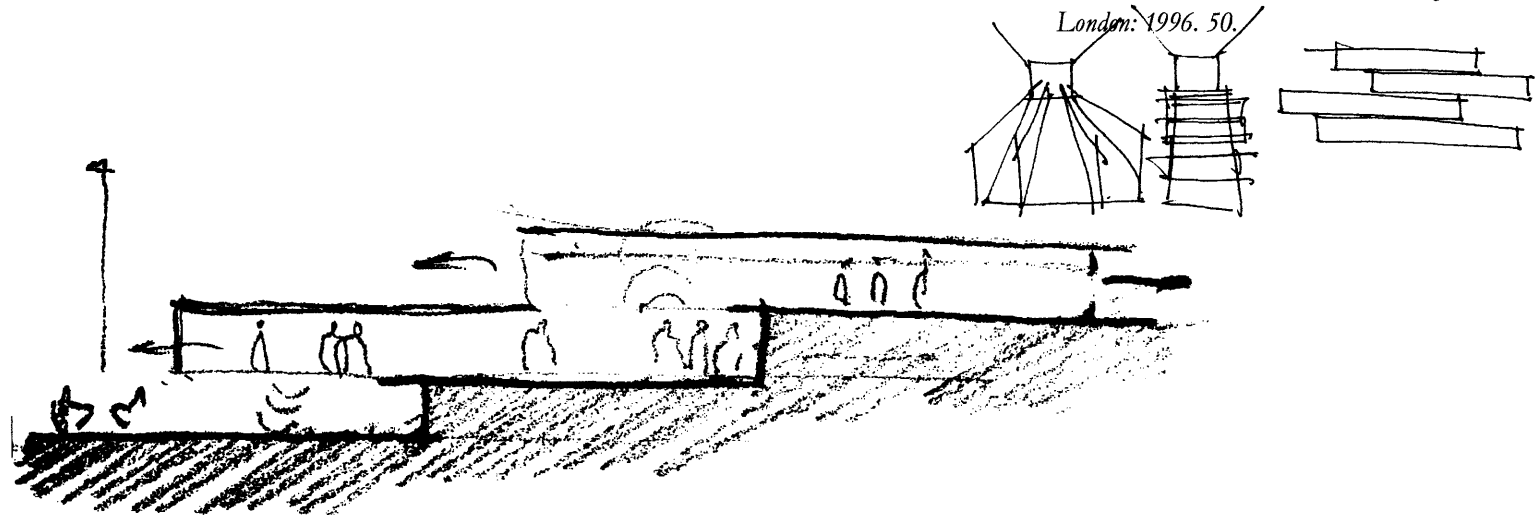
are intriguing, but in one sense they remain in the abstract, as they lack a biological understanding of the body in the world. From a phenomenological understanding of man, building, and world, it became important to look at the psychological implications of space, place, and the senses. In researching both theory and biology the goal is to achieve a broadly, if quickly acquired, understanding of how and why an architecture of the senses could be an additive experience.

Implications of Environmental Psychology

Environmental psychology is the scientific

I repeat them as I heard them From the lips of Nawadaha, The musician, the sweet singer."

5 Pallasmaa, Juhani. *The Eyes of the Skin: Architecture and the Senses*. Academy Editions, London: 1996. 50.



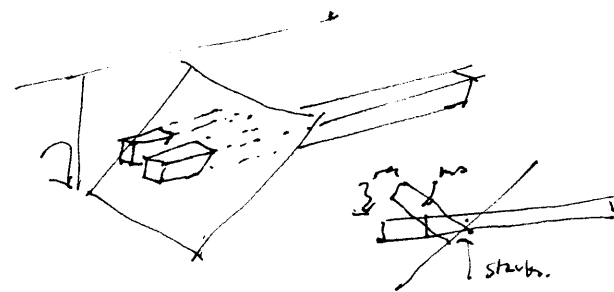
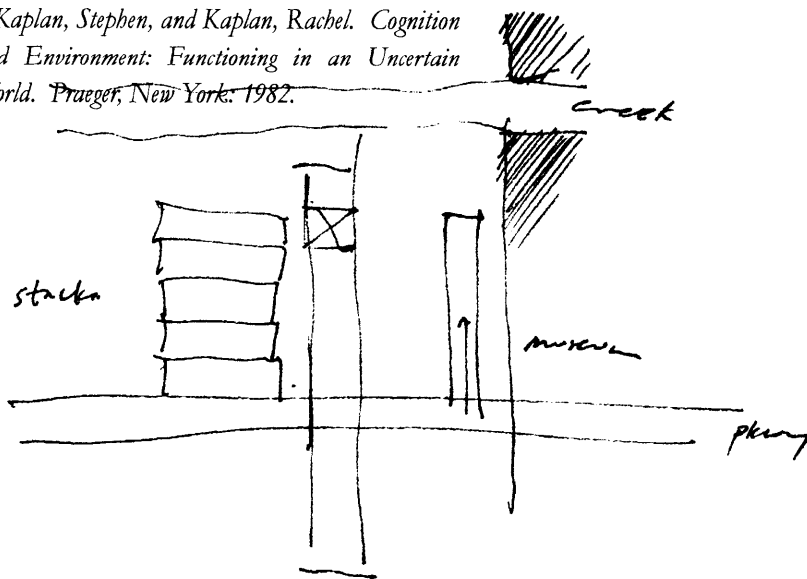
twin of phenomenology: it researches the associations and connections between individuals, their behavior and their environment. It is a broad field, covering social, informational, learning, and built environments. There are recurrent elements in research literature of the field which elaborate on the behaviors and relationships studied: attention, defined as how people notice the environment through stimuli; perception and cognitive maps, how people create images of the natural and built environment; preferred environments, places where people feel competent, confident, and engaged; environmental stress and coping, including failure of preference, lack of predictability and

stimulus overload; participation, involvement in design, modification and management of environments.⁶ Some of these elements readily highlight the possibility for both negative and positive relationships between an individual and their environment, and suggest that the positive can be achieved in an environment which is stimulating, readily understood, continually challenging and engaging, and designed in a collaborative effort between designer and future occupant. For the purpose of this project as an academic exercise, the role of future occupant was served, however adequately or inadequately, by outside reviewers, both within and outside the field of architecture.

This thesis seeks out a rich architecture, created holistically, and in order to understand how environmental psychology can best be applied to serve this purpose it is useful to begin with a brief primer on Gestalt psychology. Founded by Max Wertheimer in the early 1900s and developed in collaboration with Wolfgang Kohler and Kurt Koffka, Gestalt psychology deviated from the current psychology of the time to focus not solely on the mind, but on the whole person. Properly defined, Gestalt means unified or meaningful whole. The description followed an experiment by Wertheimer which recorded the phi phenomenon: the observation that sometimes what you

Should you ask where Nawadaha Found these songs so wild and wayward, Found these legends and traditions,

6 Kaplan, Stephen, and Kaplan, Rachel. *Cognition and Environment: Functioning in an Uncertain World*. Praeger, New York: 1982.



see is an effect of a whole event which is not contained in the sum of its parts. Using a toy strobe light, Wertheimer showed that although only individual lights were lit at a time, the experience was of a coursing of lights. Gestalt psychologists note that we are built to experience both the individual sensation and the structured whole, and that often, we give Gestalt structure to events which do not have them.

In light of design this is a particularly engaging idea: all too often designers speak of the parts and the whole, but this perspective allows for an understanding of why this is not only a theoretical, but a biologically supported idea: the human brain is hardwired to understand

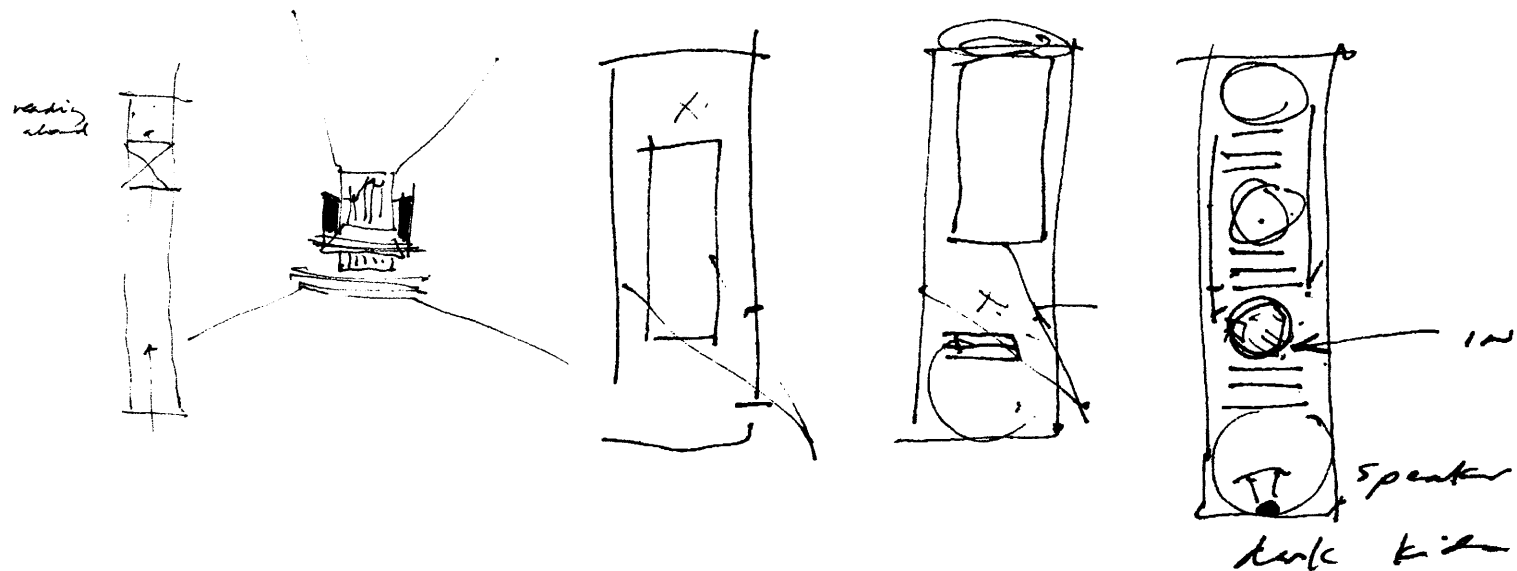
and even construct a unified conception of the world. The brain has an affinity for regularity, order, symmetry, which explains why buildings which apply such principles are aesthetically and experientially pleasing. Gestalt psychologists grouped these principles under the law of *pragnanz*, which adapts the literal translation, *pregnancy*, as the idea that these principles are pregnant with meaning and possibility.

Another potent idea of Gestalt psychology is that of the figure-ground. The illustration of the silhouettes of two heads facing one another to form a vase in the negative space between them is a classic Gestalt example of

how humans tend to perceive one aspect of a figure as foreground and the other as background. It is also an excellent example of how the two, regardless of which you perceive as fore or back, are interdependent and cannot be understood without the other. This is a biological proof, then, for the phenomenologists and their subject-object definition. This idea also suggests an architectural possibility: that a designer can specifically create a building that either seeks to allow the land to read in the foreground, or as is more often the case, can design such that the building is more likely to be read as the foreground.

Pursuing environmental psychology further

I should answer, I should tell you, "In the bird's-nests of the forest, In the lodges of the beaver,



there are two commonly cited works: that of James J. Gibson, and that of Stephen and Rachel Kaplan. Gibson's work, focusing on perceptual systems and the individual's actions within the environment, provides a foundation for the work of the Kaplans, which tends more towards recognition, preference, and the transfer of knowledge in an environment. While the reflections of each body of work seem in some cases to be self-explanatory, it is important to realize that until their time, no data had been collected or research compiled regarding the biological responses of man to environment.

James J. Gibson advocates a new way of understanding the body, one that realizes that

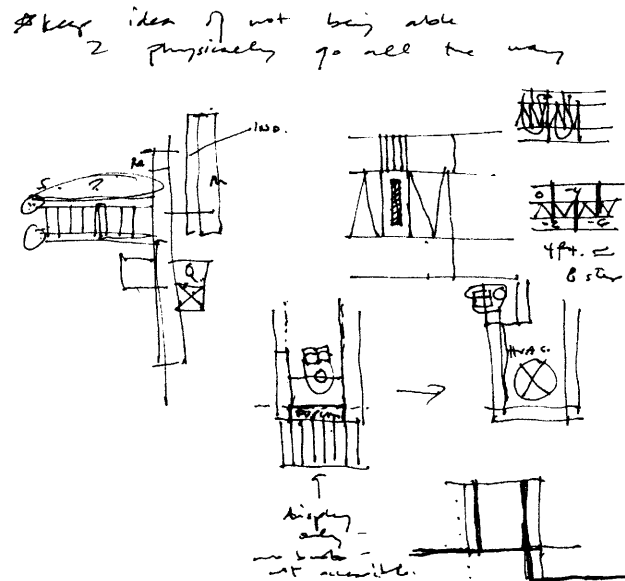
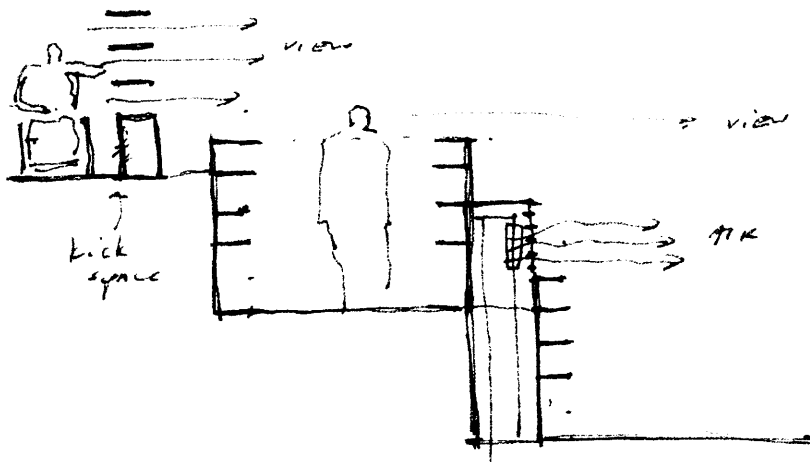
perceptual learning is not the same as association, conditioning, or memorization. It is, instead, a process of differentiation, one that occurs using highly complex instruments that are not fixed-capacity, which means we continue to learn and hone our perceptual skills over time. He recognizes that the stimulation available to an organism has structure that depends on the outer environment, and that an individual's perceptual systems depend upon exposure to varying environments. In a strange correlation with the work of Heidegger and Norberg-Schulz he writes "land, water, and air are the main components of the environment, and we should keep this fact in mind when

we consider the sources and causes of stimulation."⁷ This is intriguing as it presents a scientific view of the more spiritually and culturally inclined groupings of the phenomenological authors. As previously mentioned, this information may seem given, but it is important to note that the simple answer has resounding repercussions: any modification to land, air, or water, can and is perceived by individuals, and has either positive or negative influences on both their experience, and their memory of place.

Gibson supports the phenomenological idea that individual and land are in dialogue with his understanding that the atmosphere is a

In the hoofprint of the bison, In the eyry of the eagle!

7 Gibson, James J. *The Senses Considered As Perceptual Systems.* Houghton Mifflin Company, Boston: 1966. 7.



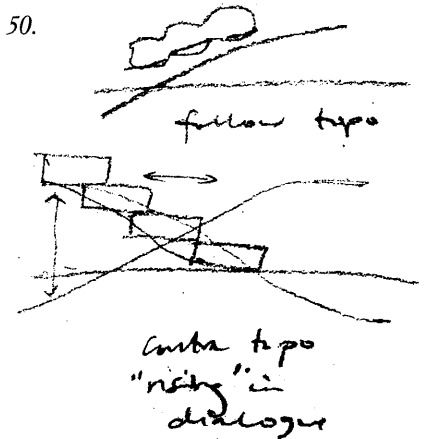
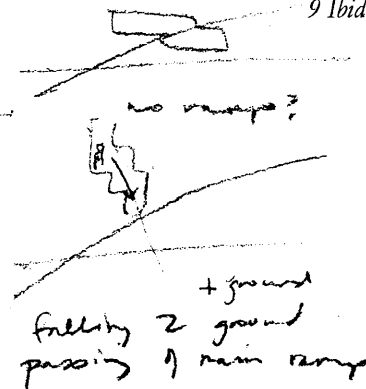
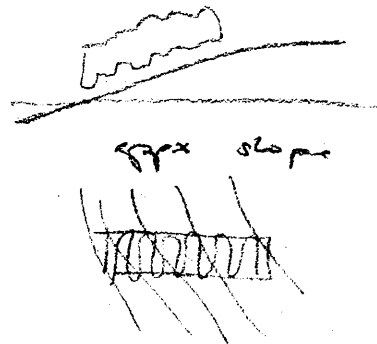
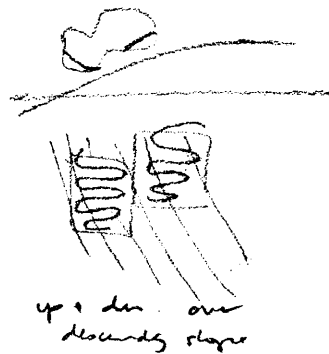
medium for the flow of information, and that the solid ground is a rigid support which allows for locomotion, orientation, and manipulation. The information that Gibson provides can be viewed as a toolbox for designers. Understanding how our bodies make sense of the world is an invaluable asset to creating spaces which are pleasurable, challenging, and memorable. The built world has to have modes of stimulation, as these are the only ways an individual perceives anything: "all knowledge rests on sensitivity."⁸ Gibson's work is pivotal because it takes operates on his new premise that the external senses are active, rather than passive, and that they are interrelated channels that are

not mutually exclusive. He presents a multifaceted biology that responds systematically and uniquely to each environmental stimulus. The following describes the perceptual systems as understood by Gibson by which we interact with and make understandings of our environment.

The perceptual systems each have their own modes of attention, are associated with specific activities of specific organs, and rely on different available stimuli with which to perceive the environment. The basic orienting system is just that, and uses body equilibrium to adjust to forces of gravity and acceleration. The auditory system uses listening as a means of orienting to sound and relating to the nature and

location of vibratory events. The haptic system is based on the skin, and therefore is associate with the exploration of touching which discovers through contact with the earth, and is responsible for the understanding of mechanics, object shapes, and material states. Most self-explanatory is the taste-smell system, which identifies through savoring and sniffing the nutritive and biochemical values of objects, and the nature of volatile sources. Modern life has become oriented to the last system: the visual, which through accommodation, pupillary adjustment, fixation, convergence, and exploration determines everything that can be specified by the variables of optical structure⁹

"All the wild-fowl sang them to him, In the moorlands and the fen-lands, In the melancholy marshes;



8 Ibid. 26.

9 Ibid. 50.

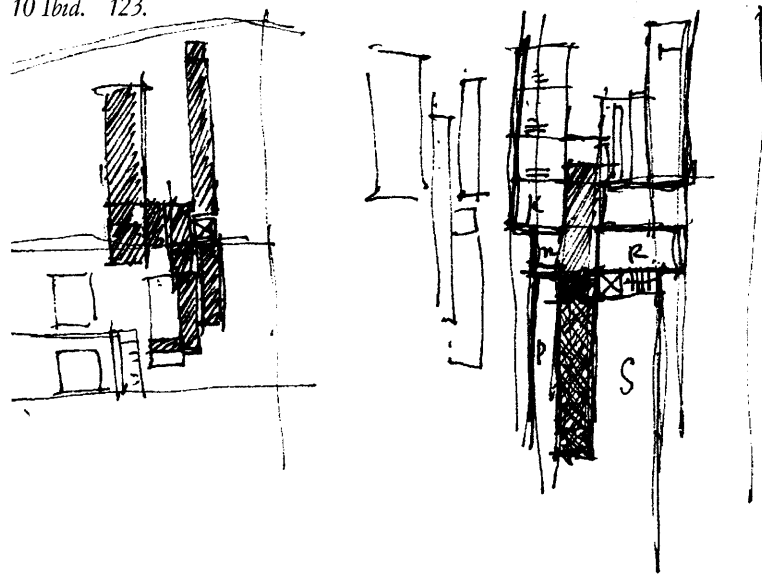
In an analysis of movement, Gibson provides two understandings: first, that movement is exploratory and serves perception, and second, that it is performatory towards experience. He describes seven movement systems and their functions, which can serve basic biological functions, but also provide psychological fulfillment. The system and function are paired, for example: the postural system provides orientation to the Earth (fundamental to all other systems); the orienting-investigating system allows for adjustments to obtain external stimulus information, while the locomotor system is used to place the self favorably into the environment; the appetitive system takes

from and gives back to the environment, and the performatory system alters the environment for the benefit of self; the expressive system allows for the specification of emotional states as a means of self-identification, and the semantic system makes signaling movements, especially those of coded speech. This understanding of the various movement systems describes a dialogue relationship between people and their environment; at once people are both receiving information about the world and providing information about themselves, not only obtaining references for their world but for referencing themselves within this placement.

One of the most exciting ideas found both in the work of environmental psychologists but also those who study the connections between architecture and pleasure is the fact that “animals seek contact with things—the search for contact is terrestrial, social, cognitive and intellectual.”¹⁰ Physical interactions between humans and their environment provides a number of positive benefits and when the environment fulfills many of these possibilities, an individual is more likely to stay, interact, and to return to that environment. A stimulating environment is one that will respond to the means by which an individual acquires perception: “the body can be stationary or moving

Chetowaik, the plover, sang them, Mahng, the loon, the wild-goose, Wawa,

10 *Ibid.* 123.



with reference to the environment, the head can be stationary or moving with reference to the body and the eyes can be stationary or moving with reference to the head.¹¹

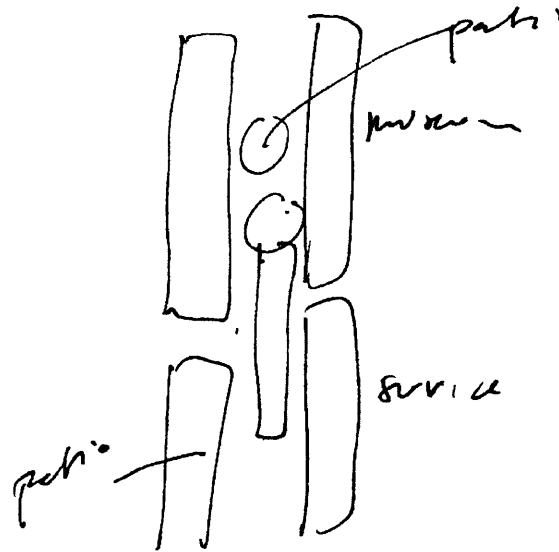
The work of Stephen and Rebecca Kaplan adds to Gibson's work with the recognition that not only does an individual respond to its environment through specific processes, but that it responds to specific environments in unique ways. The Kaplans recognize the power of familiarity in everyday experience, noting that in a familiar environment, an individual is less dependent on reading new cues to understand the place, and is freer to make decisions without careful testing or waiting.¹² Familiar-

ity allows individuals to make use of cognitive maps which are created using the perceptual systems Gibson described. The use of cognitive maps as a starting point for understanding the environment suggests that architecture which uses forms either common to site or to culture might encourage familiarity. The possibility also exists that the use of universal elements in new ways would be at once challenging and comforting.

Just as Gibson noted the need to be in contact with things, the Kaplans note that "since we have a need to be cognitively affective, we tend to prefer environments that help make this possible."¹³ Challenge is a formidable ele-

ment in the design of space: not only can a place be aesthetically complex, but this complexity allows for the fulfillment of the basic human drive to be in an attitude of learning. There is a link between cognitive understanding of individual ability and the motivation which spurs individuals to seek out environments which challenge personal limits. The basic human needs are commonly understood as food, water, shelter, and heat. In addition, say the Kaplans, there is a basic human need to make sense of our environment, and not only that, but this making sense is both a sought and treasured experience. They define an experientially rich environment as one which has

The blue heron, the Shuh-shuh-gah, And the grouse, the Mushkodasa!"



¹¹ *Ibid.* 259.

¹² Kaplan, Stephen, and Kaplan, Rachel. *Cognition and Environment: Functioning in an Uncertain World*. Praeger, New York: 1982. 5.

¹³ *Ibid.*, 71.

coherence, complexity, legibility, and mystery. These elements allow individuals to conceptually organize the space, remain challenged throughout occupation, imply the possibility of new information by traversing the space, and afford the reassurance that one will not get lost.

What is of greatest importance to me as a designer, was finding the justification for my belief that people are not only more intelligent about their surroundings, but that they in fact crave a certain intellectual and aesthetic complexity. Environmental psychology combined with phenomenology provides the theoretical and factual background for an architecture of the senses, recognizing that both humans and

their environment are physically constructed in such a way as to be mutually engaging. Additional support to this hypothesis is provided by authors who write about the implications of the senses on architecture.

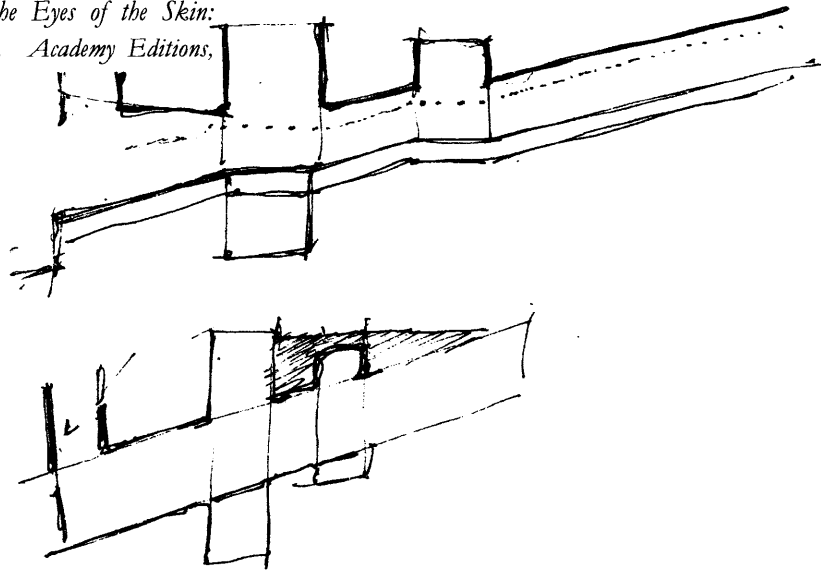
Body, Sense and Meaning

In order to understand the desire towards multi-sensory architecture, it is necessary to remember the evolution of human communication and settlement as it pertains to the use of the senses. As the author Walter J. Ong wrote: “the shift from oral to written speech was essentially a shift from sound to visual

space.”¹⁴ By necessity, oral cultures featured a certain proximity that was determined by the limits of communication. Buildings and individuals were engaged in a much closer relationship with one another. Following the development of written speech as well as other technological advances, societies were able to create distance, not only between groups, but also between individuals. With this distance, vision supplanted hearing as the dominant sense, as vision has a far greater field of legibility than the other senses. This change to a visual society comes at the expense of the other senses, which require proximity, and also a slow pace to function. It must be noted,

If still further you should ask me, Saying, “Who was Nawadaha? Tell us of this Nawadaha,”

14 Pallasmaa, Juhani. *The Eyes of the Skin: Architecture and the Senses*. Academy Editions, London: 1996. 14.



that these other functions, touch and hearing in particular, stir the emotions in a more primal way than vision does.

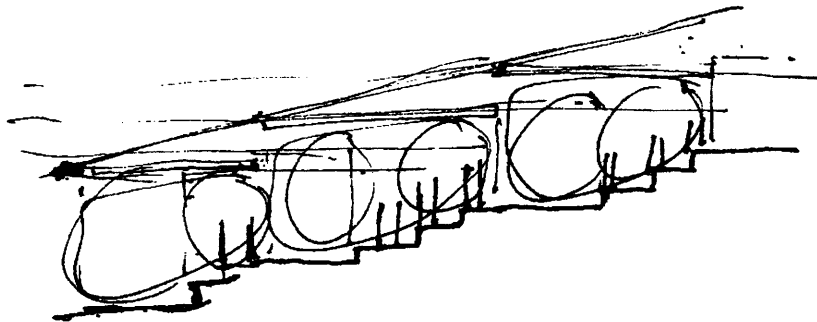
“The brilliance of our most recent evolutionary accretion, the verbal abilities of the left hemisphere, obscures our awareness of the functions of the intuitive right hemisphere, which in our ancestors must have been the principal means of perceiving the world”¹⁵ This telling piece is from Carl Sagan, who recognizes how vast the change has been from the past to the present. While there is no doubt that evolution has led to a longer life span, it might be questioned as to how fulfilling this kind of living is, in comparison with that of

the past. The change from left brain to right brain is a change from intuition, imagination, spatial cognition, experiential acquisition, an understanding of “the whole” of things to logic, language, structure, predictability, and an understanding of “parts.” Possibly then, as much as this thesis is about the senses, it is also about an enrichment of the right hemisphere and a desire to balance the general tendency for modern living to appeal to the left hemisphere.

Two thousand years ago, Hippocrates observed that our well-being is affected by our settings; while this is an idea which seems obvious enough today, all too often the power of the statement is lost in favor of environments

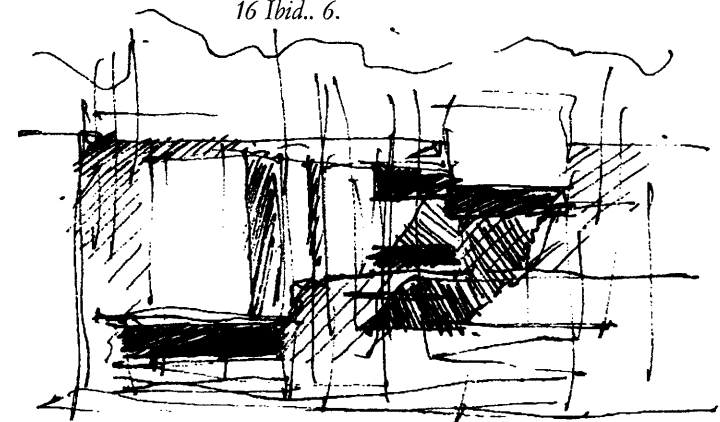
which are fiscally, socially, and culturally economically frugal. What should not be forgotten, however is the power of childhood memories which “because of the context in which it was first or repeatedly experienced, a particular natural setting, a room, a sound, a smell, even certain architectural characteristics, may retain associations, may shape choices, throughout the life of the individual.”¹⁶ This then, is a pivotal idea for architecture: there is the opportunity to create places which can influence future choices based on their appeal or significance to a child. Creating places for children is an exciting challenge for the same reason that creating places for adults is: their environments

I should answer your inquiries Straightway in such words as follow.



15 Hildebrand, Grant. Origins of Architectural Pleasure. University of California Press, Berkeley: 1999. viii.

16 Ibid.. 6.



are the places in which the growth of their creativity and intelligence is fostered.

Author Grant Hildebrand uses the research of Stephen Kaplan to support his theory that there are archetypal settings with implicit survival value that appeal to all humans across cultural, geographic, and time barriers. These archetypal settings are the prospect, the refuge, the enticing vista, and the perilous situation. In his research Dr. Kaplan found that the edge is “the place of innate human choice;” that unlike the clearing or underneath a canopy, that the edge provides that moment of both prospect and refuge.¹⁷ Kaplan also provides research supporting the appeal of the enticing vista;

their studies show that “the most preferred scenes tend to be of two kinds. They either contained a trail that disappeared around a bend, or they depicted a brightly lit clearing partially obscured from view by intervening foliage”¹⁸ In addition to these settings, he identifies some characteristics which are at once architectural and otherwise, that also provide an archetypal experience. Complexity and order allow for categorization and differentiation, activities which fulfill man’s desire to be able, as noted by the Kaplans, to make sense of the environment. This understanding can be achieved by moving through an environment, acquiring a complete picture in an additive

and continuous manner, but it can also require memory, as movement from outside to inside provides a discontinuous experience.

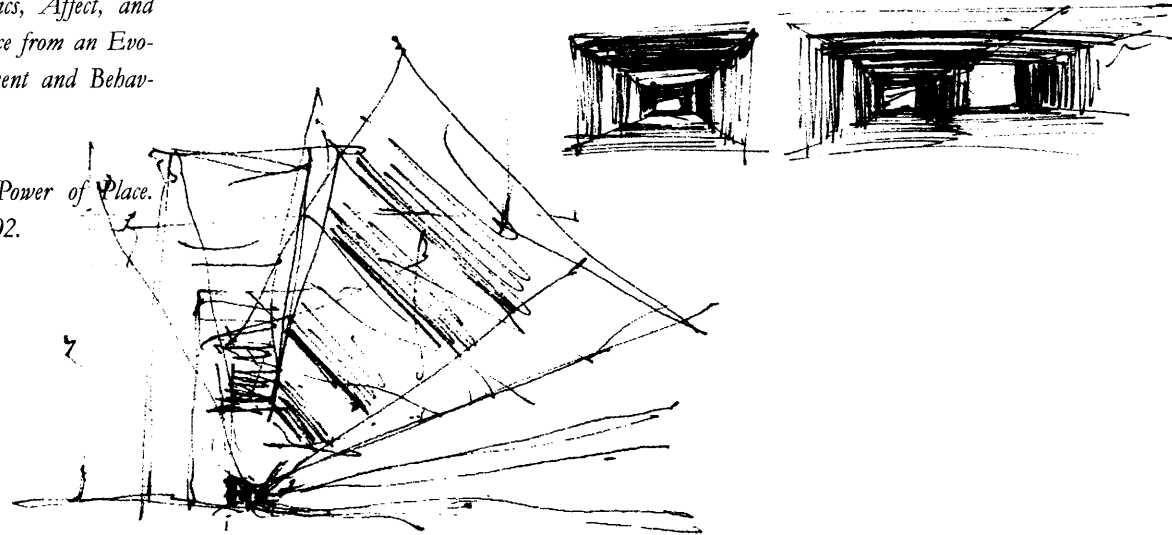
The environment is an experience, and the human body is the ultimate measure of stimuli present. “As the hands-on world of the child recedes, we tend to forget that the body isn’t just a hat rack for the mind, but the crucible of development and the creator, monitor, and synthesis of all our experiences.”¹⁹ While various perceptual systems and individual organs are responsible for the direct acquisition of information and its processing into experience, it is the body as a whole which is the mediator between space and soul. Maurice

“In the vale of Tawasentha, In the green and silent valley, By the pleasant water-courses, Dwelt the singer Nawadaha.

17 Kaplan, Stephen. “Aesthetics, Affect, and Cognition: Environmental Preference from an Evolutionary Standpoint.” *Environment and Behaviour*. 19, no. 1 (Jan 1987). 3.

18 *Ibid.* 8.

19 Gallagher, Winifred. *The Power of Place*. Poseidon Press, New York 1993. 102.



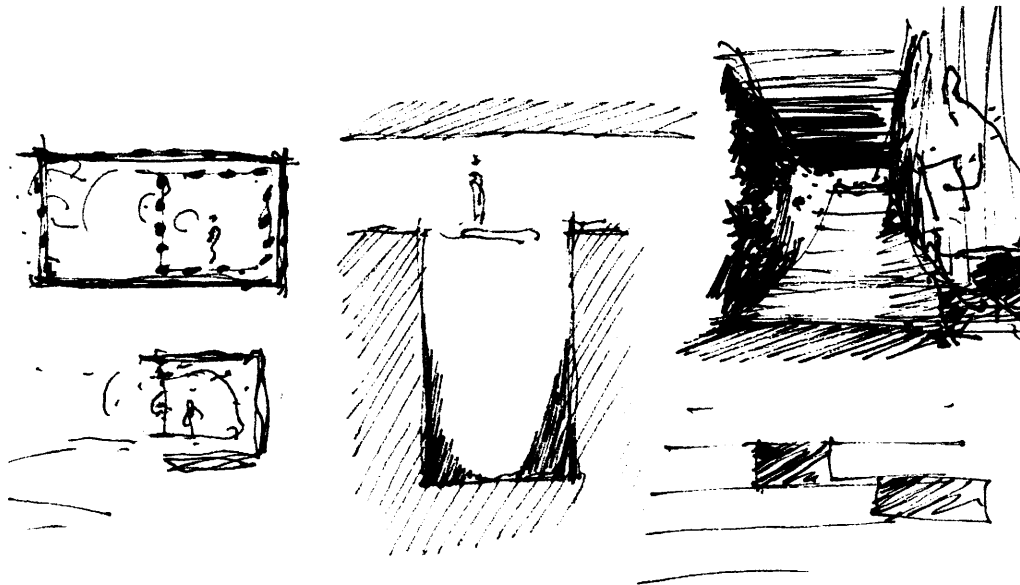
Merleau-Ponty believed in a continuous dialogue between body and things, one which occurs below verbal awareness. This dialogue is resultant of the rhythm of self being attuned to the rhythm of things. Juhani Pallasmaa believes that this is not only a dialogue, but a dialogue with repercussion which allow for the body and the world to constantly redefine one another. This returns to the idea that the user is inseparable from the architecture, that no building can rightfully be understood without the presence or understanding of those who will use it. It is, after all, their bodily dimensions which will interact with the space, their memories which will be formed to

incite a return to the place, and their energy which will fill the space and bring it to life.

As defined by the Ecological approach to visual perception: "People cannot be defined as separate from their environment, that there is a general scale to the environment that we live in, and that the perceptual system of the species is an integration of the senses, the brain, and the body, and is functionally inseparable."²⁰ The body is inseparable from the senses, and the senses are inseparable from the acquisition of information from the environment. As defined by Stanley Cohen, sensation is the first contact between an organism and the environment, perception is the conscious experience

and relationship between the two, and bringing together the two is cognition, using a definition borrowed from St. Thomas Aquinas is how we know the world.²¹ The perceptual systems of the body allow for potentially innumerable acquisitions of information, all metered through the senses which filter and measure the environment. If the body is the vessel which mediates between stimuli and its acquisition, then the mind is the mediator between sensations and sense.²² This is a weighty task for design, for it can appeal to each of these methods or it can engage something far within that triggers the retrieval of environmental information through these sources.

Round about the Indian village Spread the meadows and the corn-fields, And beyond them stood the forest,



²⁰ Jules, Frederick A. *A Comparison of the Application to Architecture of the Ecological and Gestalt Approaches to Visual Perception*. Center for Architecture and Urban Planning Research, Milwaukee: 1984. 64.

²¹ Cohen, Stanley ed. with Ward, Lawrence, and Enns, James. *Sensation and Perception*. Harcourt Brace and Company: 1994. 12.

²² Downing, Frances. *Remembrance and the Design of Place*. Texas A & M University Press, College Station: 2000. 59.

The body and the environment are both complex, responsive organisms; how then might architecture, a static entity, position itself in response and proposition to these two? Architecture can be seen both as the extension of the realm of man into the world of nature, but the converse might also be true, that architecture is, in fact, the extension of nature into the realm of man. In either case, it becomes the host for perception the cognition and expression that it affords. Author Frances Downing describes different domains of place experience, each with their own qualities and significance; these domains are much more than the stock “program” of any architect, as they are

imbued with personal experience and individual memory. One domain particularly applicable here is the sensate place, which has to do with the body and its extensions in to the environment. The breadth of informational acquisition of its system for both consciousness and memory is “among the most powerful tools for design”²³ Downing’s view places the body not as a subject towards which to work, but an object to be worked with in design. Another author, Yi-Fu Tuan furthers this idea by noting that when the senses are used together, they can actually reinforce and bring to consciousness the genius loci of a place.²⁴ These ideas are incredibly exciting because they lift responsibil-

ity from architecture to expose itself directly; instead it can be as rich as any character on a stage, with subtle innuendos and hidden desires.

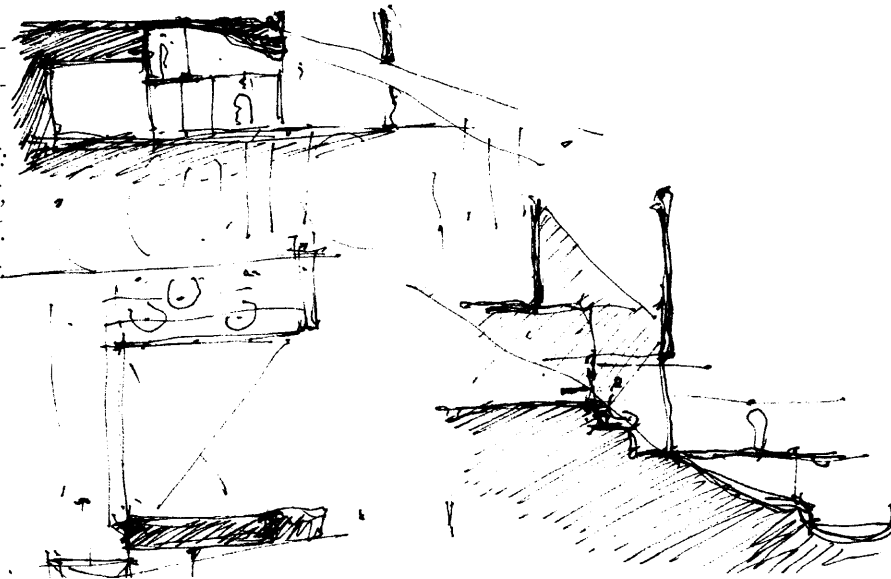
With the body is understood as a tool for design, architecture as a tool needs some description. Theorists and psychologists agree on the building blocks of architecture: floors, walls, and ceilings, but each bring a separate definition to the creation of space; Christian Norberg-Schulz also describes the boundaries of landscape: ground, horizon, and sky, while James J Gibson describes the composition of the world as clay, steel, and glass.²⁵ Each believe that the particular arrangement and relationship between the elements is that which

Stood the groves of singing pine-trees, Green in Summer, white in Winter, Ever sighing, ever singing.

23 *Ibid.* 38.

24 Tuan, Yi-Fu. *Topophilia: A Study of Environmental Perception, Attitudes, and Values.* Columbia University Press, New York: 1974. 11.

25 Norberg-Schulz, Christian. *Genius Loci: Towards a Phenomenology of Architecture.* Rizzoli, New York: 1984. 13. and Gibson, James J. *The Senses Considered As Perceptual Systems.* Houghton Mifflin Company, Boston: 1966. 26.



provides instantaneous and developable understanding of the environment. What is slightly surprising is the possible reading of the two additions: Norberg-Schulz moves out from built space to landscape, which somehow implies a more pastoral siting, whereas Gibson moves out from the surfaces of the environment to describe a man-made, suggestively urban world. Which, then, is the most appropriate way to conceive of a building in its context? Move out towards a utopian ideal, or move out towards inescapable humanity? If possible, let us form a different definition for these building blocks: the boundaries of built space are the surfaces on which we move,

the surfaces we move beside, and those under which we travel. The beginnings and endings of these might overlap, but in that softening of an interior/exterior edge we are either drawn farther out of the building, or closer in. It is preferable, perhaps, not to venture yet to describe to what these boundaries lead, rather allowing landscape to be another tool, and allowing for each unique site to present its features.

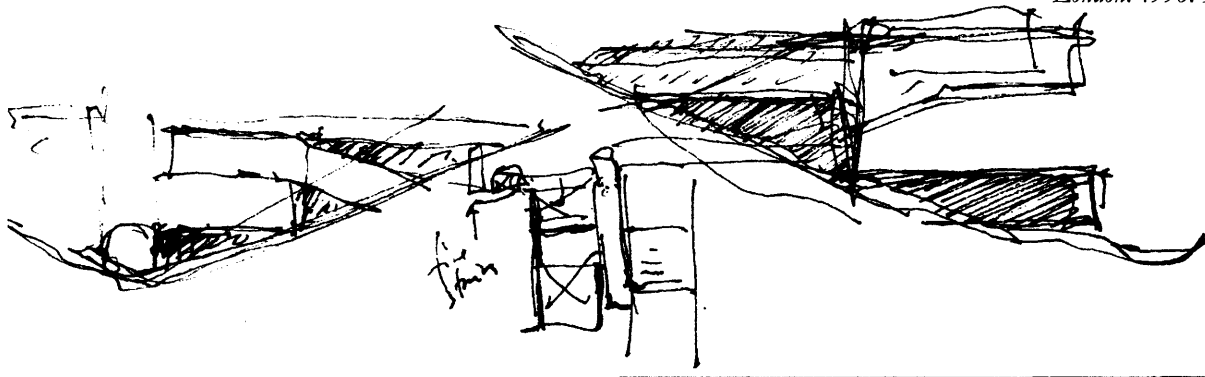
The meaning of places is that which, like the subject-object relationship of the Gestalt, cannot be any farther distilled, where "attraction is partly ground in ineffable perceptions and feelings of overall rightness."²⁶ This is, perhaps, the most delightful part of design: that

which cannot, and should not be over intellectualized or explained. Written and physical research can provide many answers, but there are elements both to the body, the mind, and to architecture, which escape words. The places that mean the most to people are those tied to memories, or are reminiscent of memorable places, those that are part of the everyday in an additive way. Sometimes a place is appealing because we have a direct connection with it, as mentioned above, and other times it is because it fulfills a primordial need. As Juhani Pallasmaa writes: "in memorable experiences of architecture, space, matter, and time fuse into one single dimension, into the basic substance

"And the pleasant water-courses, You could trace them through the valley, By the rushing in the Spring-time,

26 Seamon, David ed. Dwelling, Seeing and Designing: Toward a Phenomenological Ecology. State University of New York Press, New York: 1993. 81.

27 Pallasmaa, Juhani. The Eyes of the Skin: Architecture and the Senses. Academy Editions, London: 1996. 50.



of being that penetrates consciousness.²⁷

To Concerted Architecture

Creative possibilities are realized within constraints by using the appropriate tools. Architecture can be a mediating element between humans and the world, and it can provide an enriching, stimulating environment which inspires intellect, creativity, and memory so long as it appeals to each of the perceptual systems. The human body is a highly advanced organism which is capable of sorting and acquiring information about its environment, understanding and processing this informa-

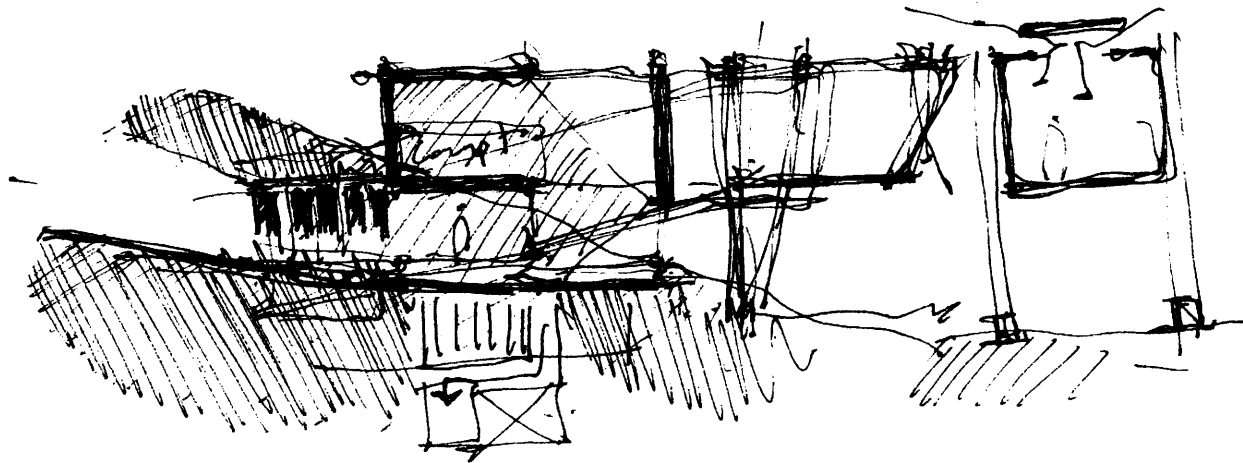
tion, and producing responses with which to interact with surrounding space. Design can best work with the body if it begins from various understandings about the nature of the specific site and about the general primordial instincts and responses of the human body.

In an effort to facilitate this investigation, and as mentioned, Minneapolis, Minnesota was chosen as the site because of the personal connection and history I have with the place. With the general essence of the place known, an appropriate program need be found which both suits the place and its history, but also suits the desire to create a perceptually rich architectural experience. Earlier musings pon-

dered programs of already existing places which either stimulate a particular sense or those which are pregnant with meaning, such as museums, churches, and libraries. In each of these places one or more senses is subverted in favor of the others, and in all three, there is an unspoken reverence about the place which ties it to communal as well as individual history. Ultimately, after reading countless books, with much time spent walking stacks, carrying books, and turning pages, a library seemed a most appropriate and familiar subject.

Libraries serve this thesis well, as they are among the first public places visit by children, and for this reason often a formative place for

By the alders in the Summer, By the white fog in the Autumn, By the black line in the Winter;



early memories: books in seemingly endless rows, the rhythm of small fingers dancing over undulating spines, the embarrassingly loud crash of books to the floor, the musty, ancient smell of yellowed pages turned carefully. The library is unique for another reason: just as going to one can be an adventure, it can also hold a journey within: there is a subtle slippage of realities when you open a book. It might be said that your perceptual systems are so swayed by what the brain is taking in that they, too, work to make real the world about which you are reading. The library encourages reflection and insatiable curiosity; an architecture of the senses can do the same - the building

can be a place of investigation and invention.

Proceeding ever closer to design during this period of research, when readings went back and forth between phenomenology, sense, and place, there were also readings about Minnesota, and the city of Minneapolis. Libraries were investigated to a certain degree in order to increase knowledge of precedents, but in general this was not the most in depth piece of research, so that the imagination could run freely.

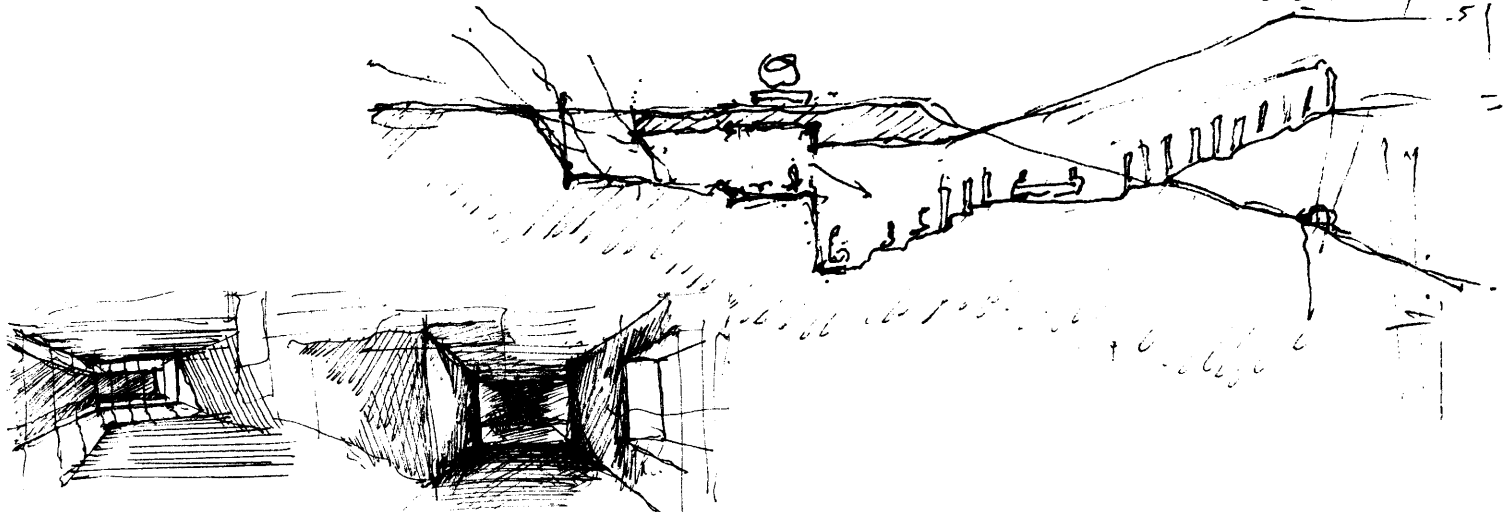
Finding Libraries

Throughout their evolution libraries have been patronized by a number of entities:

individual patrons have always maintained various collections of the written and then printed word, although some of the largest first belonged to royalty and religious scribes, and then in modern times to universities and the public domain. The first libraries were collections of clay tablets in Mesopotamia in the third millennium, B.C. These were written in cuneiform, one of the earliest written languages. The tablets were especially durable and led to the assemblage of libraries containing prayers, poetry, and even accounting books.²⁸ Ptolemy I began the first of the storied libraries at Alexandria in the third century B.C., which became known more for the burning of its

And beside them dwelt the singer, In the vale of Tawasentha, In the green and silent valley.

28 Battles, Matthew. Library: An Unquiet History. W.W. Norton & Company, New York: 2003. 25.



vast collection by Muslim conquerors than any of the independent works therein held. Alexandria was both the home of royalty and the center of papyrus production, meaning that both in terms of production and in terms of displaying the power of royalty that the city would be home to the greatest library of the time.

In 39 B.C. Caesar requested that a library be built with two reading rooms, one for Latin and one for Greek. This bilingual library became the standard by which all Roman libraries to follow used, both private and public. The grand vision of the library as an institution is owed to Caesar's successor, Augustus, who built, among others, the famed Palatine

Library, which was said to have special alcoves for the wooden bookcases and for statues. After the fall of Rome the most extensive libraries were those held monastically, as these were some of the only places that literacy was preserved. A daily activity for monks was the copying of Scriptures, designed to be an exhaustive and instructive spiritual labor. At this time much of the writing was on wax tablets, an easy material to be reworked, but difficult to preserve.

As it exists, Western book culture owes debt to Islamic tradition, which began using the art of papermaking as learned from Chinese prisoners as early as the eighth century.²⁹ It was during this time that the book as artwork was

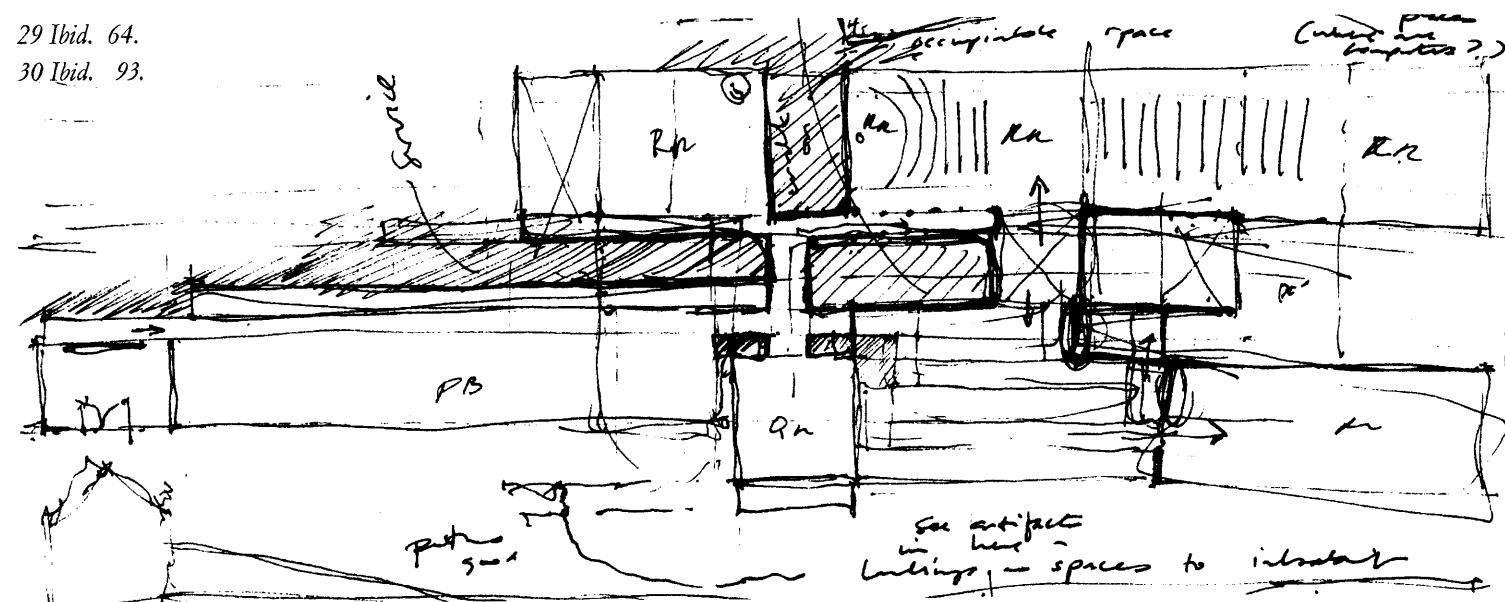
cultivated; this was also a time when ownership of books was prized and limited to the highest classes. It was not until the Renaissance that it became popular to make books accessible, if not to the public, than at least to a wider network of friends, relatives, and sponsored artists and intellectuals.

Richard Bentley, a classicist in England during the late 1600s became keeper of the Royal Library, and brought with him an idea to make the library an "international institution of higher learning"³⁰ This image of the library as a place of learning was expanded upon by the founders of universities, such as Harvard, where the library became a place both for the sharing

"There he sang of Hiawatha, Sang the Song of Hiawatha, Sang his wondrous birth and being,

29 Ibid. 64.

30 Ibid. 93.



of knowledge and for the deposition of legacies.

As it is today, aided by an ever-widening arc of technology, the library is a place for the dissemination of information to all who are interested. Whether or not the construction of books remains the same, the institution will remain host to the collection and dissemination of knowledge, and will continue to serve society as a beneficent establishment.

Longfellow's Fantasy

During a site visit to Minnesota, walking along the creek at night conversing, the Song of Hiawatha came to mind. Written by a Bosto-

nian, Henry Wadsworth Longfellow, it is perhaps the most famous poetic epic written by an American author. The Song of Hiawatha tells the story of the hero Hiawatha, his journeys across the Minnesota land, and his love for the maiden Minnehaha.

Longfellow nurtured an interest in the Indians of North America and remained fascinated with the American West throughout his life. The genesis for the poem that would bring together these interests was a photograph that Longfellow was shown of Minnehaha falls, the culmination of Minnehaha creek just before it empties into the Mississippi River. The appeal is universal, and it certainly provides fodder

for the imagination. Much of the information included in the poem is historically accurate, and was compiled and revised by pioneer explorer and historian Henry Rowe Schoolcraft and his half-Ojibway wife Jane O-bah-bahm-wawa-ge-zhe-go-gua Johnston. Longfellow openly credited the Schoolcraft's with the detailed and authenticated stories which gave rise to his poem. The primally appealing rhythm of the poem "By the shores of Gitche Gumee, By the shining Big-Sea-Water" was not an original invention; at the time he began writing the poem he had just finished reading the Finnish cultural epic, the Kalevala, from which he adopted the pulsing rhythm.

How he prayed and how he fasted, How he lived, and toiled, and suffered,

The poem is an intrigue: a fictional story based on factual research written not after a visit but after seeing a photograph. The power of the poem lies in its ability to construct a very real world and to present it to the reader in a highly memorable way. Longfellow uses the traditional tools of poetry: meter and repetition, and combines them with the musical effects of crescendo and echo to draw readers in by creating a new aural world. If this poem can so completely ensnare a reader and transport them into a new world, the idea that struck was that perhaps this project might do the same using the same tools. Rhythm, repetition, crescendo, and echo applied to the con-

struction of spaces would allow this library to be a lived poem, one that might create a new place for understanding the Minnesota landscape. Thus, the Song of Hiawatha became both a literal and inspirational source for the project, as its literary tools became design tools, and the program of the library expanded to include a small cultural museum for the display of Indian artifacts.

The Coldest State

Arguably one of the coldest states in the Union, Minnesota rests along the northern edge of the country and is a true Midwestern

state. The formation and recession of numerous glaciers during the Ice Age led to the pockets of land which now hold the more than 10,000 lakes which give the state its nickname. Providing backdrop for the lakes are smooth prairies and rolling hills, which were first home to Ojibway and Sioux Indians and later to German and Scandinavian immigrant farmers.

The headwaters of the Mississippi are in Northern Minnesota, with the river providing power to sustain the grist mills and lumbering that providing early settlement along the Mississippi. The river, along with plentiful lakes, streams, and creeks, formed the structure for the first completed emerald necklace in the

That the tribes of men might prosper, That he might advance his people!"



country, “the Grand Rounds,” a system based on the Parisian model of boulevards and parkways. Minnehaha creek, the inspiration for the Song of Hiawatha, links the chain of lakes of the Grand Rounds with the Mississippi in a rich network of pedestrian and bicycle paths. The sinuosity of the creek cuts through the North-South grid that defines the structure of Minneapolis, and it provides one response to an early planner’s directive that no residential property be more than six blocks from a public park.

Despite its rather pedestrian pedigree, Minnesota is home to a number of beautiful architectural precedents: there are wood and stone barns of early farmers which are elegantly con-

structed with designs whose simplicity reflects necessity and long, lean buildings of the Prairie School tradition which support the beliefs of Frank Lloyd Wright who said: “The land is the simplest form of architecture. It is man in possession of his earth. It is the only true record of him where his possession of earth is concerned. While he was true to earth his architecture was creative.”³² Both typologies form an aesthetic background tied closely to Minnesota; they represent an architecture whose form and expression are at once rooted in the land and a certain way of life and based on an aesthetic of materials and use.

The site for the project is in the Lyndale

neighborhood, a middle-class residential neighborhood bisected both by simple commercial strips and Minnehaha creek. Home to families, there are a number of schools in the area, from kindergarten through high school; the library-museum will serve this as well as the adult population. The site is bounded to the North by Minnehaha creek, to the West and South by a residential neighborhood, and to the East by Lyndale Avenue, which runs over the creek on a two-lane concrete bridge. Lyndale supports a lively commercial strip with banks, a grocery store, gas station, restaurants, coffee houses, doctor’s offices and pharmacies. While many people drive to other parts of the city, most

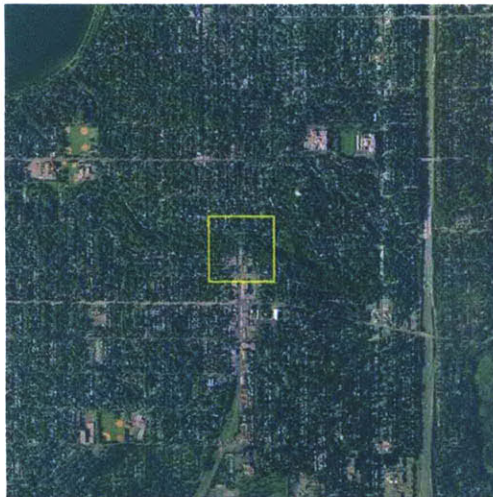
Ye who love the haunts of Nature, Love the sunshine of the meadow, Love the shadow of the forest,



people walk or ride their bikes to the amenities along Lyndale, also utilizing both methods to enjoy the pleasures of the creek. Following the proposed method of working, initial work combines the underlying geological and historical settlement patterns of the site with an understanding of current use and social and cultural importance for the site and its proposed program.

The series of four photographs highlights the site and places it in reference to the city (Far left, Minneapolis at top with Mississippi River), Lake Harriet (Bottom left, with school fields visible), Minnehaha Creek (Middle, with Lyndale Avenue running North/South).

Love the wind among the branches, And the rain-shower and the snow-storm, And the rushing of great rivers



The following photographs were taken walking along Minnebaha creek coming from the West walking towards the site and the Lyndale Avenue bridge. In the dry season the creek can be as low as a few inches, during floods as high as three to four feet.

Through their palisades of pine-trees, And the thunder in the mountains, Whose innumerable echoes



Close to the site this pedestrian bridge crosses over the creek. It is beautifully constructed, and its delicate connection to the ground inspired the rising and resting of the main stacks.

Flap like eagles in their eyries;-Listen to these wild traditions, To this Song of Hiawatha!



A view of the site: the Lyndale Avenue bridge is just visible through the trees and underbrush. This is an example of enticement--the opening in the bridge is so small as to preclude a continuous vista. The mystery of the place is heightened by the dramatic lighting: the face receives Western midday sun, while the opening remains cloaked in shadow.

Ye who love a nation's legends, Love the ballads of a people, That like voices from afar off Call to us to pause and listen,



View to site from the far side of the Lyndale Avenue bridge. At this point the creek becomes a place for an individual, or two in passing. The greenery is soft and enclosing, the sunlight and shadows dappled.

Speak in tones so plain and childlike, Scarcely can the ear distinguish Whether they are sung or spoken;-

35



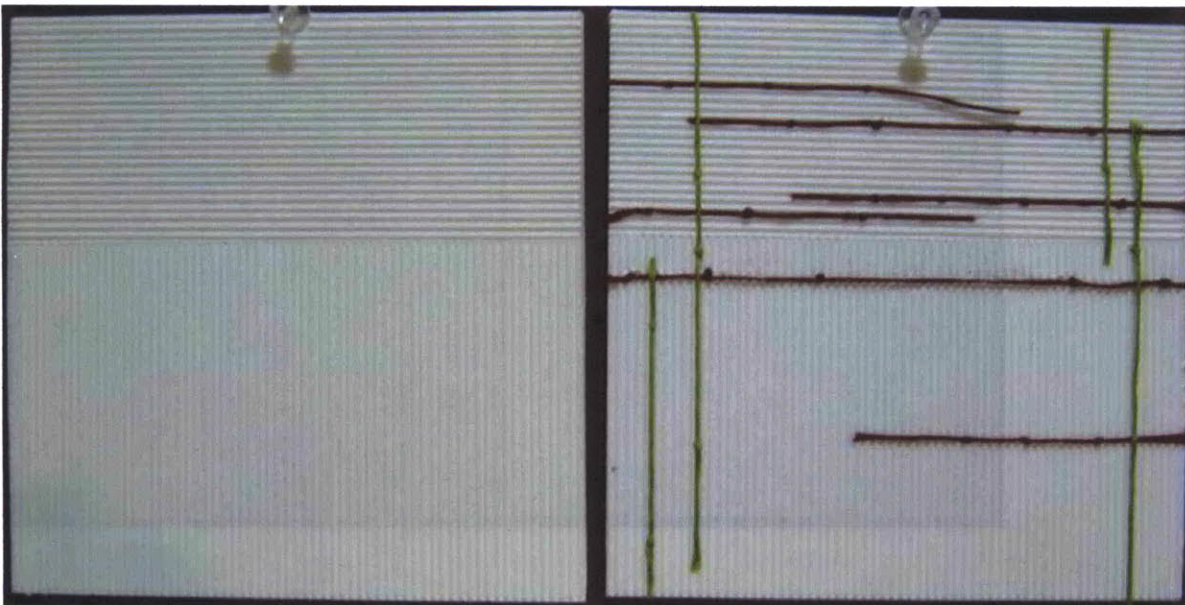
Cadence of Design:

So Lies the Land

The following are conceptual study models-views looking at the site, generally, in section. Each pair represents the site as it is, and the site as it could be. The horizontal lines on each represent above ground, the verticals below ground, the underworld. This first pair is the site: a world which above ground is oriented chiefly out, left to right, in the expansion of the land. The underworld is oriented up, to the sky; your experience of being in the creek bed is that of total enclosure, save the thrust of light and air above your head.

Listen to this Indian Legend, To this Song of Hiawatha!

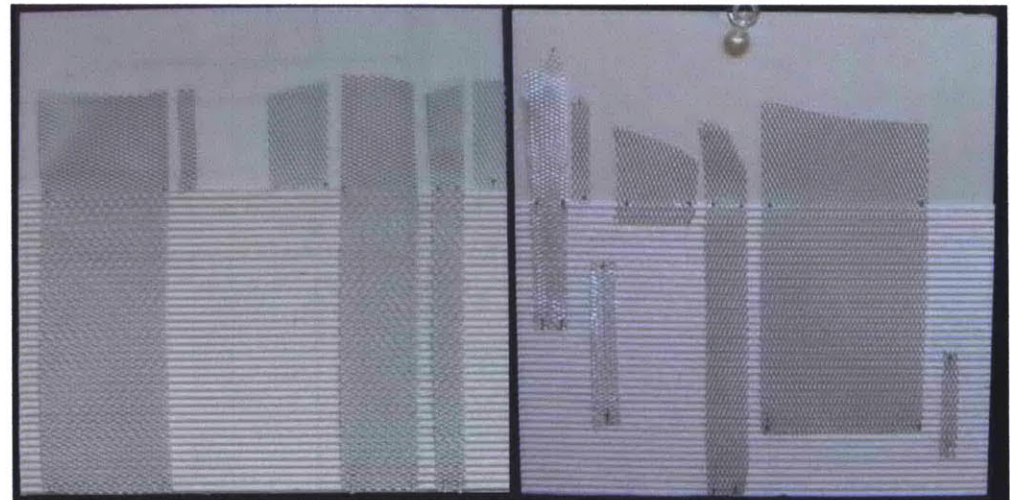
Ye whose hearts are fresh and simple, Who have faith in God and Nature,



Sight: The unyielding presence of the land, and the somewhat infrequent appearance of landscape to the eye: a few tree-lined boulevards and parks, but buildings sit alone.

Possibility: Buildings and land can exist in a more tapestry-like relationship. In places the building or the land are visually dominant, in others, nature.

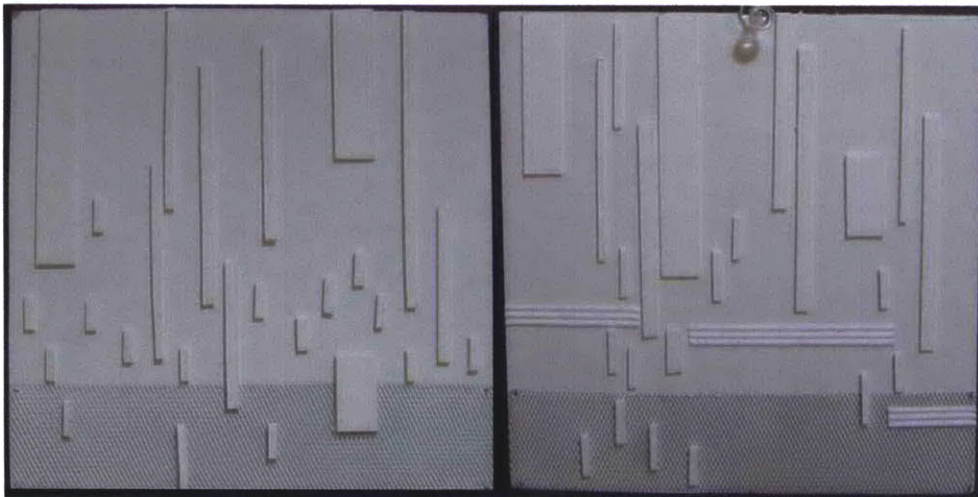
Who believe that in all ages Every human heart is human, That in even savage bosoms There are longings, yearnings, strivings



Sound: The unusual condition, or perception, of falling sound. You can almost feel the sound as it comes down on top of your head and into your ears: the heavy calls of airplanes, the rushing of cars, the bursts of people walking and talking.

Possibility: Use the building as baffles to direct and deflect sound in particular places. Use the form to create a designed soundscape.

For the good they comprehend not, That the feeble hands and helpless, Groping blindly in the darkness,



Touch: What exists is natural texture-the bark of trees, the swaying of branches. You reach out to touch only out of personal curiosity. Buildings most certainly do not invite touch.

Possibility: Create a building and landscape which is more inviting, more revealing to touch. The haptic sense can be engaged in many ways-there are opportunities to be had.

Touch God's right hand in that darkness And are lifted up and strengthened;



Smell: A much harder sense to appeal to than the others; the current environment is subtly infused; the closer you get to the creek the more cognizant you become of the earthy smell of dead leaves, the richness of wet earth, the gently flowing water.

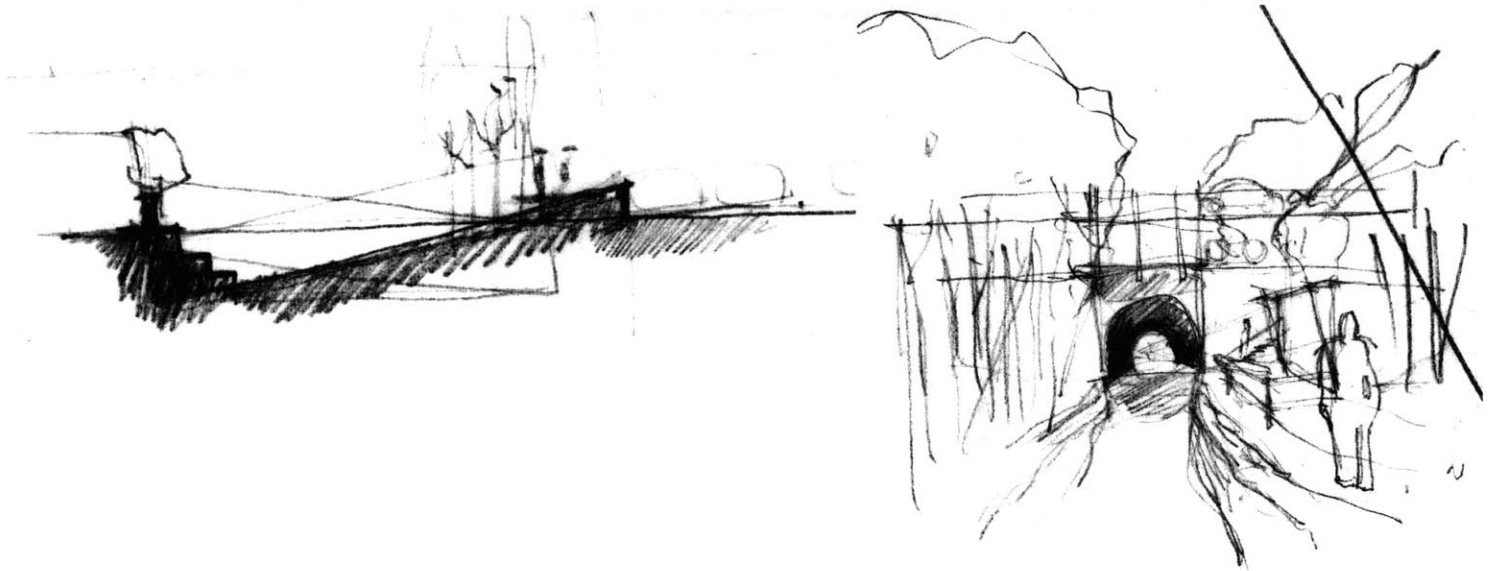
Possibility: Bring some of the richness up above the underworld and into the building to create a stronger connection between that which was built by man, and that which was built by nature.

-Listen to this simple story, To this Song of Hiawatha! Ye, who sometimes, in your rambles



In the beginning ideas were coming in random fashion; thinking about being close to the residences, near the roads, and besides the creek prompted initial responses which, in the end, were markers for what the building ultimately became. Before the building was an interior experience, the most important relationships were external: how does the building fit into the context-how does it make more of the landscape?

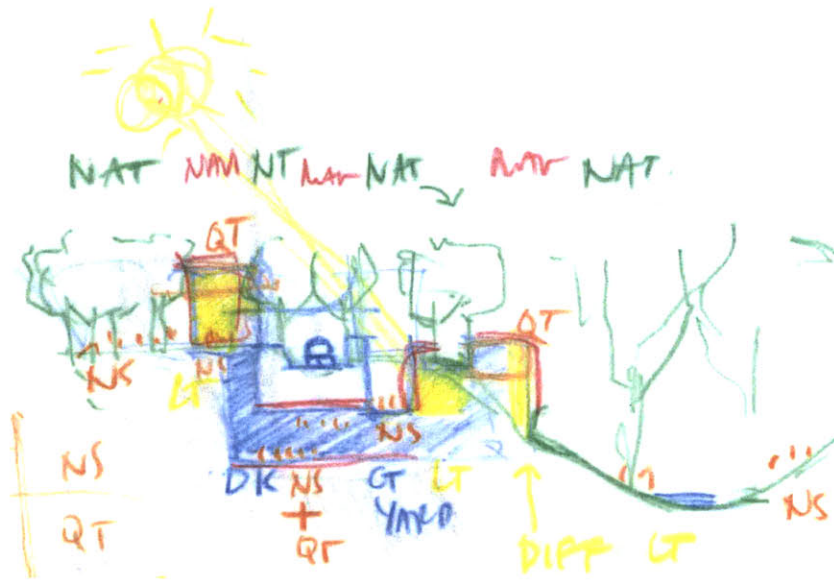
Through the green lanes of the country, Where the tangled barberry-bushes Hang their tufts of crimson berries



The tempting method of initiating the design was to work in pairs, as in the conceptual models: working with dichotomies, however, is restrictive, and it disregards the body's capacity to perceive and to react to even minute changes in the environment. At this point it seemed that while creating partitioned experiences was not the solution, that it still made sense to perhaps unite programmatic elements with expressed senses, such that while each

perceptual system could be at work throughout the entire building, that at times one might be celebrated and another suppressed. What remained from this diagram was the desire to be both above ground and below, allowing the building to be a part of both the city grid and the sinuosity of the creek.

Over stone walls gray with mosses, Pause by some neglected graveyard, For a while to muse, and ponder

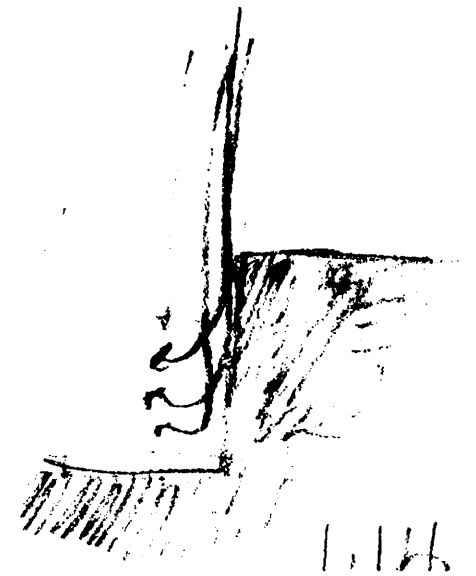
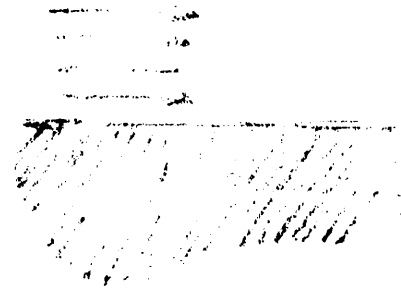


There was already a tendency towards how the building would be in dialogue with its context: the longitudinal section cutting through the creekbed and up onto the flat terrain of the city grid was incredibly suggestive.

What became important was not to treat this solely as a landscape project but to move inside, to think about the experience of the spaces that could make this a memorable place. Here the senses became a tool for design.

Each of the perceptual systems is responsive to different elements of a building. In reverse, this thinking dictates possible outcomes for design given existing stimuli. Design is in response to given conditions.

On a half-effaced inscription, Written with little skill of song-craft, Homely phrases, but each letter

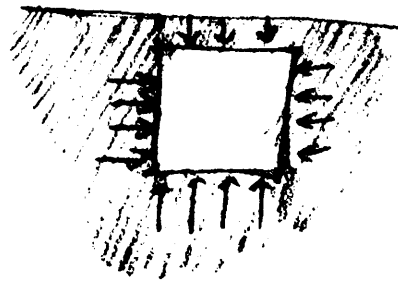
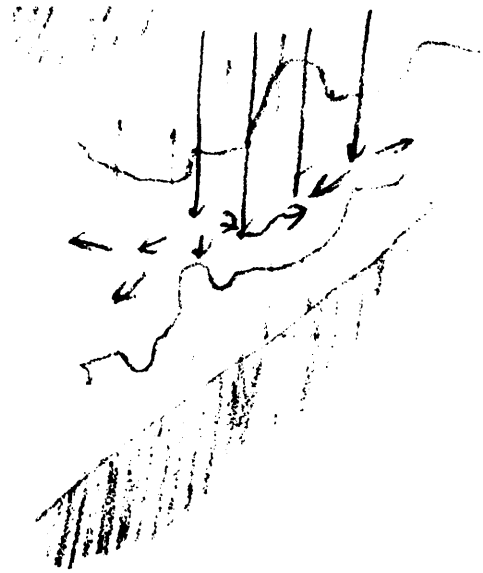


The influences that guided this were as follows: sound is largely dependent upon form and volume, thus form is created in response to and towards designing sound. Touch reacts to materials, and sight to relationships and light.

While you can begin from one sense and work towards one architectural objective, you are already processing the others and making decisions that involve a host of spatial and experiential challenges and opportunities.

The sketches below were a starting point, observations of sound on the site at various places, from which to begin a response. The arrows indicate the direction, either actual or perceptual, of sound in each location.

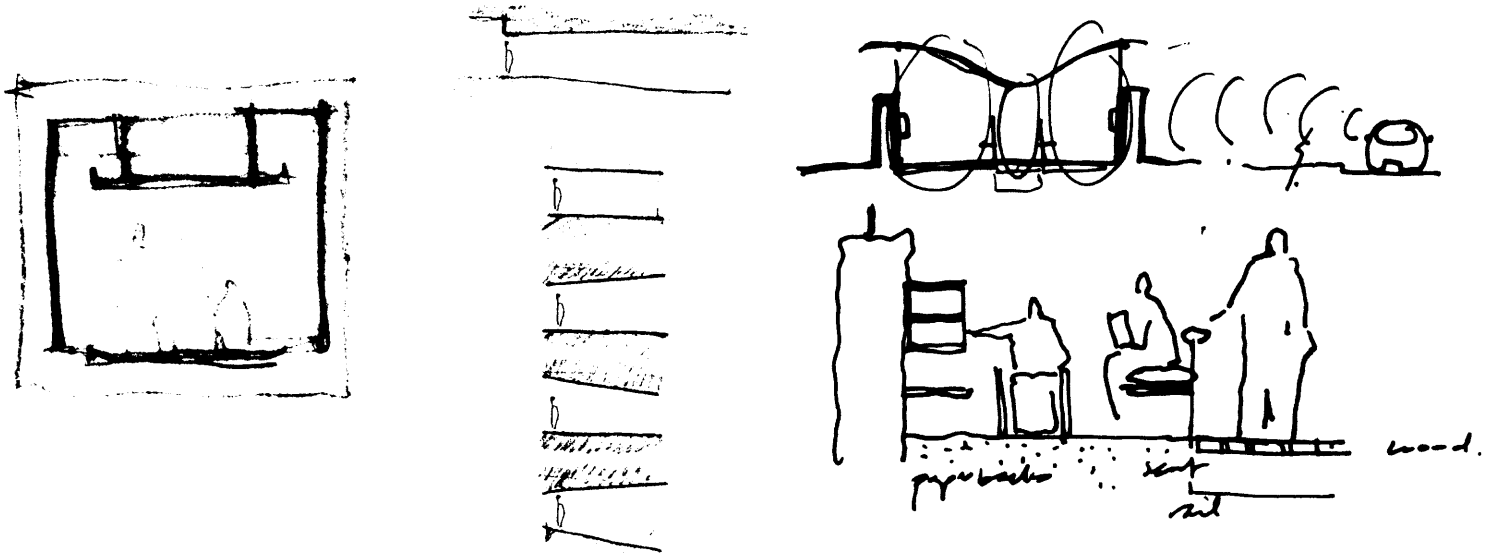
Full of hope and yet of heart-break, Full of all the tender pathos Of the Here and the Hereafter;



The project developed chiefly as a set of distinct spaces. Ideas generated about how to construct towards perception blended with ideas about accessibility, materials, and how patrons might spend their time in this place. Knowing that the building was going underground at some point, one of the first areas of focus became the relationship between ceiling and floor, those basic elements as defined by phenomenologists and psychologists.

Major spaces evolved evenly, although it was not until they had undergone many revisions that the language for the building as a whole was recognized.

Stay and read this rude inscription, Read this Song of Hiawatha!

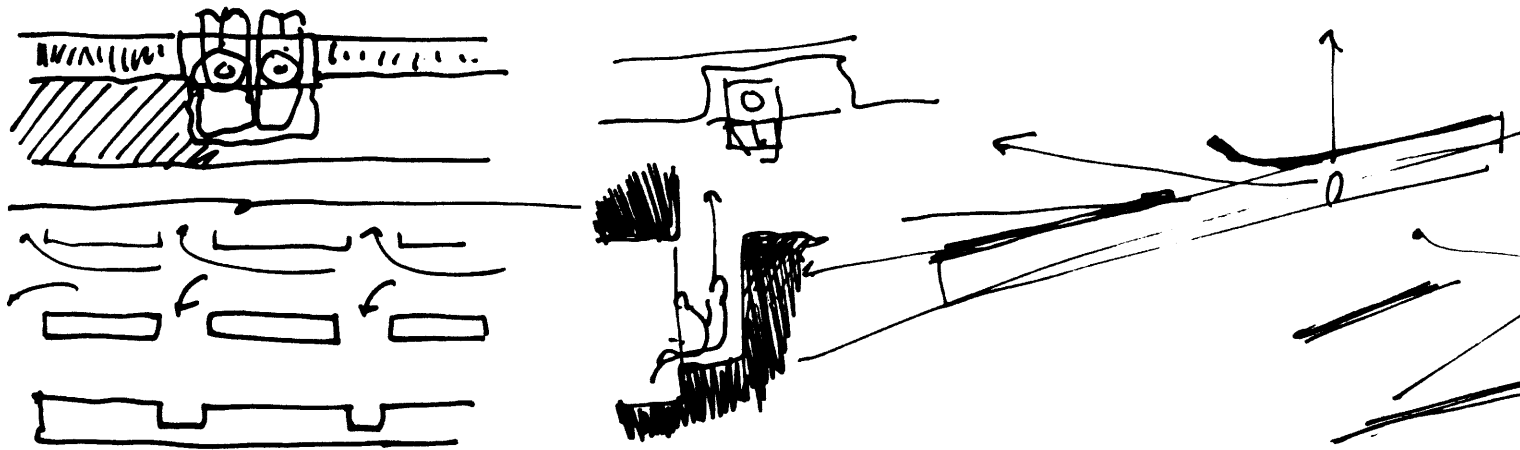


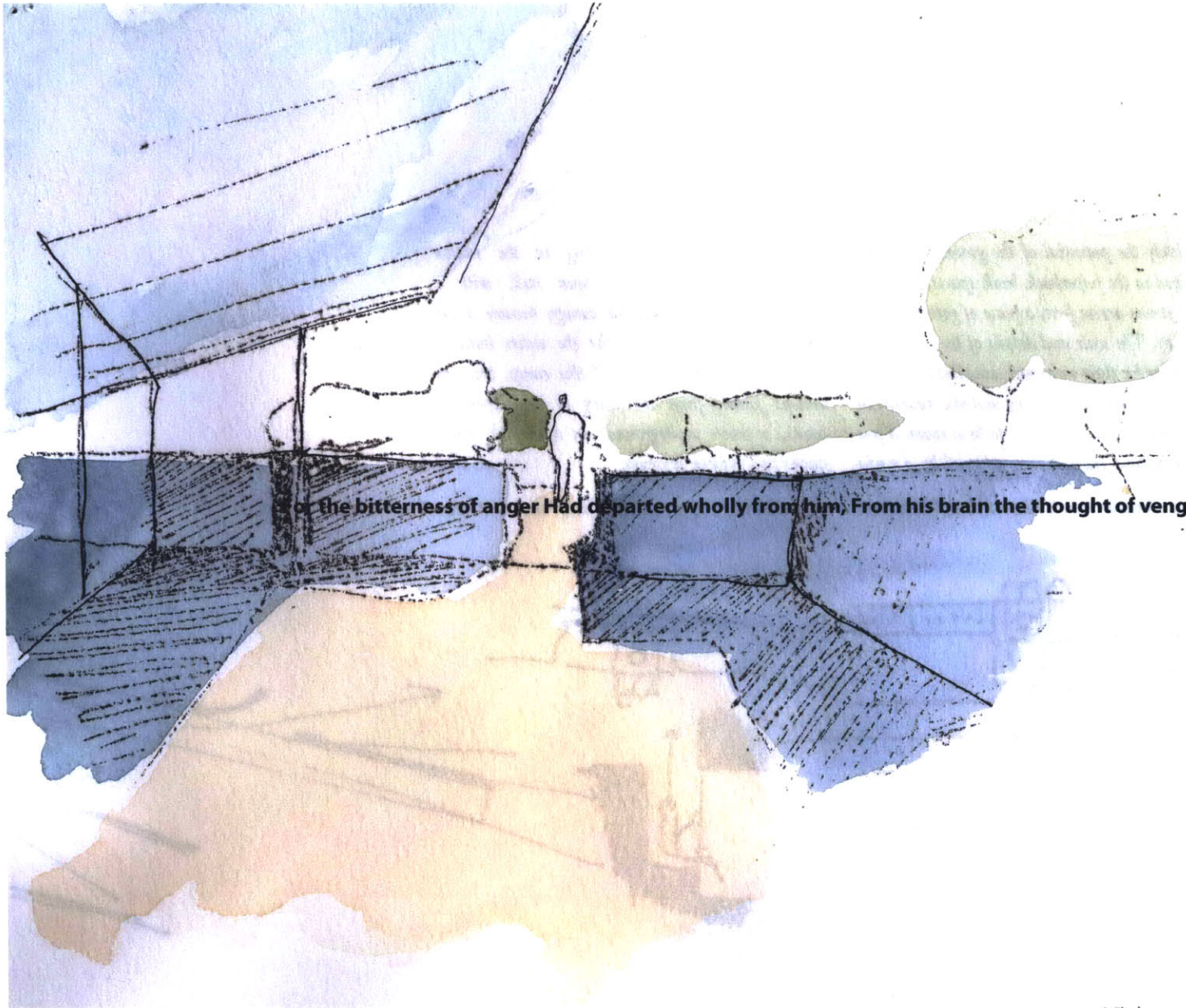
Quite quickly the potential of the ground and floor were realized in the paperback book spaces, the place to which patrons arrive first, a place of gathering and of passing by. The scale and details of the space were directly chosen for their universal accessibility. This is, after all, a place for people young and old, pedestrian and wheelchair bound. This was to be a room, a passageway of distinct soundspaces, achieved by a varia-

tion in both floor and ceiling in the section for direct movement. This open hall, with a hollow wooden floor and low canopy became a continuous ramp, the cadence for the entire building.

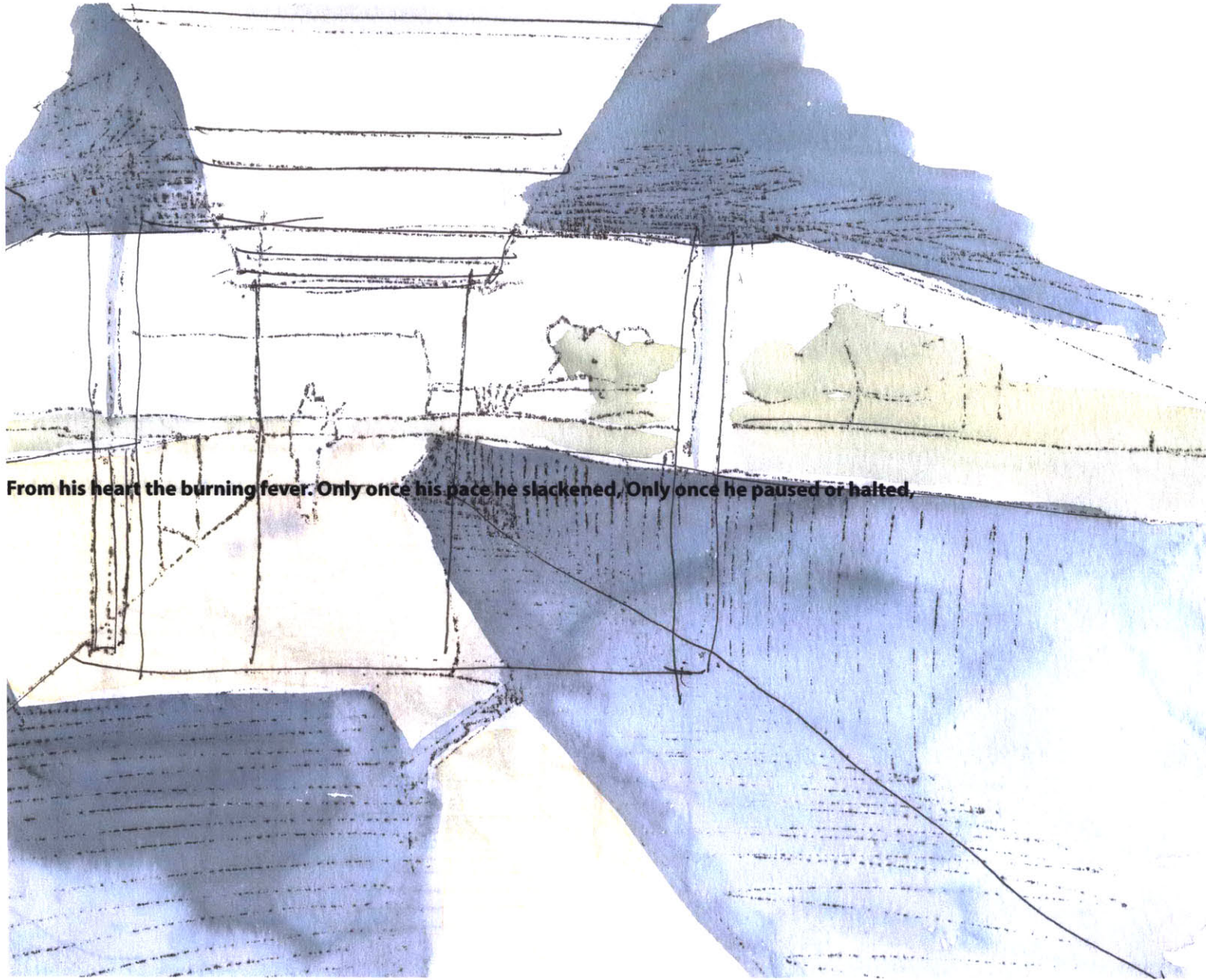
Major spaces all feed off this ramp, this continuous journey-from the entry to the paperback books, a pause underground, an open hall, rising stacks and sunken museum.

Homeward now went Hiawatha; Pleasant was the landscape round him, Pleasant was the air above him,





of the bitterness of anger had departed wholly from him, from his brain the thought of vengeance,

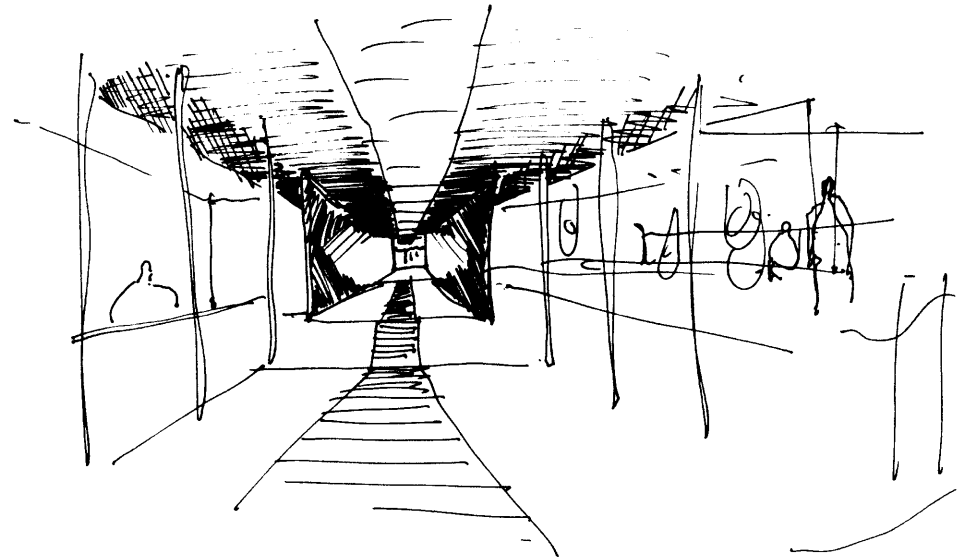


From his heart the burning fever. Only once his pace he slackened, Only once he paused or halted,

*Previous pages: Entry sequence-landing on
the ramp already descending, with canopy overhead.*

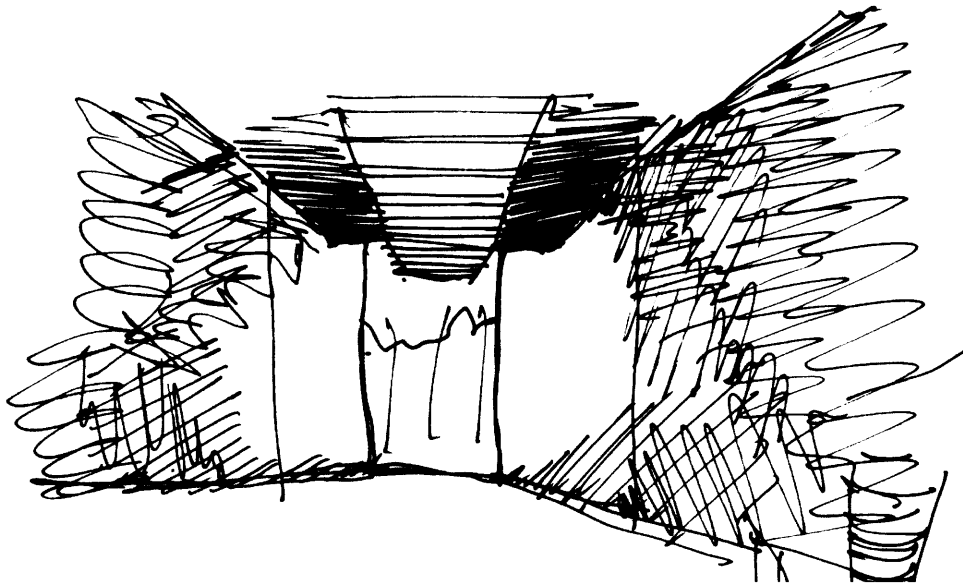
50

Paused to purchase heads of arrows Of the ancient Arrow-maker, In the land of the Dacotahs,



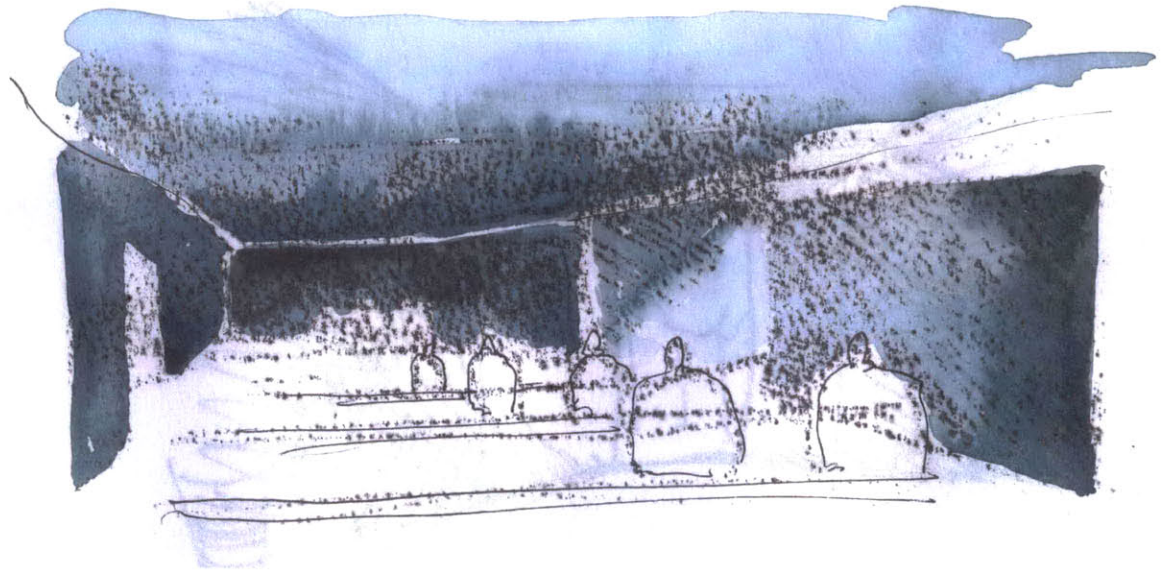
*These pages: End of passage. From the entry patrons
descend underground and emerge overlooking the creek.*

Where the Falls of Minnehaha Flash and gleam among the oak-trees, Laugh and leap into the valley.

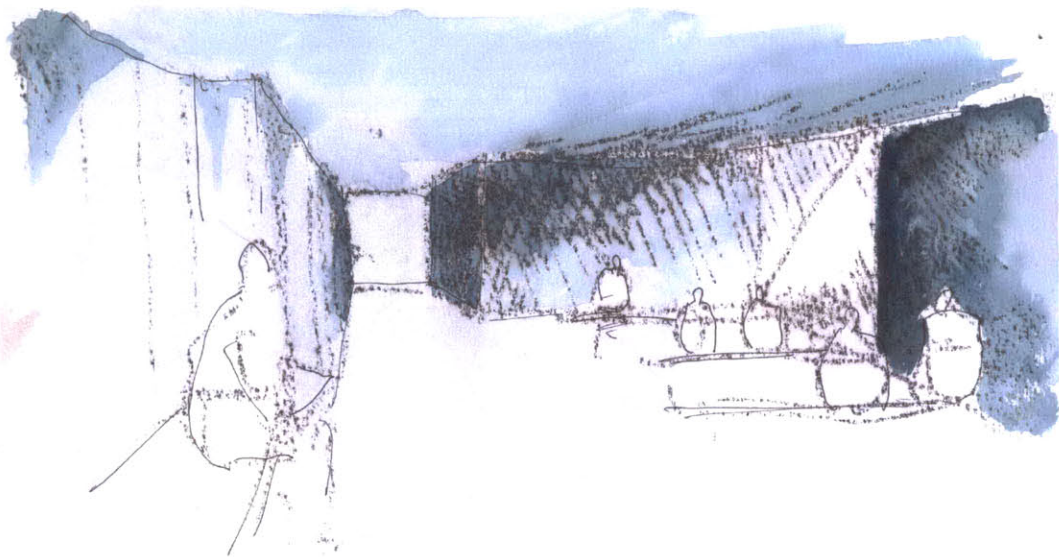


In the midst of these ideas about spaces created by varying forms, materials, and light, it became important to create a space which was the antidote to all of this, the palate cleanser in the middle of these experiences. The quiet space, designed specifically for sitting and quiet contemplation, developed out of this desire. The scale and nature of the space changed over time, one constant being that it would receive light from an opening to the parkway above.

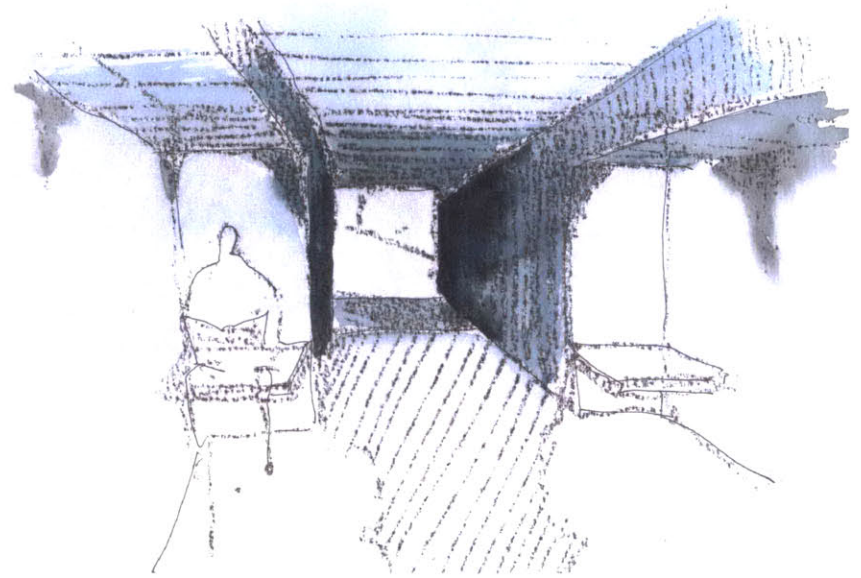
There the ancient Arrow-maker Made his arrow-heads of sandstone, Arrow-heads of chalcedony,



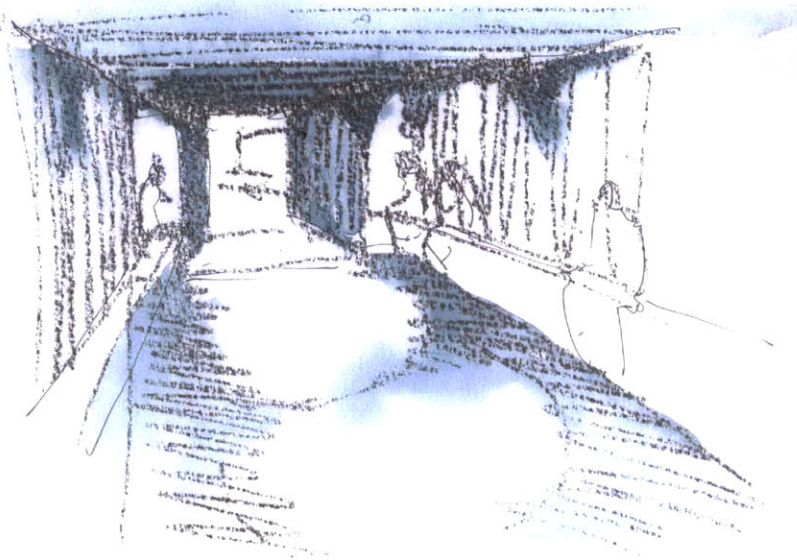
Arrow-heads of flint and jasper, Smoothed and sharpened at the edges, Hard and polished, keen and costly.



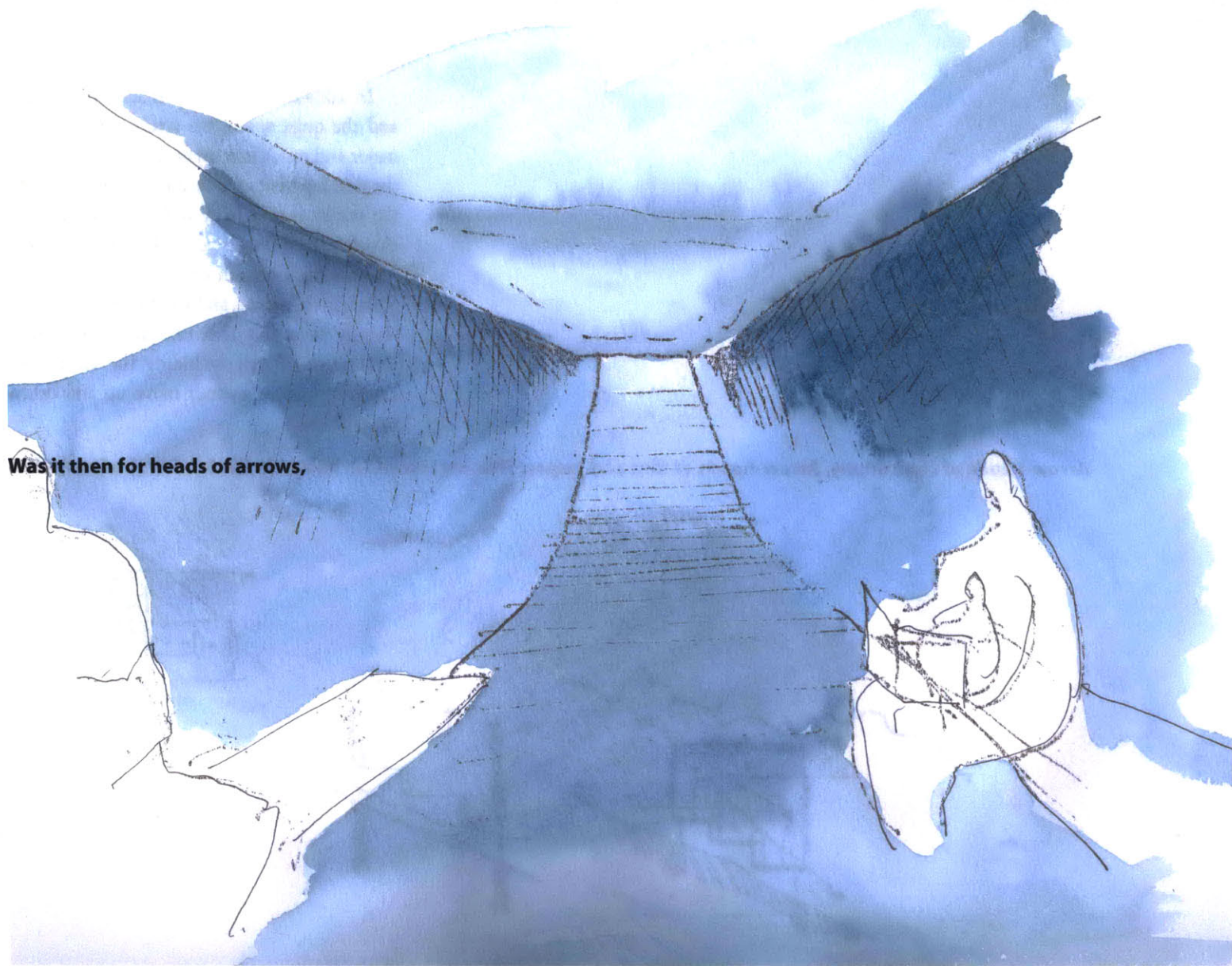
With him dwelt his dark-eyed daughter, Wayward as the Minnehaha, With her moods of shade and sunshine,



Eyes that smiled and frowned alternate, Feet as rapid as the river, Tresses flowing like the water,



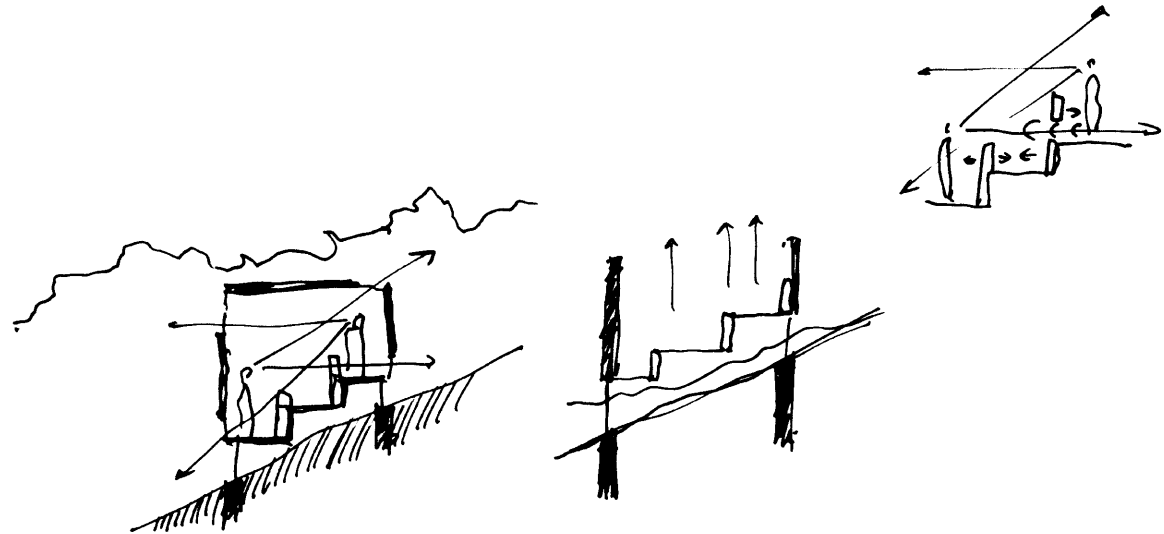
And as musical a laughter: And he named her from the river, From the water-fall he named her, Minnehaha, Laughing Water.



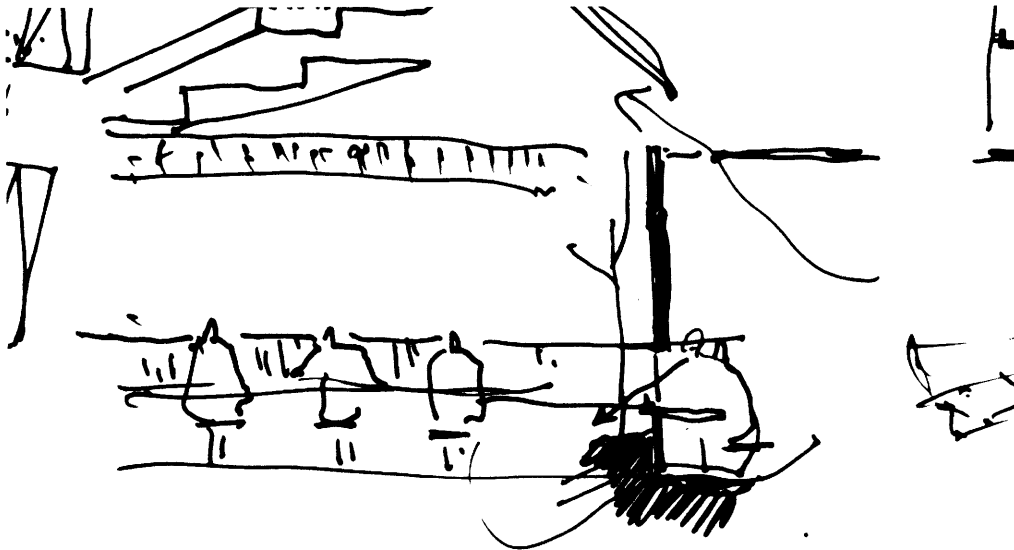
Was it then for heads of arrows,

Arrow-heads of chalcedony, Arrow-heads of flint and jasper, That my Hiawatha halted In the land of the Dacotahs?

In addition to the paperback book space, and the quiet space, the stacks were another major and much investigated space. Viewed as the development of a theme, the ramp system, the stacks used a back and forth ramping to closely match the slope of the land as it falls towards the creek. In order to create an open feeling in the stacks, and also to provide for universally accessible shelves, half-height stacks were used, effectively hiding the ramps but revealing people as they move up and down into the space.

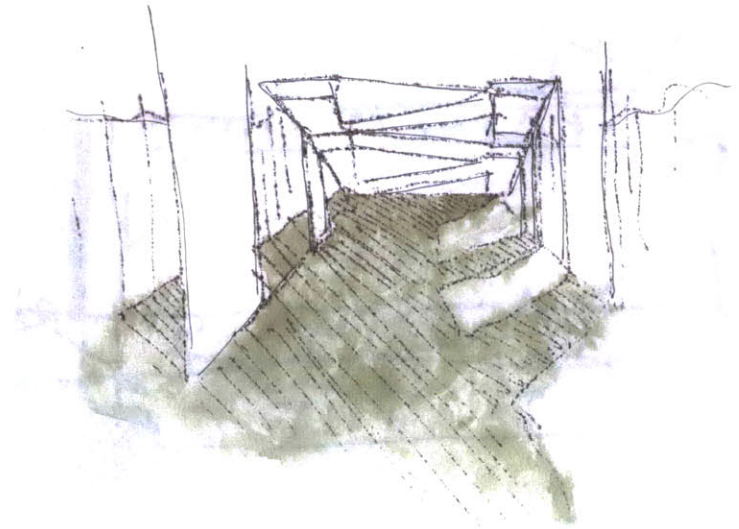


Was it not to see the maiden, See the face of Laughing Water



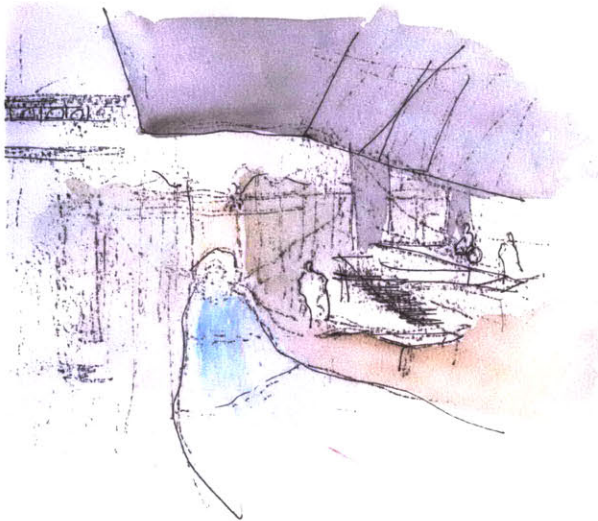
The underside of the stacks, form revealing the movement of the ramps and side stairs. Structurally, this would be accomplished via side beams and pre-cast concrete pieces for the ramps connecting side to side.

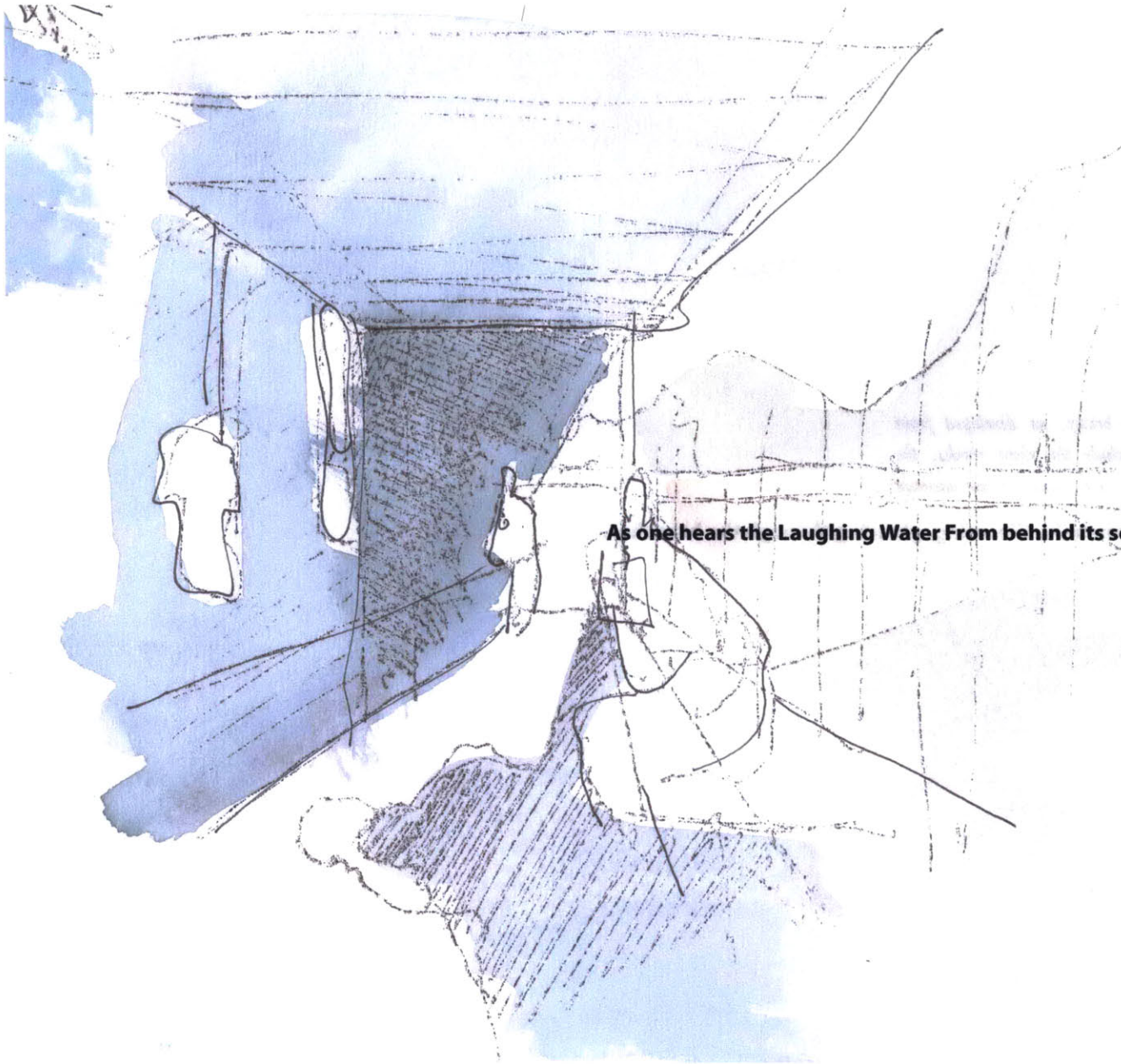
Peeping from behind the curtain, Hear the rustling of her garments From behind the waving curtain,



The view towards the bridge, as developed from earlier drawings to include the risen stacks, the patio and access to the creek, and the low museum.

As one sees the Minnehaha Gleaming, glancing through the branches,

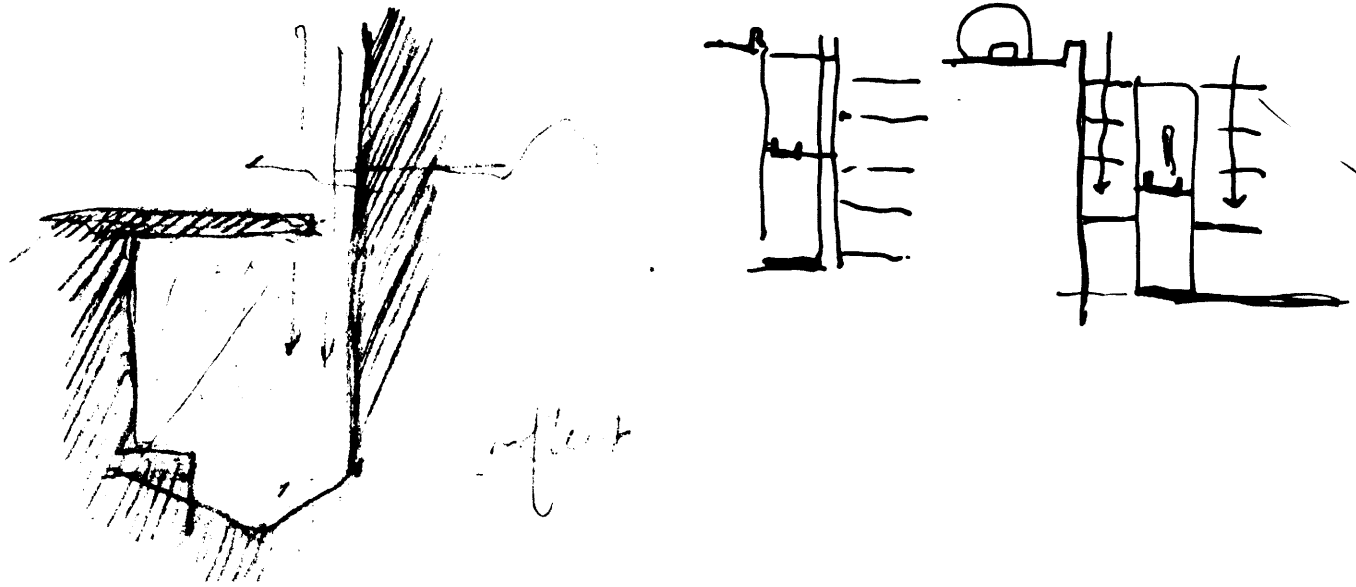




As one hears the Laughing Water From behind its screen of branches?

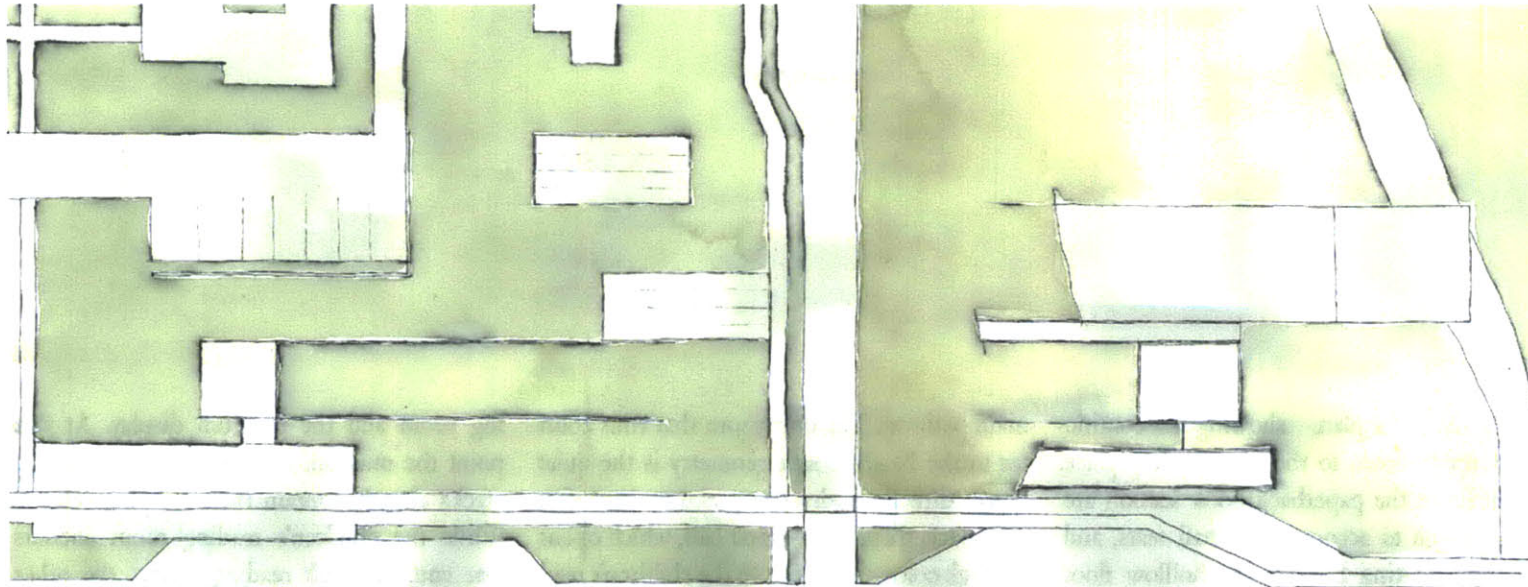
Initial ideas for the museum had it placed in juxtaposition to the crumbling concrete bridge, with artifacts displayed in glass so that old and aging might be shown together. It first built on the existing sound condition near the bridge: sound from Lyndale seemed to be like a waterfall, rushing down the sides of the bridge and then resounding off and at the observer. In order to take advantage of this effect, the museum would have an overhanging room to capture and resonate this sound.

Who shall say what thoughts and visions Fill the fiery brains of young men? Who shall say what dreams of beauty

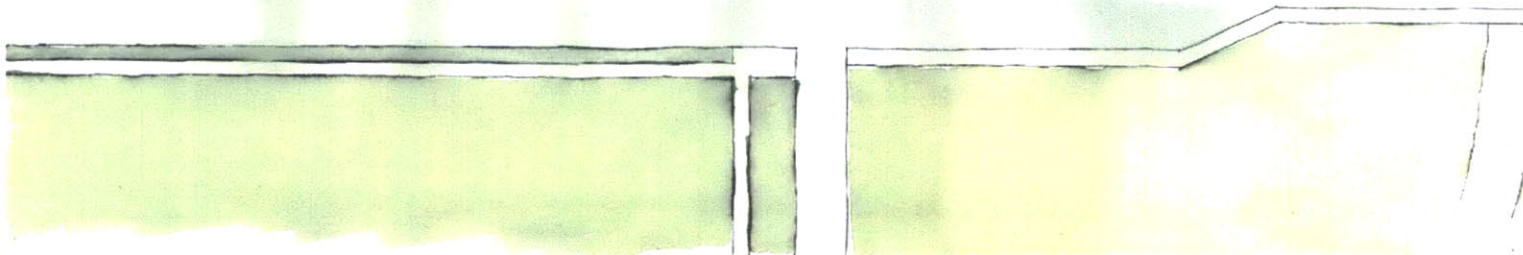


At right is the site plan as it was at design review. North, and Minnehaha creek are at the right of the plan, with Lyndale Avenue running underneath the poem. The main bar running North-South contains the entry (white roof), main path with paperback book section (green), the building runs underneath the parkway and emerges (green roof) opening West to the stacks (largest bar) and East to the museum (small bar), before ending in the small sitting place (white square roof). In this design librarians had private offices just west of the paperback books; two offset lightwells bring sunshine to their spaces. Also to the west is a small parking lot next to the private residences.

Filled the heart of Hiawatha? All he told to old Nokomis, When he reached the lodge at sunset,



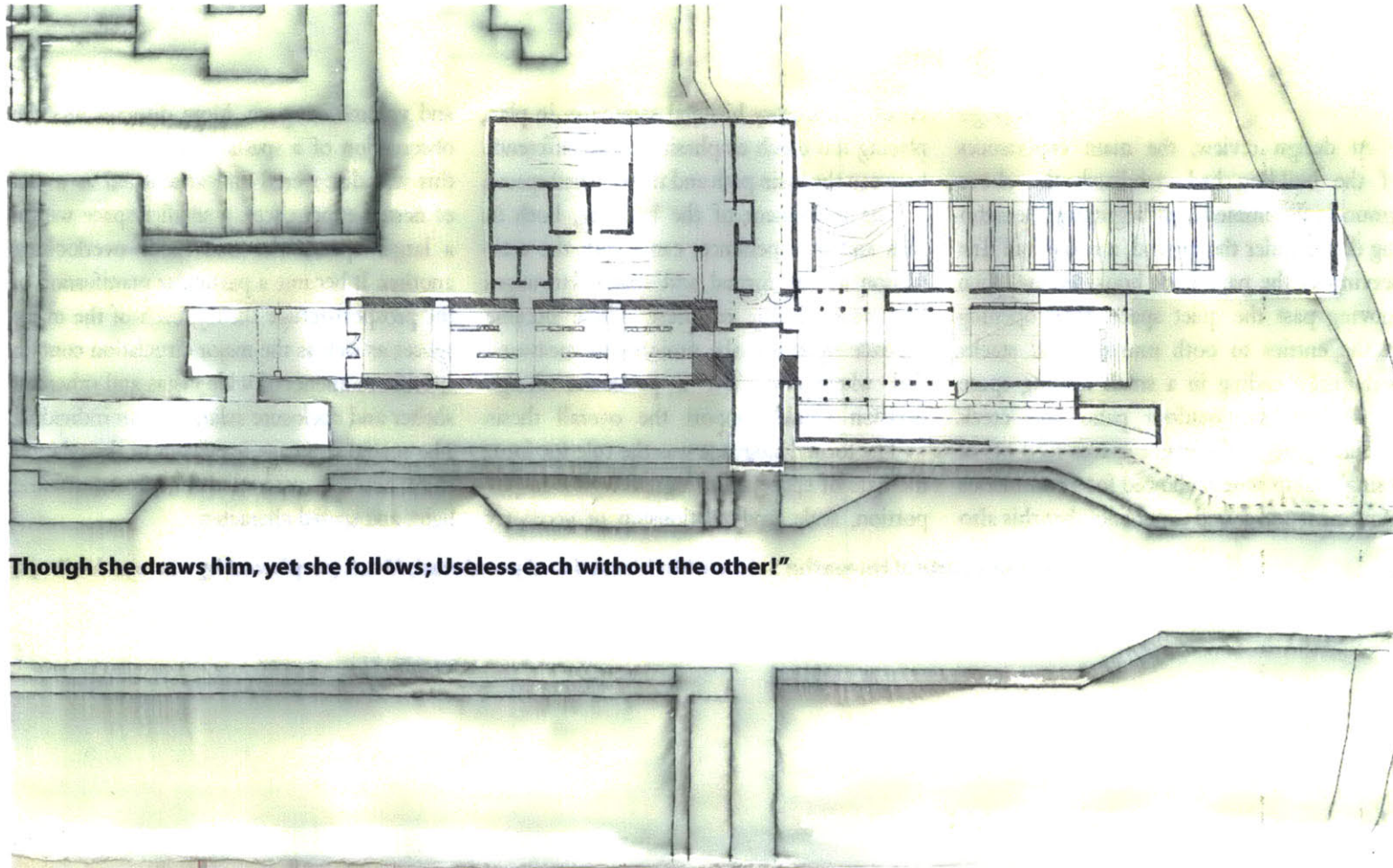
Was the meeting with his father, Was his fight with Mudjekeewis; Not a word he said of arrows, Not a word of Laughing Water.



At right is the plan, showing the continuous ramping down to the final reading place. The walls in the paperback book section are thick enough to accomodate small seats, and additional seating borders the hollow floor

main pathway. The only room that runs counter to the North-South geometry is the quiet space, directly under the parkway. Just after this space, there is the grand hall, which opens through colonnades to both the children's read-

ing room and the museum display. At this point the museum is on one level, while the stacks already contain their ramping scheme. While the children's reading room anchors one end, an adult reading room the other.



Though she draws him, yet she follows; Useless each without the other!"

Languages

At design review, the main experiences of the building had stabilized: the above ground entry immediately beginning the ramping down under the ground, a major hall first serving as the paperback book section, then moving past the quiet space, then opening at the entries to both museum and stacks, and finally ending in a small reading space overlooking the outdoor patio and creek.

Having all of the major spaces feed off of a single ramp system allowed for a continuous movement and sound experience, but this also

created an uneasy bilateral symmetry in plan, placing too much emphasis on the difference between the main path and the attached spaces.

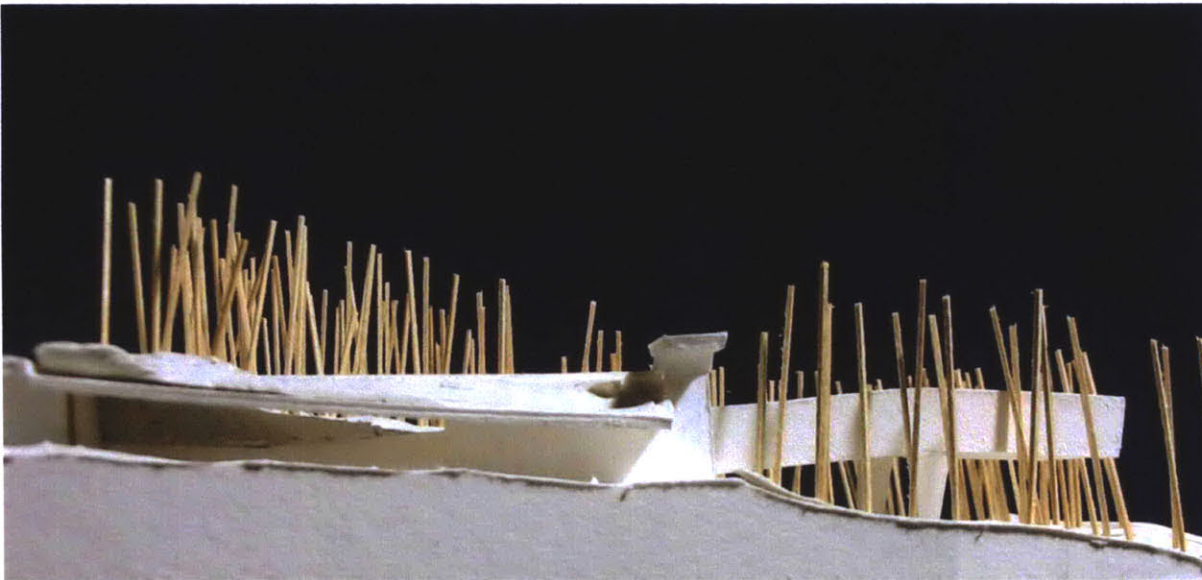
The refinement of the building, both in plan and in experience, came with the articulation of the formal and spatial languages that were already manifest. These became the rule by which the project was measured, and whether or not a particular design decision would support the overall thesis.

The formal language was the rule for form, the bars of space and program legible in proportion, scale, and relationship of geometry

and volume in space. More difficult was the observation of a spatial language. Ultimately this was discovered and articulated as a set of nested experiences: a smaller space within a larger space, and one space overlooking another. It became a particular manifestation of the prospect-refuge theory; each of the major spaces as well as the major circulation contain specific moments of wide vistas and others of shelter and enclosure relative to an individual. The spatial language is evident in the relationships between user, element, object, volume, light, and spatial character.

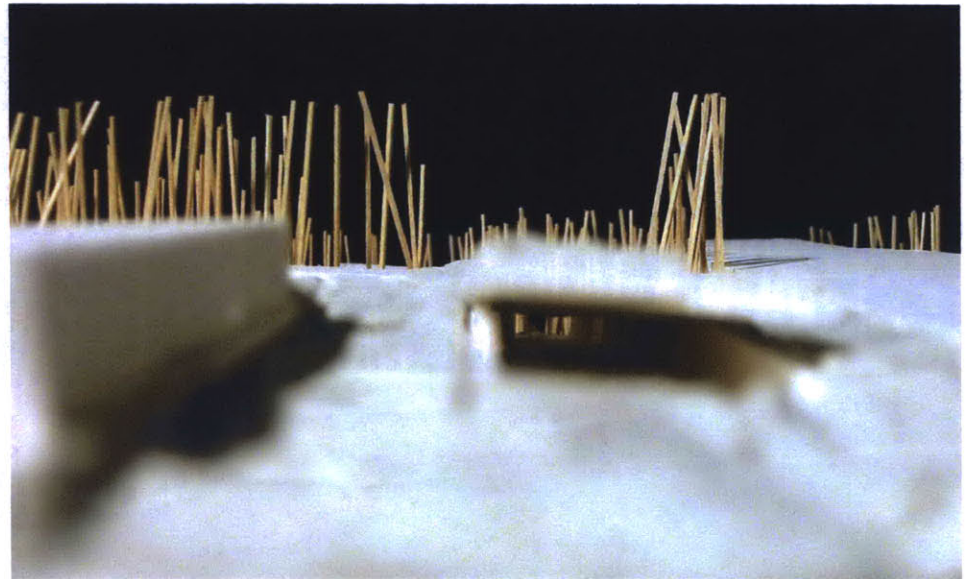
Listless, longing, hoping, fearing, Dreaming still of Minnehaha, Of the lovely Laughing Water, In the land of the Dacotahs.

69



View from entry looking out to the creek.

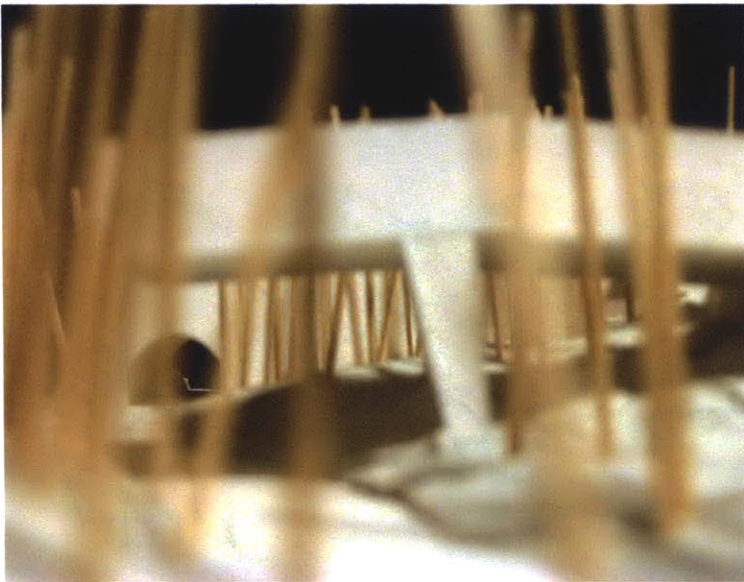
“Wed a maiden of your people,” Warning said the old Nokomis; “Go not eastward, go not westward,



Stacks rising on salamander legs above the water.

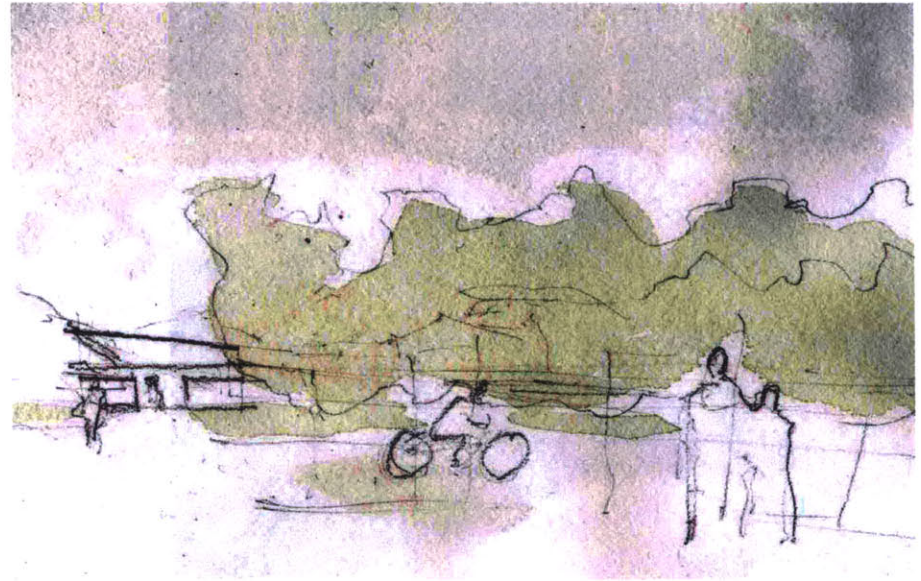
For a stranger, whom we know not! Like a fire upon the hearth-stone Is a neighbor's homely daughter,

71



What follows is a walkthrough of the final building, beginning at entry, moving through the paperback books, stopping at the quiet place, moving besides the children's reading room, ending at stacks, museum, and children's reading room.

Like the starlight or the moonlight Is the handsomest of strangers!"



Wayward as the Minnehaha

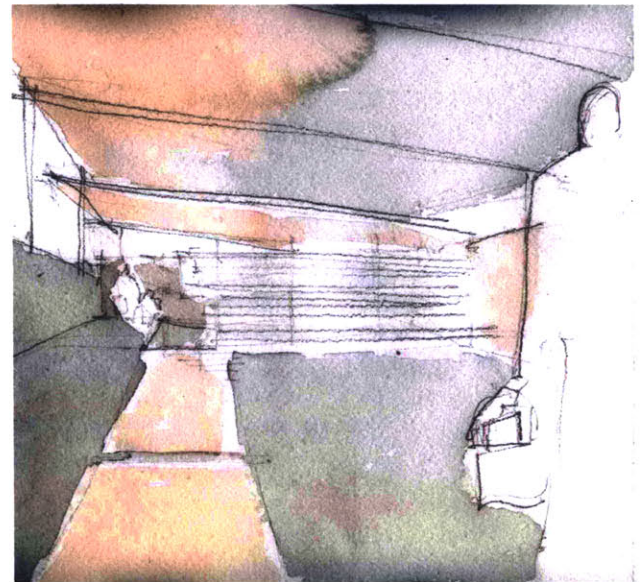
The final refinement of the project came with a review of the disparate spaces and a final pass at design looking at the building as a single entity, and no longer just as disparate elements.

The building was understood as a whole through perspective drawings; a walkthrough

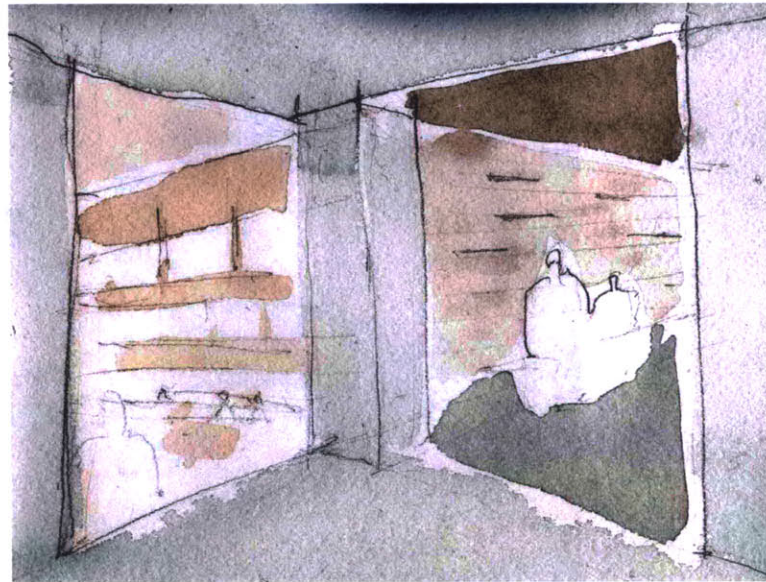
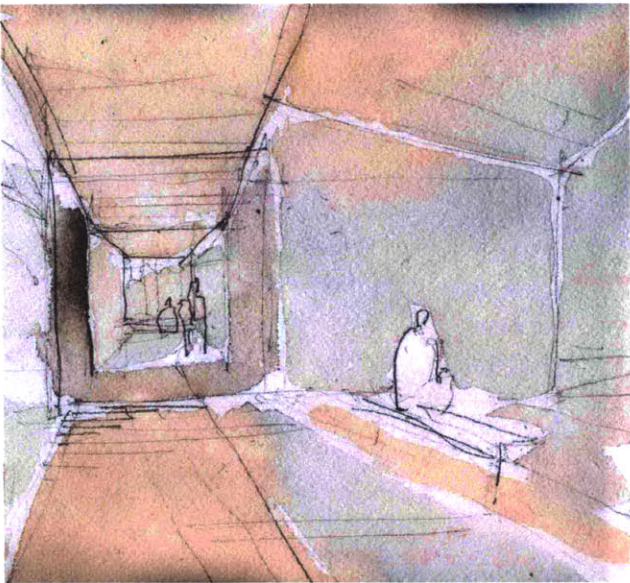
of the entire building from entry to endpoint allowed for a continuity of character based on the reinterpretation of a single rhythm. While the ramp and canopy provided the basis for the canon, each new space built on or from this spatial unit of experience, resulting in a building that can be read as a single stroke of the pen, a line of jazz improvisation, or the exposition of a poem.

Thus dissuading spake Nokomis, And my Hiawatha answered Only this: "Dear old Nokomis, Very pleasant is the firelight,

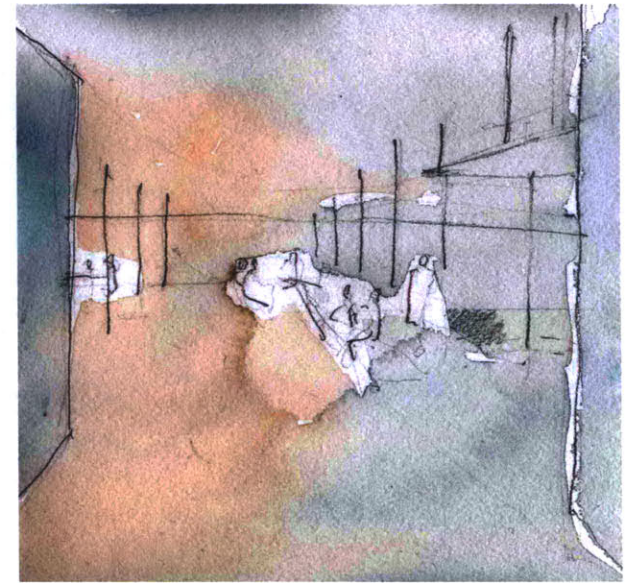
But I like the starlight better, Better do I like the moonlight!"



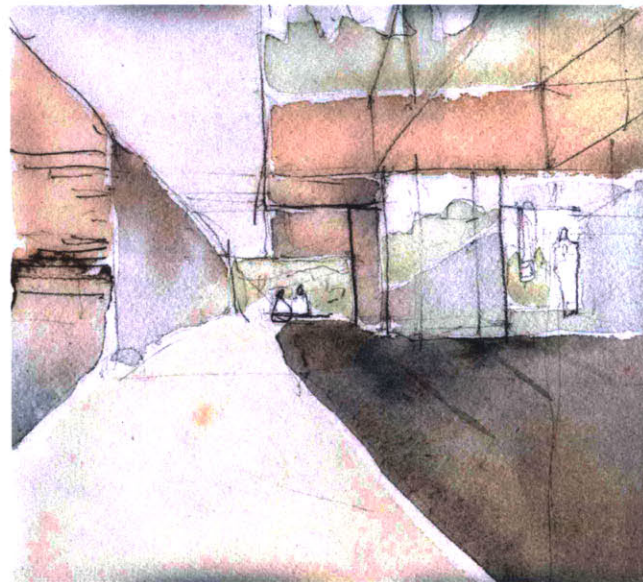
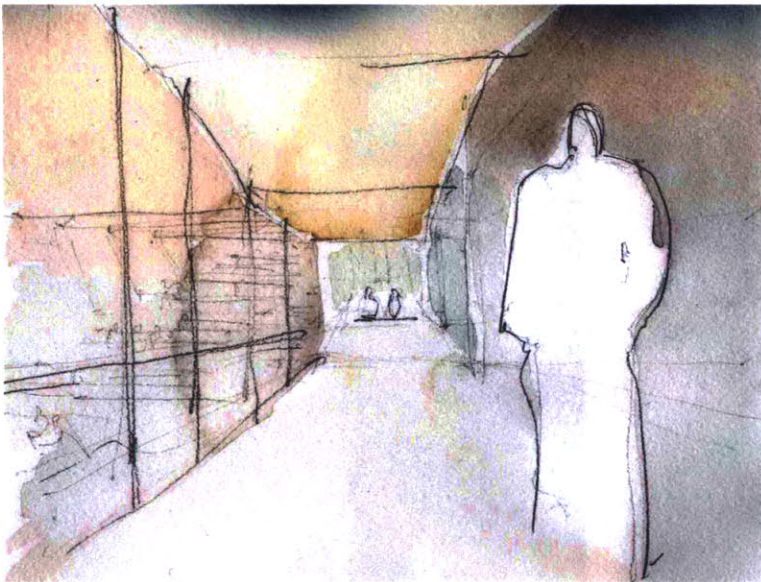
Gravelly then said old Nokomis: "Bring not here an idle maiden, Bring not here a useless woman, Hands unskilful, feet unwilling;"



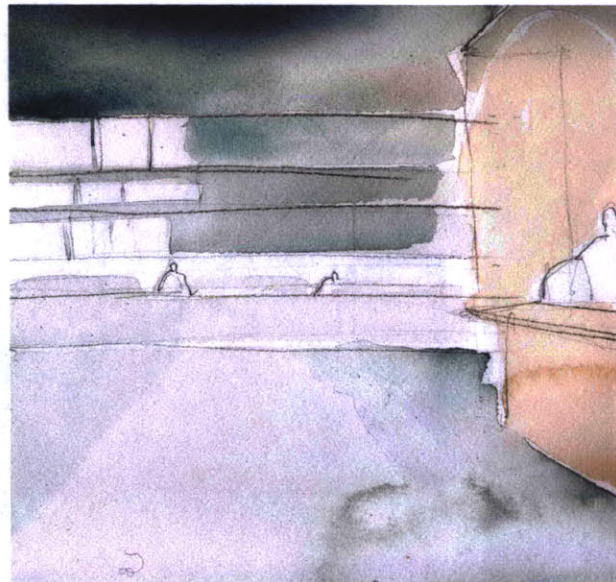
Bring a wife with nimble fingers, Heart and hand that move together, Feet that run on willing errands!"



Smiling answered Hiawatha: 'In the land of the Dacotahs Lives the Arrow-maker's daughter, Minnehaha, Laughing Water,

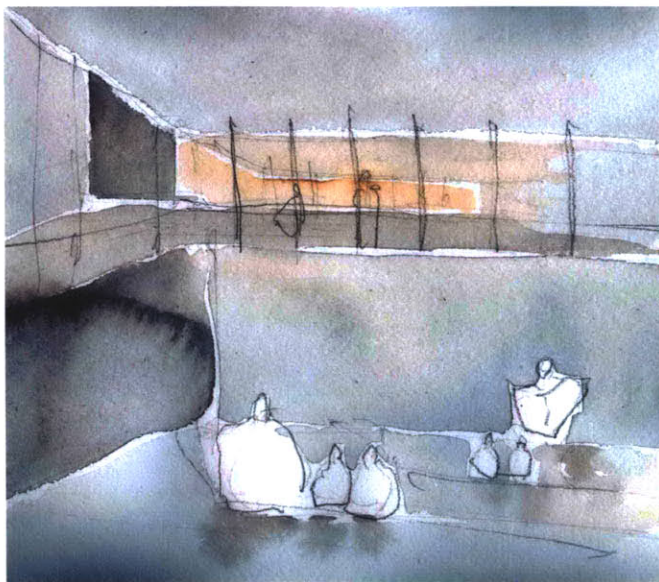
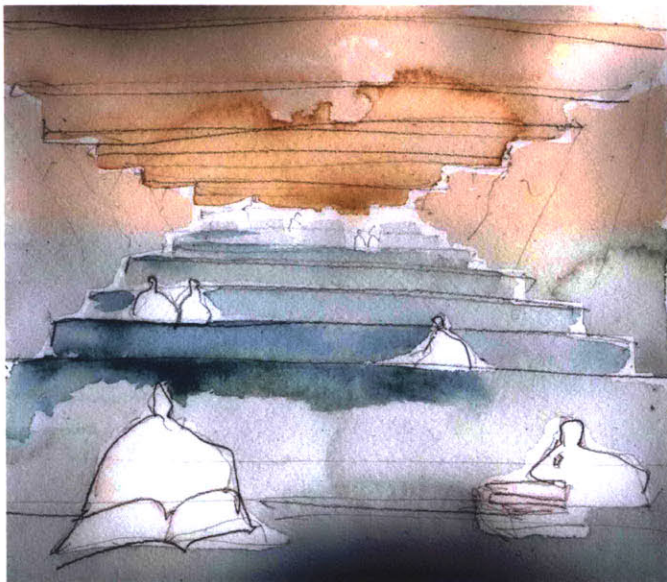


Handsomest of all the women. I will bring her to your wigwam, She shall run upon your errands,

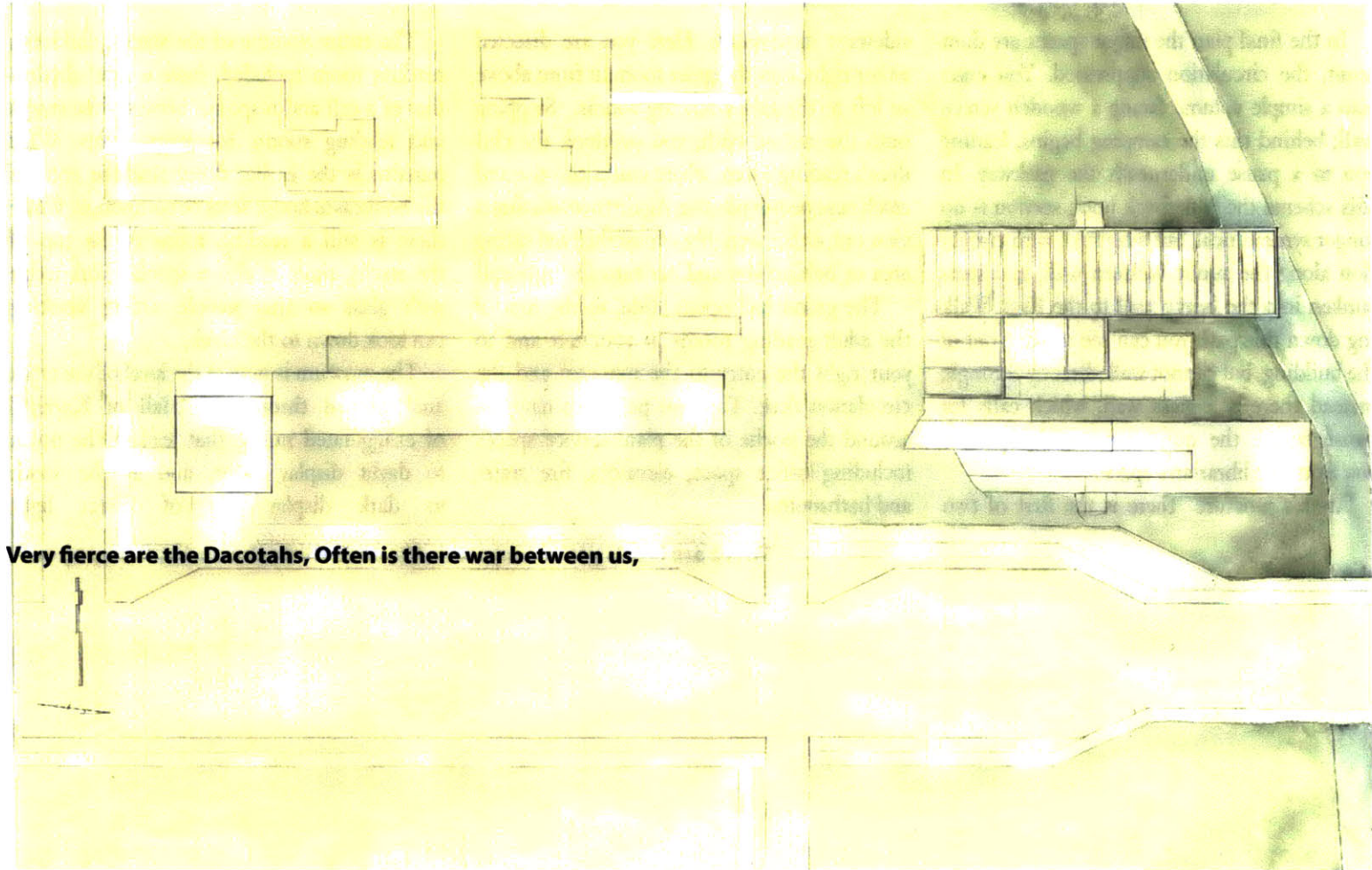


Be your starlight, moonlight, firelight, Be the sunlight of my people!"

79



Final site plan: The final articulation of the paths to nature became a double one meeting underneath the parkway. The entry is the square volume to the south, the paperback book section the adjoining rectangle. The figure just west is the connected lightwells servicing both the paperback books and the reading room. The lightwells are divided by greenery such that you cannot see from one room across the well into another. The varied skylights are visible: the grand hall opens wide to the sky, while the stacks are continuously baffled to admit mostly reflected light. At the end of the second pass there is a patio which sits between the rising stacks and the falling museum.



Very fierce are the Dacotahs, Often is there war between us,

In the final plan the major spaces are dominant, the circulation suppressed. You enter into a simple volume facing a wooden screen wall; behind this the ramping begins, leading you to a pause underneath the parkway. In this scheme the paperback book section is no longer symmetrical, but weighted, with circulation along the sunlit Western wall, and seats sunken into the heavy wall to the East. Walking down this path you can see straight out of the building, but cannot walk directly through; instead there is a glass wall, which calls for pause beside the quiet room and separates you from the librarian's space.

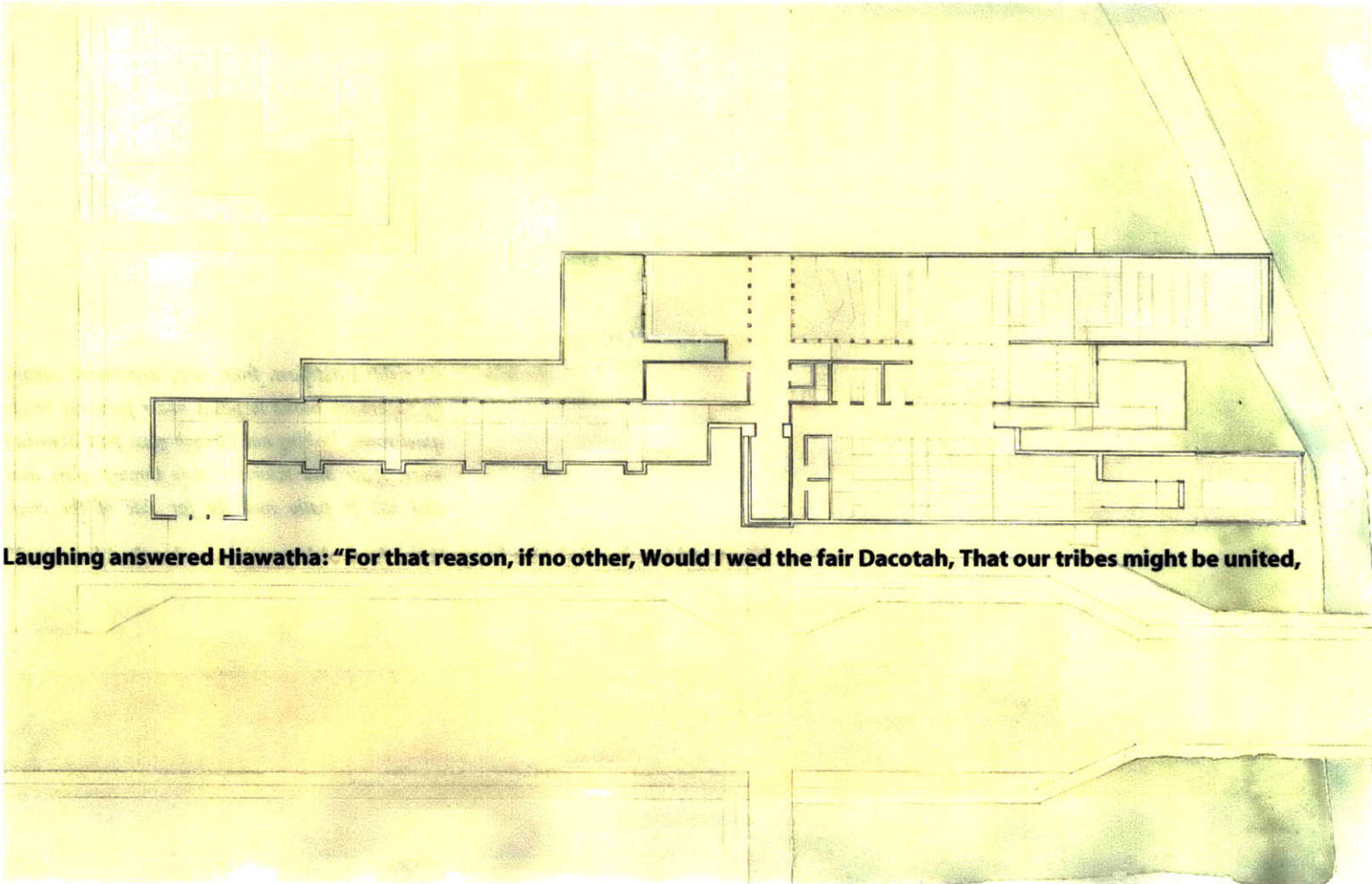
At this juncture there is the first of two

sideways movements. Here you are directed either right, into the quiet room lit from above, or left to the sunlit reading rooms. Stepping onto the second path, you overlook the children's reading room, where voices can rise and catch near people passing. Again there is a direct view out, either straight out past the final sitting area or behind you and out into the lightwell.

The grand hall opens wide, to the first of the adult reading rooms at your left and to your right the entry to the museum and the circulation desk. The two pathways navigate around the poche of the plan: service spaces including office space, elevators, fire stairs, and bathrooms.

The entire volume of the stacks, children's reading room included, have a new rhythm—that of a call and response between the ramps and reading rooms for large tables. What remains is the earlier detail that the ends of the bookcases house seats or computers. While there is still a reading room at the top of the stacks, there is also a special work ledge with glass so that people sitting working can look down to the creek.

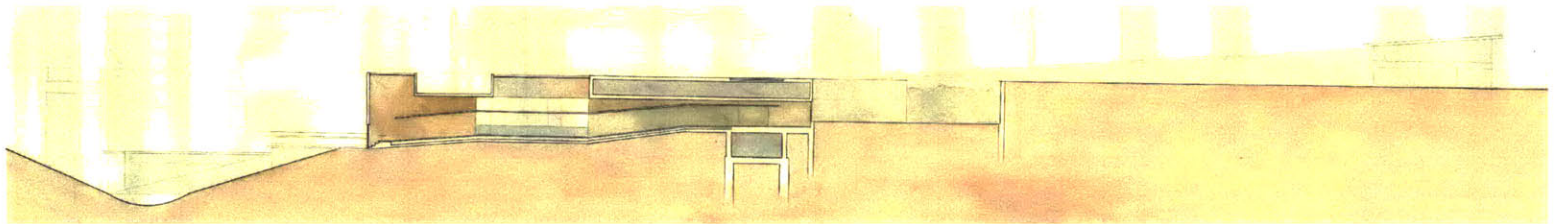
The museum is now at the level of the creek and reached through a "Hall of Karnak," of exaggerated ramps that lead at the north to daylight display cases, and at the south to dark display out of direct light.

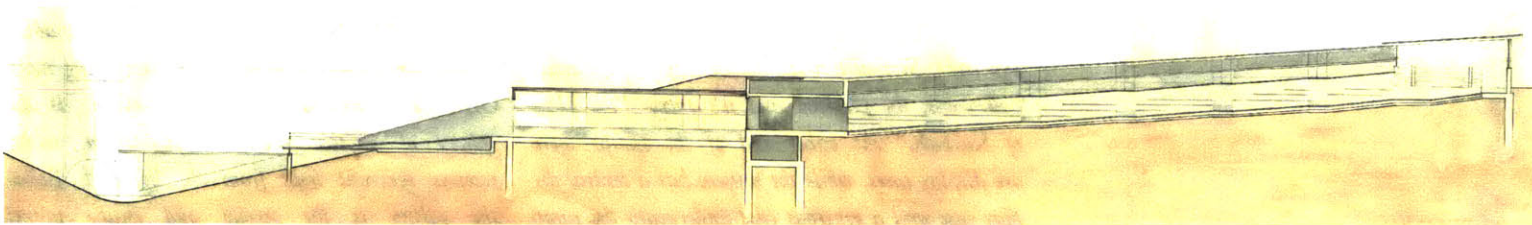


Laughing answered Hiawatha: "For that reason, if no other, Would I wed the fair Dacotah, That our tribes might be united,

At right: First pass, from entry underneath canopy by paperback books to pause under parkway beside quiet room, looking out through glass past librarian work space and museum entry through glass door and out to patio and the far side of the creek.

That old feuds might be forgotten, And old wounds be healed forever!"





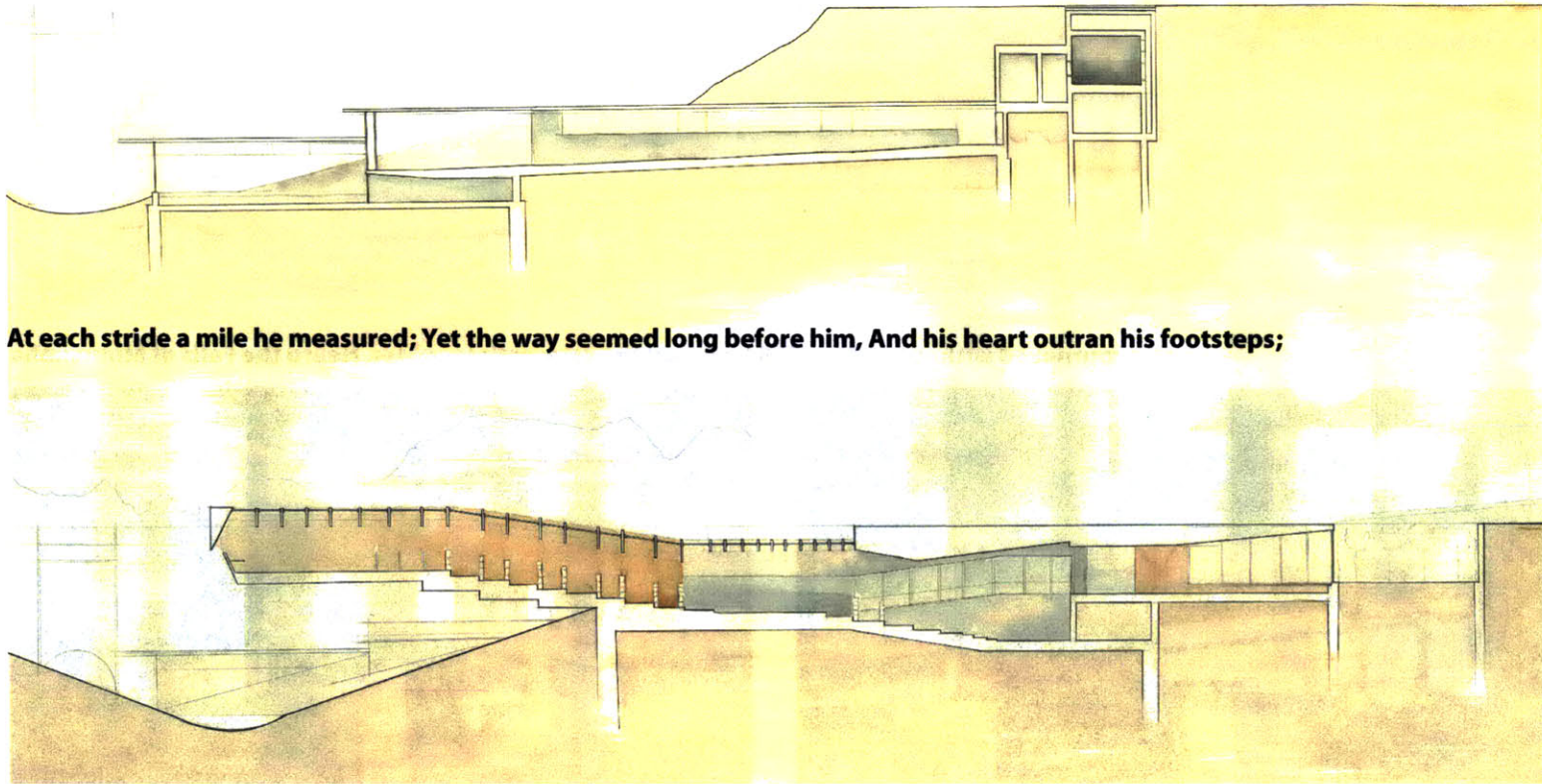
Thus departed Hiawatha To the land of the Dacotahs, To the land of handsome women;

At left: Second pass with views outdoors in both directions. Cutting through lightwell of reading room, to continuation of path underneath canopy to final small sitting space with steps for children. The windows overlook the patio and landscape beyond.

Top right: Section through double-walled quiet space, bathrooms, the museum and its entry- "the Hall of Karnak." At either end of the ramps there are display cases, while the museum has a central display case and a generous case underneath the ramp.

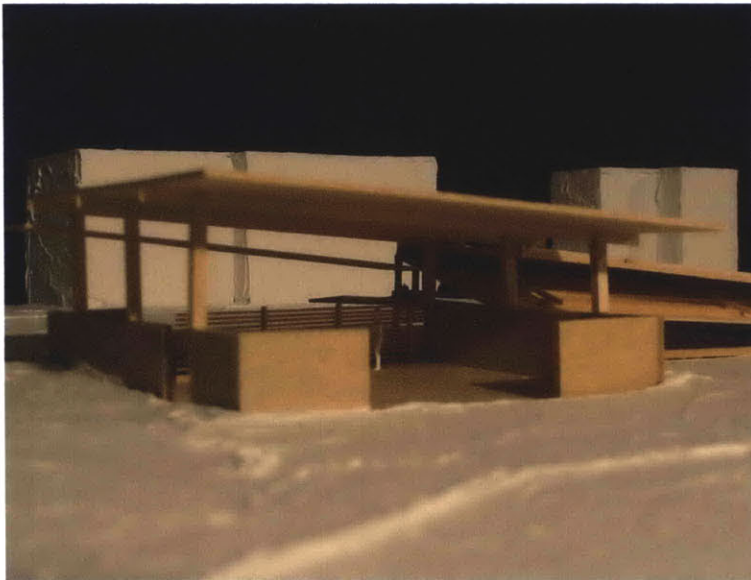
Below right: Section through the stacks with two adult reading rooms and sunken children's reading room. Overlooking the children's reading room is the gallery of another adult reading room, which receives generous light from the lightwell. Below the gallery is the service and escape tunnel.

Striding over moor and meadow, Through interminable forests, Through uninterrupted silence. With his moccasins of magic,



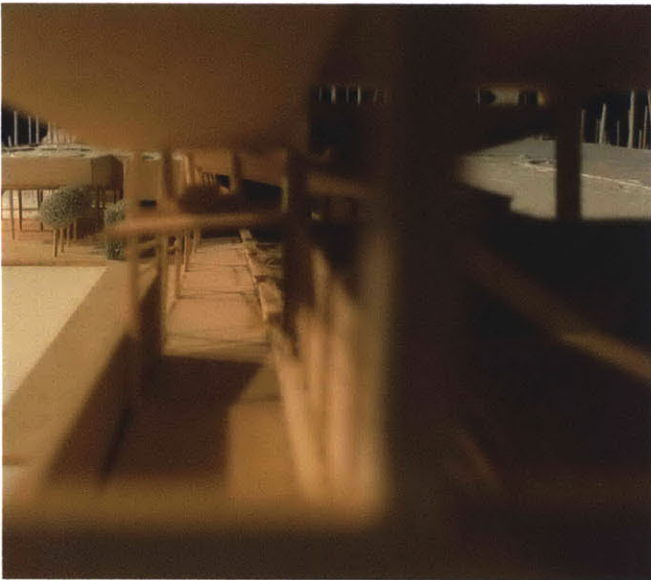
At each stride a mile he measured; Yet the way seemed long before him, And his heart outran his footsteps;

And he journeyed without resting, Till he heard the cataract's laughter, Heard the Falls of Minnehaha



The entry: the only fully articulated space above ground. The angle of its roof is the same as the slope of the ramp that begins inside; at right you can see both the roof, and the dropped canopy. A screen wall divides the entry space from the start of the ramp, and louvers above head-height shade the walkway as it passes by the paperback book section. A lightwell allows the space to receive generous Western sunlight, an asset during the wintertime. Below you can also see the lightwell that services the reading rooms at the mid-point of descent.

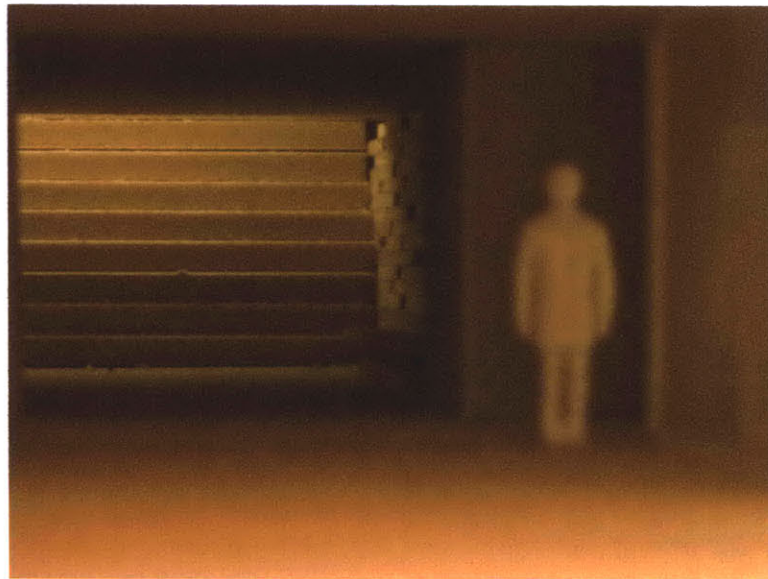
Calling to him through the silence. "Pleasant is the sound!" he murmured, "Pleasant is the voice that calls me!"



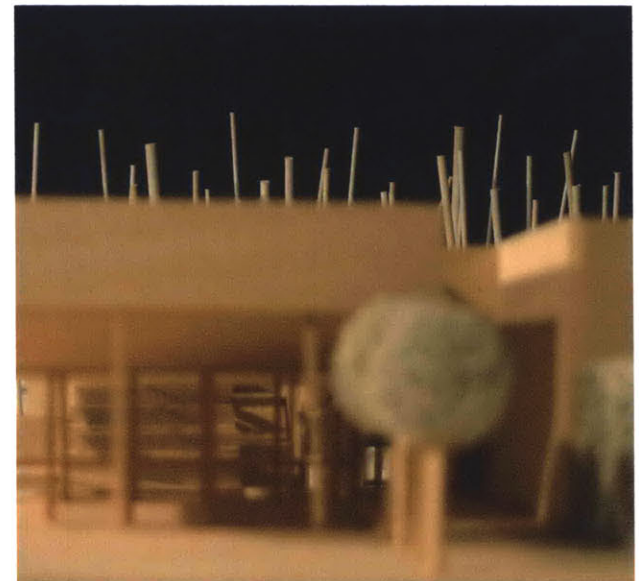
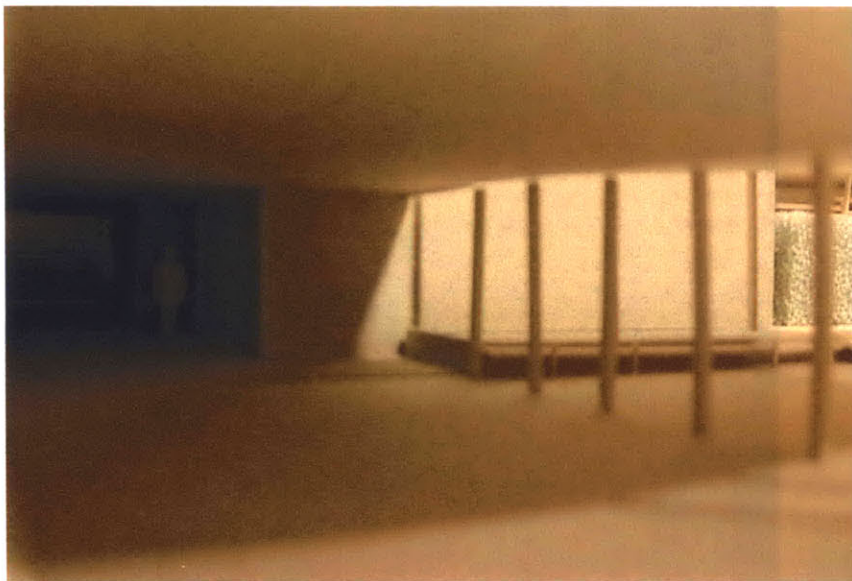
The quiet space as seen from the passage to the reading rooms. The walls of the quiet space are doubled, with openings to allow sound to escape and be trapped-a space with no reverberations.

On the outskirts of the forests,

'Twixt the shadow and the sunshine,



Herds of fallow deer were feeding, But they saw not Hiawatha; To his bow he whispered, "Fail not!"



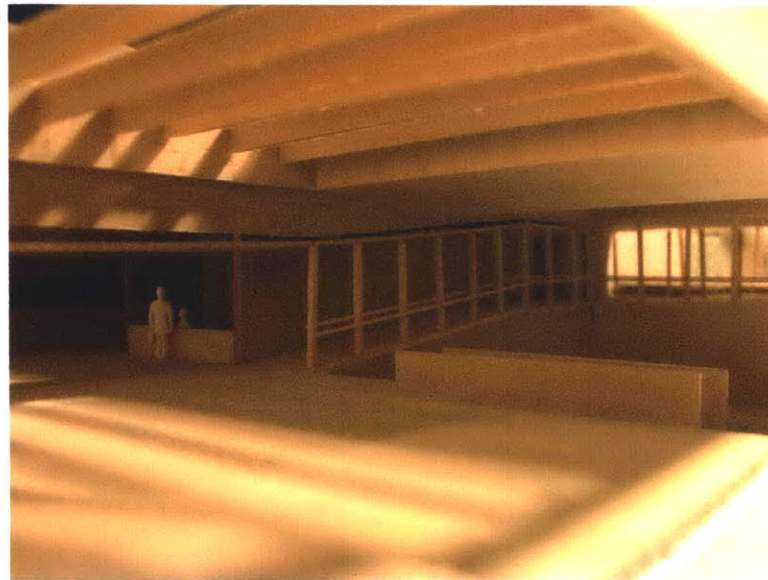
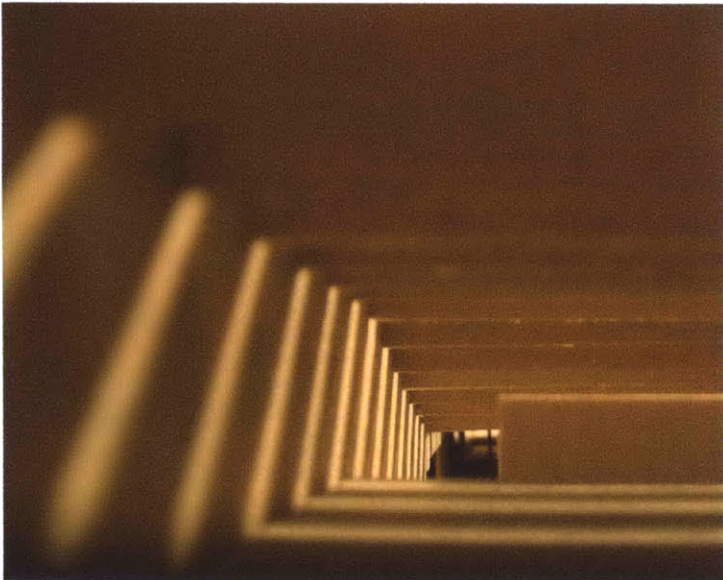
Below left: view from the reading room gallery into the dark, quiet space, and the bright reading room. Below right: looking from the lightwell into the reading room, and into the rising stacks.

To his arrow whispered, "Swerve not!"

Left: view from reading room at top of stacks down over the darkness of the children's reading room to the brightness of the reading rooms. Right: View from reading room of stacks left to librarians and museum entry, right to path and children's reading room, and up to the reading rooms and lightwell.

Sent it singing on its errand, To the red heart of the roebuck;

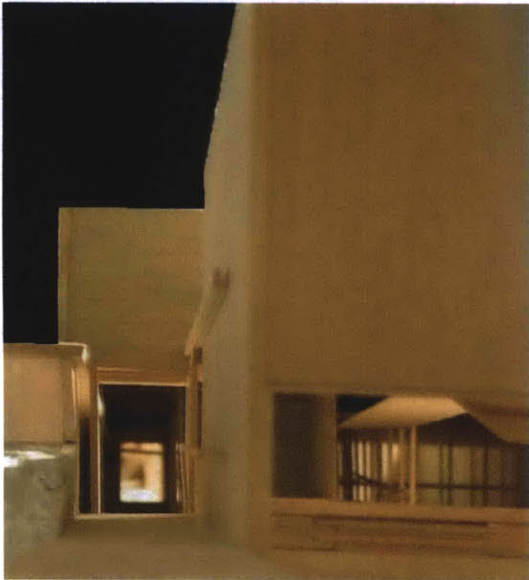
Threw the deer across his shoulder, And sped forward without pausing.



At right: view from the patio, looking straight through the museum entry to the brightness of the paperback book area. To the right is the reading bench at the end of the second pass. Also visible is the eight foot canopy and the light and shadow of the reading room lightwell.

At the doorway of his wigwam Sat the ancient Arrow-maker, In the land of the Dacotahs,

Making arrow-heads of jasper, Arrow-heads of chalcedony. At his side, in all her beauty, Sat the lovely Minnehaha,



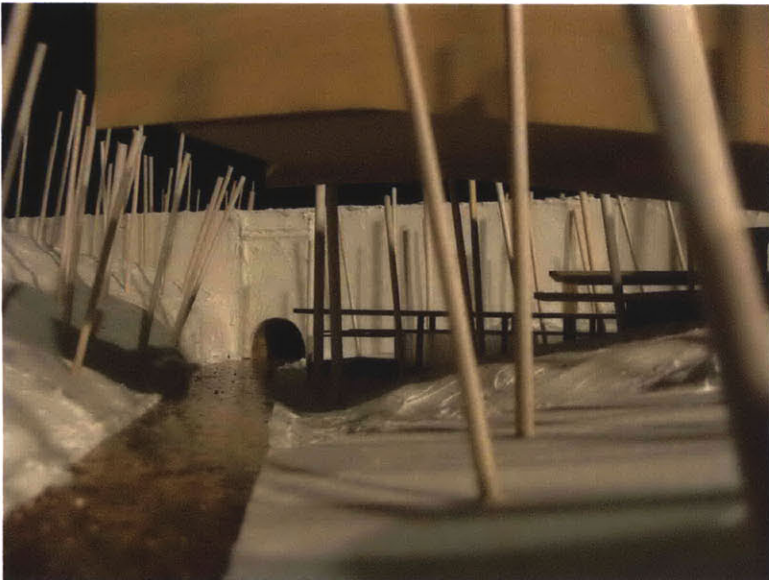
Below: view from across the creek. The building is balanced, with the museum at creekside, and the stacks risen above. The entry to the museum and the patio are intermediary volumes that step down the hillside.

Sat his daughter, Laughing Water, Plaiting mats of flags and rushes



Below: The final scene- low building nearest the creek, higher building providing overhead compression as you approach the bridge. The stacks echo the land, while the museum echoes the bridge.

Of the past the old man's thoughts were, And the maiden's of the future.



A project is never finished, and quite rarely can a designer reach the point where each element has been thoroughly studied and refined. The comments of reviewers at the thesis presentation were helpful in highlighting those parts of the project that are strong, and those that could use more reflection and thought. While the ramp system is fully developed and has led to the solid development of the stacks, the museum, both in placement and in form, remains unresolved. The forms of stacks and museum seek to be in balance, and for that to occur, the museum needs a second pass. In general, though, the design became one of interiority, and as a result, the exterior articulation, both of parts and of the whole, lacks the vigor and continuity of the interior. Just as the paperback book space revealed the ramp as the canon for interior experience, I have no doubt that a critical look at the building as it is will reveal the suggestions of how best to refine exterior form and volume. Some of the most valuable commentary placed regard on how the project fulfills my original intentions. More than wanting to come to a level of completion, it is this which means to most - to know that I have been able to communicate my design intent and to articulate it in an engaging manner.

He had struck the deer and bison, On the Muskoday, the meadow;

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Sat and rested in the wigwam, Lingered long about the doorway,

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On the mat her hands lay idle, And her eyes were very dreamy.

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Through their thoughts they heard a footstep, Heard a rustling in the branches, And with glowing cheek and forehead,

Born and raised in Minneapolis, Minnesota genetically predisposed to architecture and the fine arts, architecture has been a part of my life for as long as I have been able to use my hands. The intricacies of a Montessori education raised me to be conscious of the actions and abilities of my body and mind, while travel around the world opened my eyes to a wealth of architecture and character of spaces. A Bachelor of Science in Architecture from Washington University in St. Louis taught me the rigor of architecture and the pleasures of discussing it. This Masters of Architecture from Massachusetts Institute of Technology is a stepping stone to what will hopefully be a continuing dedication to the investigation and creation of memorable architecture.

Gratitude and humble dedication go to the readers of my thesis, who not only served me well with guidance during this period, but were also there before this began, and who inspired me during studio courses to always push myself towards more rigorous thinking. Most importantly, however, respect and admiration to Bill Hubbard Jr. for sharing this journey with me, for having the energy and knowledge to inspire me, for expressing his own love of design in all forms, and for giving me the space I needed for this project to come alive.

With the deer upon his shoulders, Suddenly from out the woodlands Hiawatha stood before them.

By the shore of Gitche Gumee, By the shining Big-Sea-Water,

If we understand our own minds, and the things that are striving to utter themselves through our minds, we move others, not because we have understood or thought about those others, but because all life had the same root.

*W.B. Yeats
Sambain: 1905*

As much as this project is about an end product it was in many ways a more productive journey because it opened my eyes to see and clarify my own instinctual way of making architecture. This, then, is hopefully not an ending point, but a beginning for an ever increasing discovery into the built world.

At the doorway of his wigwam, In the pleasant Summer morning, Hiawatha stood and waited.

