Center for Craft-Design for Expeditionary Learning

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Bachelor of Arts in Individual Concentration
University of Washington, December 1995

Submitted to the Department of Architecture in Partial Fulfillment of the Requirements for the Degree of Master of Architecture at the Massachusetts Institute of Technology, June 1999

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"Plus est en vous" – "There is more in you than you know".
readers

Michael McKinnell
Professor in Practice of Architecture, MIT
To Janalyn -

you can go home now
abstract

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“Grow into what you are...there is more in you than you know. If we can come to discover this, we may never again settle for anything less.”
- Kurt Hahn, Founder - Outward Bound. (1920)

“Hours spent by the true craftsman in bringing out the grain which has long been imprisoned in the trunk of a tree, is an act of creation itself. He passes his hand over the satiny texture and finds God within.”

This project is a proposal for Expeditionary Learning: a proposal drawing on the experience and ideas of Outward Bound to challenge and engage the student, recognizing multiple routes to knowledge. We take in with the hands and sensitive skin of the face equally as much information as with our minds eye. The student is given the opportunity and encouraged to take stake in his own education, and through the act of making encourage self discovery. The thesis will explore a specific site and building proposal for this program. One removed from both the geographical and ritual zones of comfort of the student. A four week course will require the student to come to terms with a new dynamic of living and daily ritual closely tied to the group and the specific needs of the project. The building and site organization must respond to both these programmatic intentions as well as mitigate the unique site conditions. The building is a stage for the movement of raw material, craftsmen, extreme climate, and a rich history. The project lies here, within the cut, between landscape and nature, between material and the built form made from it.

Thesis Supervisor: Fernando Domeyko
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## CONTENT

readers
abstract

1 EXPEDITIONARY LEARNING
   introduction: proposal  11
   program  13
   outward bound  13
   mission: expeditionary learning  15
   design principles  15

2 SITE
   intention  21
   atlas mill  23
   contemporary  27
   potentials  29
   site photo  34

3 DESIGN
   location  39
   ruins/precedents  39
   bearing  41
   living  43
   hearth  45
   workshop  45
   drawings
      site plan - 1:32  48
      sections
         living  50
         shops/hearth  50
plans
level 1 living - 1:16 52
level 1 hearth - 1:16 54
level 0 workshop - 1:16 56
level 1 workshop - 1:16 56

perspectives
water view 58
approach 60
aerial view 62
view from jetty 64
view from living quarters 66

models
site model 68
section model-workshop 68
section model-living 70

4 RESOURCES
annotated bibliography 74
image credits 76
acknowledgments 78
EXPEDITIONARY LEARNING
Now my co-mates and brothers in exile, hath not old custom made this life more sweet that that of painted pomp? Are not these woods more free from peril than the envious court? Here we feel but the penalty of Adam. The seasons' difference, as the icy fang and churlish chiding of the winter's wind, which when it bites and blows upon my body, even till I shrink with cold, I smile and say 'This is no flattery: these are counsellors that feelingly persuade me what I am.' Sweet are the uses of adversity, which like the toad, ugly and venomous wears yet a precious jewel in his head; and this our life exempt from public haunt finds tongues in trees, books in the running brooks, sermons in stones and good in every thing. I would not change it.

-William Shakespeare

Students at the first school in Salem

Summer 1933
"Our youth should dwell in the land of health, amid fair sights and sounds: and beauty, the effluence of fair works, will meet the sense like a breeze, and insensibly draw the soul even in childhood into harmony with the beauty of reason."

-Kurt Hahn, founder of Outward Bound

**proposal**

This project proposes drawing on the experience and ideas of the outward bound program to design an environment that begins to move away from the itinerant nature of that program and bring this style of learning closer to the classroom. The mission is to give the student the opportunity for self-discovery and the occasion to take a stake in his own education. The program is built on the belief that one takes in with the hands and the sensitive skin of the face as well as with the minds eye. It challenges the student to undstand the value of what he does and its application now, to restore a feeling of worth through experience. The program takes the student out of his zone of comfort and asks of him to find new solutions to his situation and discover within himself what was there always. It is recognized that nothing is so harmful as the misery of unimportance.
1. Salem School

Founded in Salem, Germany in 1920 this Hahn’s first school was closed by the Nazis in 1932. Hahn himself was subsequently exiled for speaking out against the atrocities of the Nazi regime.

2. The Round Square

Gordonstoun Scotland. The first Outward Bound School established by Kurt Hahn in 1934, soon after his exile from Germany. The school was based in the mission of the Salem School he had founded in Germany 14 years prior.
program

This project proposes a working campus to be maintained as a permanent site for purpose of accommodating 15-20 students and staff on a rotating seasonal basis. The program is based in the physical ritual of building and crafting wood-primarily at the scale of a man as necessitated by both space constraints and desire for individual development of the project. The students and staff are to be housed on-site in individual cabins removed from the workspace and be allowed this space for retreat and contemplation. The workspace is to be the focus of the design and the students daily experience though only a just a piece of the ritual. The shops will be associated with the main gathering and service space or Hearth as well as with the arrival jetty. The expected time frame for occupation is to be roughly from the month of March through September, with 6 terms of stay approximately four weeks in duration-each with a new group of students and Masters.

outward bound

The concept of Expeditionary Learning is based in the ideas and experience of the Outward Bound Program founded at Salem, Germany in 1920 by a man named Kurt Hahn. The program was founded in the concept that children might take in with the hands and sensitive skin of the face as well as with the minds eye. The school gave students the opportunity for triumph as well as failure-it gave students a stake in their own education. Innovations at
3. **Hahn arriving at the Moray Firth in the schooner Prince Louis.**
They chartered from the Outward Bound Trust for a month's trial of their ideas. The picture shows the broadest of grins on his face as he steps aboard in Burghead, very much the 'midwife giving birth to the venture'.

4. **The Atlantic Challenge Outward Bound School**

The Atlantic Challenge School selected a ship's longboat from the 18th century as the primary vehicle for communications for the program. Seventeen of these gigs or longboats have been constructed to date.
Salem were not in the classroom, but in the establishment of principles and practices to foster character development and preparation for life. From Pindar he borrowed the principle “Grow into what you are,” meaning there is more in you than you think. Hahn accordingly helped students to discover their potential by offering increasing challenges of adventure in countless forms. The underpinning idea in all of these tasks was the conquest of self-deception, and the overmastering of selflessness for the benefit of the group.

**Expeditionary Learning**

Expeditionary Learning recognizes that all students can learn and that there are many routes to knowledge. It places equal value on students character and intellectual development. Given fundamental levels of health, safety and care, all people can and want to learn. Expeditionary Learning harnesses the natural passion to learn and is a powerful method for developing the curiosity, skills, knowledge, and courage needed to imagine a better world and work toward realizing it.

**Expeditionary Learning Design Principles**

1. **THE PRIMACY OF SELF-DISCOVERY**

Learning happens best with emotion, challenge, and the requisite support. People discover their abilities, values, “grand passions,” and responsibilities in situations that offer adventure and the unexpected. They must have tasks that require perseverance, fitness, craftsmanship, imagination, self-discipline, and significant achievement. A primary job of the educator is to help students overcome their fear and discover they have more in them than they think.
2. **THE HAVING OF WONDERFUL IDEAS**

   Teach so as to build on children’s curiosity about the world by creating learning situations that provide matter to think about, time to experiment, and time to make sense of what is observed. Foster a community where student’s and adult’s ideas are respected.

3. **THE RESPONSIBILITY FOR LEARNING**

   Learning is both a personal, individually specific process of discovery and a social activity. Each of us learns within and for ourselves and as a part of a group. Every aspect of a school must encourage children, young people, an adults to become increasingly responsible for directing their own personal and collective learning.

4. **INTIMACY AND CARING**

   Learning is fostered best in small groups where there is trust, sustained caring and mutual respect among all members of the learning community. Keep schools and learning groups small. Be sure there is a caring adult looking after the progress of each child. Arrange for the older students to mentor the younger ones.

5. **SUCCESS AND FAILURE**

   All students must be assured a fair measure of success in learning in order to nurture the confidence and capacity to take risks and rise to increasingly difficult challenges. However, it is also important to experience failure, to overcome negative inclinations, to prevail against adversity, and to learn to turn disabilities into opportunities.
6. **COLLABORATION AND COMPETITION**
Teach so as to join individual and group development so that the value of friendship, trust, and group endeavor is made manifest. Encourage students to compete, not against each other, but with their own personal best and with rigorous standards of excellence.

7. **DIVERSITY AND INCLUSIVITY**
Diversity and inclusivity in all groups dramatically increases richness of ideas, creative power, problem-solving ability, and acceptance of others. Encourage students to investigate, value, and draw upon their own different histories, talents, and resources. Keep the schools and learning groups heterogeneous.

8. **THE NATURAL WORLD**
A direct and respectful relationship with the natural world refreshes the human spirit and reveals the important lessons of recurring cycles and cause and effect. Students learn to become stewards of the earth and of generations to come.

9. **SOLITUDE AND REFLECTION**
Solitude, reflection and silence replenish our energies and open our minds. Be sure students have time alone to explore their own thoughts, make their own connections and create their own ideas. Then give them opportunity to exchange their reflections with each other and with adults.

10. **SERVICE AND COMPASSION**
We are crew, not passengers, and are strengthened by acts of consequential service to others. One of a school's primary functions is to prepare its students with the attitudes and skills to learn from and be of service to others.
Concurrent with the prethesis program development was my own research and exploration of possible siting. Through both my own experience having been raised in a community heavily impacted by the timber industry I was interested in beginning my research into the mills of the region, specifically the mills recently gone into receivership. It seemed to me the ritual of woodcraft would well be complemented by the rich history of the region and the specific history of a mill site. Recently relocated from the Northwest, likewise a region owing much of its legacy to the Timber industry, and now at a crossroads as to the future of this enterprise. It is interesting to find here in Maine a history of one already past its high water mark and surviving only in small part on a dwindling resource. The legacy of this industry—the mills, the men, and the communities they served was what eventually brought me to the town of Greenville and its silenced mill.
7. Log booms west of the mill

Aerial photo taken from the west side of Moosehead Lake looking east toward the site. Housing is visible just beyond the mill.

8. Moosehead Lake

Aerial photo taken from the south end of Moosehead Lake—roughly near the town of Greenville.
The Greenville Plywood Veneer mill was at the turn of the century the largest employer in the region. Having a favorable location on the southern tip of Moosehead lake, stretching some forty miles into the Northern Forest, the mill flourished for years and had at most times more raw lumber than capacity. The primary export at this time was veneer products manufactured from small to mid-sized softwoods harvested along the lake and brought here by way of barge or boom over water during the months from March thru October when the lake was not frozen. The lake frontage proved a valuable storage place for excess logs to milled during the winter when no raw lumber was available due to poor roads and limited transportation.

The industry was quite profitable and at one time employed upwards of 350 men in the small Moosehead region. It was during this time that the plots upslope from the mill was cleared and developed for housing for the workers families. Approximately 65 homes were constructed on site, within walking distance to the mill.

In 1918 the mill burned for the first time and was nearly completely destroyed. When it did reopen, it was under new ownership and its chief export was now wooden boxes only supplemented by veneer manufacture—it went under the name Veneer Products. Around 1935, the mill was again sold and came under the name it would retain until its permanent closure of Atlas Plywood Corporation. The mill was expanded and began production of boxes and bases for airplane propellers, bombs, and other resources for the war effort. The mill
9. **Atlas Plywood Mill. circa 1920**

Panaramic photo taken from the Railroad crossing near the mill. In the background is Moosehead Lake and Squaw Mountain in the distance. The building in the mid foreground labeled "lumber transport" is the location of the only remaining traces of the built site-retaining wall and arches. Presumably the arches supported the rail spur into the warehouse.
10. Veneer Products Company

Photograph of mill workers outside the shipping room circa 1928.

11. Log booms brought downstate on Moosehead Lake

Due to a solid freeze for nearly the entire winter, the mill stockpiled raw timber during the summer months to process during the winter. The mill's boat cleverly named "Plywood" can be seen in the foreground.
produced this line until 1962 when the wooden complex burned for the last time. The declining timber industry could not support the outlay to reopen the mill and it went into decay. The land was put into receivership by the city and the mill site eventually came into the hands of private land owners. The site today remains only a shadow of the original mill that once sprawled on the edge of the lake. The only traces now of a thriving industry are to be found in the stained footings and rusted carcasses of the mill substructure. No new construction has occurred in this time.

**contemporary**

Today, the site is accessible from the highway running within two miles east of the lake. The mill can be reached following an access road once busy heavily traveled by log trucks, now empty save for some remnants of the mill housing. The mill site once cleared has rebounded fully and reclaimed the site save for the haunting dislocated fragments of the buildings. The mill was built on the relatively flat land nearest the lake, as raw material was brought from the water and needed to be processed and moved into production. What remains of the mill are one of the transfer buildings midway upslope, one retaining wall near the water and a series four archways once made to support the railway spur to the MB&O that brought product downstate. Further up the shore and into the site are the remnants of the chip burner, now rusted, fallen and overcome by bracken. This sits near the northern boundary of the site which is marked by the passing of a small stream and ravine running down to the lake. The plot
12. Surplus Timber

Log yard stacked high with local poles. In the background is the choker cables dragging the logs into the mill.

13. Moosehead Lake

During the winter months the lake itself became a staging ground for operations on its frozen surface.
runs generally north/south with some southerly exposure to the low sun as well as full exposure to a strong northwest wind coming off the lake to the west with annual averages of near 20 mph. The town of Greenville lies approximately 10 miles to the south down the lake and to the north is virtually undeveloped Forest Service land stretching some 40 miles up Moosehead Lake.

potentials
I came to site in the fall and found my first impression to be the opposite shore of the lake visible through the bare alders and birch on the site. Snow was on the ground and the low afternoon sun arced shadows across the bleached concrete projecting from the white. The jetty along the shore suggested the location of the original mill but individual building sites could scarcely be imagined. The ruins now were a powerful reminder of the once thriving mill and held in the surface of them traces of their making and the men who built this place. Most powerful of these traces were the four concrete arches. Approximately 8 feet tall and 18 inches square per leg, these silent watchers were now the only inhabitants of the mill site. Not just of human scale, but now removed from context, conspicuous in their unuse and a powerful suggestion of a built history. Here was not just the ruin but the historical record of human use.
14. Loading for transport at the Atlas yard

Already in 1958 the timber is visibly second or third growth.

15. Railroad Spur

Fuel car pulled into the Atlas yard.
16. The "Plywood"

During the winters the "Plywood" was drydocked as no timber could be moved down the lake for over six months. The trees evident in the following photos are the effort to stockpile for winter.

17. Moosehead Lake frozen several feet deep

Photograph taken from the center of the lake, looking back to the mill. to the left is the chip burner and stacks-to the right is visible mill housing.
18. Furnace

The carriage house and adjacent furnace.

19. Plywood

Again, the frozen lake is visible in the background with the "Plywood" drydocked in the foreground.
20. **Land Parcels**

A parcel map showing the housing units upslope from the mill site and the access road beyond.

21. **Jetty**

Photograph taken from the end of the jetty. Timber is yarded up from the lake along the road over the jetty.
22. **Existing retaining wall.**

View from the water. In the background the cluster of six arches can be seen just beyond the wall.

23. **Moosehead Lake.**

View south from the site toward Greenville in the late afternoon.
3 DESIGN
design

location
It is the goal of this project that integral to the program, the users must be engaged by the landscape. Siting is remote, the access as well as supply and service will be primarily by boat. The idea here is that one’s sense of isolation will be reinforced through a ritual of arrival and supply by water. The other issue is one of the found landscape-a strong horizon punctuated by a verticle screen alders and occupied by the ruins of the built history of the site. The design at its conception must be conscious of the historic record of these traces as well as the strong registration of the horizontal moving through this site. An assumption is made now regarding the ritual of finding this place and moving through it regarding views, sun movements, and winds. The ritual of movement from the dwelling to the workplace and back again is the connection back to the landscape.

ruins / precedents
In my travelling researching site locations specifically and in my experience generally, I have been fascinated by the historical record left in the ruins of these once thriving mills. The typology of these Adirondack Mills for the most part was of wooden construction and what remains today of this fading industry is found at sites long abandoned save for stained foundation walls and steel
tanks and burners. The burners in particular are a beautiful artifact that now obsolete and fading from our landscape stand as testimony to the mills they served. Designed purely as functional objects, these relics hollow and neglected, now removed from context are an excellent study of light and shadow, structure and detail. Both elegant in their simplicity yet stalwart in design, I found great inspiration in these solitary objects. Inspiration also came from the "found potential" of the site in the strong horizon, alders, the ruins and exposure to the elements. Sited on the windward eastern shore of the lake, the site receives the full force of a 20mph average speed annual wind and low angle sun. The ruins themselves provide a reflection of the human occupation of this site both in functional considerations of proximity to the water and access to light and transportation as well as a trace of formwork in the bearing walls, revealing process and construction. It is from these considerations that the design would take its direction and a language form for design in this landscape.

**bearing**

First moves on the site were made in reference to the movement of light, air, people, and the non negotiables of the ruins. Assumptions were made as to the retaining of these concrete relics and a new baseline was established to define a grid noncoincident with that of the existing walls. The site was to be experienced from the top down-movement defining ritual and ritual defining movement. The retreat would occupy the high ground setting up the approach \
living
The living quarters were designed as a place of repose, retreat, and reflection. Removed from the site, these spaces were based around the individual and sited so as to direct views off the site and into the abutting ravine. This time away from the group was essential to both meditate on the days efforts as well as let the student explore his own thoughts, make personal connections and create his own ideas. These buildings were designed for one, a linear space projecting onto the ravine. A forced perspective of canted walls pulled the landscape into the space through a fully glazed opening to the stream. The units consist of a cot, wardrobe, desk for writing and a basin fed by rainwater collected on the slope of the roof. A shower and latrine are shared per two units and sit upslope from the unit. These accommodations are meant to be completely operable by the user. A natural ventilation is encouraged up the ravine and out the high open end of the section. The wall panels as well are primarily opaque but allow for adjustment by a rotation about a central pin-up and out. The ritual of movement across the site is began and again completed here in the personal spaces.

hearth
The Hearth is the primary gathering point in the mornings and evenings and contains facilities for food preparation, eating, and meeting. Access is down from the living spaces and finally passing the concrete wall over which the site
and horizon are measured from above. During the days this space serves as support for the shops, space to gain a critical distance from the work at hand and evaluate progress. The physical hearth serves as a center as well as an end to the larger room described by the retaining walls to the east and west and the shops. The visual pass is retained beyond the freestanding hearth, and in the other direction off the site into the alders. This larger outdoor room is depressed slightly and from under the sloping rooves of this place pass two steps on which the beginning of a fire pit might begin to form creating a center of gravity between uses in the plaza. The existing concrete arches are here, occupying the plaza and providing a measure of depth from hearth to shop and earth to sky. The construction of the hearth space is generally informed by the site in its reflection of slopes in the cascading roof planes and the restricted openings acknowledging the low sun angles. The light and views from within reinforce the horizontal.

workshop
The workshops are the focus of the daily ritual and the final expression of the movement through the site. Conceived in the functional sense of the wood burners, these objects are tempered with a looseness informed by the landscape and site condition. The spaces are designed with the movements of people, raw materials, sun, and air. The significance of the workplane is paramount. The form of these objects was to be born out of use. The raw materials are brought
from the water, up the beach and stored to dry under the workspace, additional storage and service are housed beyond. The floor above contains the infrastructure for the shops, mechanical, dust collection, etc-allowing for the ceiling and roof of the shops to be open and become more light and elegant as it rises. The constructed floor plane also allows for the concrete base to rise around it and provide the worksurface unquestionable in its hierarchy. The building is a simple frame rising from the ground floor, with a double skin—the exterior controlling light and air, the interior the line of the envelope. The space between is maintained to promote air movement up and through the lower shop and finally out through the roof. The air movement assists in bringing the raw lumber to a water content of 15% before it is brought to indoor air moisture levels. Holding the edge of the site and addressing the lake the shops are a gateway from the water and a frame for the horizon from within the
24. Site Plan
Including existing wall and arches.
25. Living Section
Taken roughly east/west through the site.

26. Hearth/Workshop Section
Opposite page-taken roughly east/west through the site
27. Living Plan
The living space, one of retreat is situated on the slopes edge so as to maintain a visual pass to the ravine.
28. The gathering space, service and plaza. The walls begin to define the place but allow for it to develop specific to the user.
29. Shop Plan   Levels 0,1
The completion of both the site and the ritual. Skins are specific to use and exposure.
30. Perspective 1
View to the site from the west, over the water. The approach by boat.
31. Perspective 2
View to the site from the east. View from the approach from upslope and the cabins. Paths here are defined only by user.
32. Perspective 3
View to the site from above. Aerial shot taken from just south of the mill.
33. Perspective 4
View to the site from the south. Beachead just fore of the shops.
34. Perspective 5
View down onto the site from the living quarters. Beginning and ending of ritual.
4 RESOURCES
annotated bibliography


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12. Porter, Elliot. *Summer Island: Penobscott County* Colby College 1977


16. Hahn, Kurt. *An Experiment in Education* The Listener, November 16, 1950
image credits

Unless in the text or here noted, all other images and diagrams are by the author. See Bibliography for full citations.

Wood Burners
Daniel Mihalyo: in Wood Burners...(chapter facing pp)

Mill Photos
Everett Parker: Jackman-Greenville Historical Society...(site)

Outward Bound Images
Steve Truitt: Harvard School of Education ..(mission)

Site Survey
Gregory W. Crispell Co., Inc. ...(design)
acknowledgments

I wish first to thank my advisor for not only helping me to find the direction of this thesis but my direction here at MIT. My experience here is the sum of the knowledge gained in working with Fernando. Thank you.

I would also like to thank friends and family, most importantly Janalyn for pushing me through. Finally I am very grateful for the input and assistance given me by the Greenville Historical Society and Steve Truitt at Outward Bound.