A Health Retreat: Building Reciprocity in Landscape

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Abstract

This thesis applies architectural principles sympathetic to reciprocity between buildings and the landscape. It is composed from generic vocabularies derived from Scandinavian and other references, and is demonstrated by a study for a health retreat at Poland Spring, Maine. The site and program were teamed on the premise that communion with the landscape can develop, for the willing user, awareness to holistic health.

Structural elements were deployed to signal the nature of places, such as circulation, shelter or exposure. The site is organized into receiving, athletic, treatment and retreat clusters. At both building and site size, they range from containment to openness as appropriate for Maine's variable climate.

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Plan of Poland Spring Resort
There appears to be a need for a health retreat for urban refugees seeking revitalization. Holistic health looks to all factors that influence the well being of patients. Diet and exercise habits, job and environment can improve or deplete health. Too often, health care takes place in environments lacking any contribution to a holistic approach to health. Conventional hospitals rely on a mechanical cure. The patient's progress is not "cued" by space when areas have the same degree of containment. It would seem healthy to build space which can accommodate at least two states of being; withdrawn and interactive. Light, structure and relative dimensions can define environments to support these states.

A rural retreat can bring its users in contact with the landscape as well as allow the perspective needed to bring about a change of health habits.

The northern New England site at Poland Spring,
Maine was selected to explore positive outdoor space in a cold climate. Scandinavian references were analyzed more so than the New England vernacular. Often, the inside contrasts too sharply to the outside of New England structures. This is rooted in the farming heritage, where the landscape was the work place and indoors provided protection from the elements. If both the building and the landscape are both to be habitable, reciprocity must develop between them.

The Scandinavian references raised the question of whether the architect must choose between bringing the landscape into the building or building the landscape as in southern European architecture.

Elements pertinent to this slopec rural site build continuity through the landscape. The design developed
through systems of ongoing elements. The movement of retaining walls, roads and water laid the "ground-work" for the siting of buildings. This building method is pertinent to the sloped rural site, where the site is far more extensive than the built development.

This thesis can be viewed in its entirety or in two segments: (1) Vocabulary references and (2) health retreat design. The vocabularies derived from references can be observed and applied to appropriate projects. Or, the application of these vocabularies to a particular project, the Poland Spring Health Complex, can be seen.

The format shuttles between vocabularies and references (in typewritten text) and their operative use in the health retreat (in handwritten text).
Part One: Program Development

In this chapter, the site and program are identified.

The yearning for a retreat has dwelled in the minds of dreamers for centuries. Retreats are gaining popularity as a coping device for the complex problems and stress inducing pace of our society.

The Lake Isle of Innisfree

I will arise and go now, and go to Innisfree, And a small cabin build there, of clay and wattles made; Nine bean rows will I have there, a hive for the honey bee, And live alone in the bee-loud glade.

And I shall have some peace there, for peace comes dropping slow, Dropping from the veils of the morning to where the cricket sings; There midnight's all a glimmer, and noon a purple glow, And evening full of the linnet's wings.

I will arise and go now, for always night and day I hear lake water lapping with low sounds by the shore; While I stand on the roadway, or on the pavements gray, I hear it in the deep heart's core.

William Butler Yeats

Shack on Finnish Archipelago
The Poland Spring Site

The Poland Spring resort in Poland, Maine is twenty six miles north of Portland, Maine and 126 miles from Boston. Sebago Lake lies 20 miles to its southwest. Ricker Hill, as the site is known, is 800 feet above sea level. The hill rises 300 feet above ponds at its base. The hill slopes in three directions, terminating a ridge which runs north south. The north slope descends gradually, becoming marshland as it abuts the fork of two converging river ponds. A golf course is sited on the north slope. Route 26 provides the access to Poland Spring at the western slope. This is also a gradual slope. Cows grazed in a pasture at the low side of the road during the resort's early history. The road edge is closely adhered to with a barn, stable, servants' quarters and a few cottages in keeping with a pattern established by a shaker village and other spotty developments along route 26. From the hilltop, the Presi-
site observations. Scale: 1" = 1800'
dential range of the White Mountains is visible to the west. Buildings sited on the hilltop are objectlike in form and placement. The "State of Maine" building is octagonal, well crafted in granite and wood. It was purchased at the Chicago world's fair in 1892. Freight cars carried the building in pieces to the present
the Poland Spring House site, where it was reassembled. A neoclassical inn was built in 1960 after the former hotel was abandoned. The old hotel rambled with frequent additions of wings, towers and porches. It burned down in 1975, as did the first family inn sited at the road. A square country club is situated above the golf course. A granite chapel, greenhouses and water silo are also sited on the hilltop.

The eastern edge is the steepest of the three slopes. The source of Poland Spring water lies well below surface at this side. The water rises through a fissure in the granite characteristic of the region at a rate of 8 gallons per minute. The bottling com-
plex responds to the directional slope with a linear organization. The complex was built from 1903-1905 and consists of a spring house and processing, packaging and storage buildings.

The first settlers arrived in Poland, Maine in 1793. When the Eliphas Ring family joined the neighboring Shaker community in 1797, Wentworth Ricker purchased his property and opened the first inn at Poland Spring. The Ricker family developed a thriv-
TRANSPORTATION AND GENERAL INFORMATION

THE POLAND SPRING HOUSE opens its Forty-second Season June the 1st, Nineteen Hundred and Seventeen, closing October the 16th. Western Union Telegraph and Long-Distance Telephone Service in the Hotel.

Through or Round-Trip Tickets to the Poland Spring House and Mansion House may be obtained at all Principal Stations of the following Transportation Companies:

- The Big Four (C.C.C. & St. L.)
- Michigan Central
- New York Central
- Boston & Albany
- Pennsylvania System
- Baltimore & Ohio
- Philadelphia & Reading
- West Shore (via Rochester
- Junction and B. & M. R.)
- New York, New Haven & Hartford (including the Sound Lines, Fall River and Providence)
- Canadian Pacific or Grand Trunk Routes (via Thousand Islands, Montreal and the White Mountains)
- Maine Steamship Line
- Metropolitan Steamship Line
- From BOSTON and Points East:
  - Boston & Maine
  - Maine Central
- Eastern Steamship Corporation (Portland Division)

SPECIAL SERVICE FROM NEW YORK CITY. Night Service—Through sleepers leave Grand Central Station daily, during the summer season, about 7:30 P.M., via N.Y. N.H. & H.R.R. to Worcester, via New London; B & M. R. via Ayer, Lowell and South Lawrence, to Portland, thence via Maine Central to Danville Junction, arriving at about 10:45 A.M. Return train leaves Danville Junction daily, at about 8:30 P.M., arriving in New York City about 7:00 A.M.

CAUTION: Owing to the necessity of issuing this Information in advance of the time when transportation companies may perfect their summer schedules, we particularly urge that travelers confirm the above statements, either by addressing us or any of the transportation companies involved.

Information may be secured by application to

HIRAM RICKER & SONS, Incorporated
POLAND SPRING, SOUTH POLAND, MAINE
Or to the Poland Water Depots: BOSTON, 155 Franklin Street

NEW YORK, 1100 Broadway PHILADELPHIA, 121 Chestnut Street

ing resort and maintained ownership until 1960. At that time Saul Feldman bought the 5000 acre property. The Perrier bottling company later purchased the spring and a Mel Robbins bought the inn. The state of Maine now owns a peninsula of land along the eastern slope on lower range pond and a beach across the pond.

The resort had its heyday during the late 19th and early 20th century. Guests spent entire summers at the resort, bringing along trunks of baggage and their servants. They trained to Danville Junction railroad station 5 miles from the resort. Where a stage coach met them for the final leg of the journey. Businessmen kept abreast of the stock exchange through a ticker tape in the basement of the hotel. Days were leisurely. One usually "took the water" at the spring before breakfast. There was often a concert on the lawn mid morning. After lunch, old timers would lounge on porches while young ladies and gentlemen would swim
or take a carriage ride. As was the case for most spas, many romances spawned at Poland Spring. Dinner was followed by a cotillion or party. The resort hosted many celebrities and politicians. W.C. Fields stayed true to his abstinence from water even when he visited Poland Spring. Charles Lindberg prepared to land his airplane on the golf course, but was prevented when one golfer, President Truman, refused to leave the course. The inn remained open through the winter, with lavish Christmas feasts, sleigh rides and crackling fires.

Change of ownership and patronage, fire and time have reduced the grand old resort to a state of decay. The greenhouses were abandoned. The bottling complex was abandoned in the name of efficiency. A new steel shed directly downhill from the old buildings lacks the claimed outdoor space of the old complex in its massive singularity. Guests no longer make the connection with the water source; the inn is only open
Poland Spring site plan. Scale: 1" = 600"
The Blue-Green Hills of Earth
For the mountains, hills and pastures,
In their silent majesty;
For all life, for all of nature
Sing we our joyful praise to thee.

during the summer. Children are not allowed to visit.

Of the factors that led to the downfall of the resort, the major one appears to be the shift in vacationing for Americans. The introduction of cars and well paved roads, and eventually airplanes provided a new mobility to travelers formerly limited to destinations near railroads. Vacations are generally shorter. People often pack the brief time away from work with enough activity to leave them exhausted from the vacation. The relaxing pause in the work year has vanished. The identification of this trend as a problem leading to a higher incidence of stress in Americans formulates the platform of the health retreat program.

If the buildings are lacking in grandeur, the site at Poland Spring remains bucolic. Spring water has regained popularity as water supplies decline in purity. Childhood associations with vacationing in New England may endure even in the memories of the jet setters. Poland Spring appears as an appropriate site for the projected retreat.
Preventative Health

Who would be the users of a modern health retreat? Which ailments or causes of ailments could be prevented or cured by removal from home to a fresh, nonmedical surrounding? Through scanning patient types and their needs, stress clients were selected for the health retreat. For their treatment, the projection of change to come needs to occur. Reexploring one's identity can be done with distance from one's environment. Other patient types need the support of familiar surroundings in the healing process; rehabilitation need to be nearby to prepare for their return home; aged patients may prefer to look into other activity. Many therapies require repeated visits. Stress treat-

"Man still breathes in and out. When is architecture going to do the same?"
- van Eyck 1982

Zonnestraal Sanatorium, Hilversum
Jan Duiker
ment is more of a voluntary one. The client may be absent of disease, but desires to improve health to some degree.

Statistics compiled by the Kripalu Center for Holistic Health reveal that 70 to 80% of doctor's visits are for stress related illnesses. The components of this timely affliction were investigated for insight on building a program and place for its treatment.

Stress is the result of prolonged unremitting tension. Stressors are situations, people or things in the environment causing wear and tear, such as change or disability. On a daily basis, many work relationships require retention of emotions. In the course of life, many people reevaluate themselves at middle age. When aspirations and ability do not equate, stress results.

The "fight or flight response" proposes alternate responses to stress. Flight assumes that overcoming stressors is hopeless, so a passive response ensues. With the fight response, a person goes into preparation for a stressful situation. Physiological-
ly, blood pressure and breath rate rise, and adrenal glands are activated. This is meant to be followed by physical exertion, such as fighting or running. Without physical exertion, hormonal components linger in the body and can contribute to hypertension.

People are often resistant to acknowledge stress. Weakness is inferred in a low tolerance to stressors. Ignoring body signals can lead to a variety of ill effects, ranging from a skin rash, impaired judgement or burnout to an ulcer or coronary.

Certain health professionals are encouraging people to acknowledge stress and deal with it preventatively. The "relaxation response" was developed by Doctor Herbert Benson, Director of Behavioral Medicine at Beth Israel Hospital in Boston. This program includes meditation, it suggests changing and expanding one's point of view, and cultivating awareness to diet and exercise habits.

Preventative treatment has not generally been part of American health insurance plans. However, businesses are developing a vested interest in the health maintenance of employees.
Create a strong mental image. Go far away from daily activities. Visualize a sunny beach or quiet garden. Use your imagination to retreat. Feel the stillness.

Costs to companies skyrocket through lowered on-the-job effectiveness, absenteeism and premature deaths due to stress related illness. Exercise, breaks and stress management training are infiltrating workplaces such as Digital Corporation.

It is proposed that one or more major corporations would fund the health retreat. As part of a comprehensive health plan, employees could use allotted sick or vacation time to go to the retreat.

Tourists and individually paying clients should also be encouraged to use the facilities.
The Casino Spa Hotel is located in the lake district of Finland bordering Russia. The majority of guests are WW II veterans sponsored through a national insurance plan. The facilities are also used by businessmen, who splice meetings with sauna baths and swimming. Tourists come from the town across the bridge to the restaurant. Individuals are welcome on a daily basis for massage, mineral baths and other treatments.

Fingers extend from behind a continuous facade, opening out to a swimming cove.
Four overlapping zones comprise the retreat. They include the receiving terrace, athletic track, medical cluster and post-treatment repose.

The receiving terrace includes a farmstand, information center and the old bottling complex. The bottling complex would be renovated for dining. The processing plant would be used as a kitchen with emphasis on nutritional counseling. The original building was designed with a mezzanine and lobby from which the bottling process could be observed. More mezzanines related to what would be the kitchen would make the use and building compatible. The packaging building would become a restaurant and picnic pavillion. The storage building would serve as a "canteen" and provide jugs for spring water. The spring house would be restored to its original use. Approaching the site, the receiving terrace is the first area encountered.
Food service and information is appropriately placed here for day visitors and first time guests.

The medical cluster includes a medical building, laboratory and educational building. The medical services provided would be of a hollistic nature, such as chiropractory, massage and acupuncture. The educational building would house classrooms, a theatre, library and administrative offices.

The athletic tract consists of a pool, gym and outdoor track. The pool building contains locker rooms and various pools. The gym houses racquetball and tennis courts, saunas, woodchopping area, basketball court and spaces for yoga or meditation.

Together, the medical cluster and athletic tract will define the largest concentration of building. Like "good parents", they provide the most containment while opening out freely to other areas.

The post-treatment repose is built of an amphitheatre, small motel units and a hostel. The hostel
would serve as a gathering place for groups. In good weather its sleeping porches would provide camp style accommodations. Other overnight accommodations would range from bungalos and attached units to campsites. The accommodations are separated from the treatment facilities to encourage use of the outdoors. Guests would leave their units for treatment as farmers going off to work in fields.
The sauna was first appreciated by Finnish lumberjacks. After a day of work, they would relax overworked muscles in the dry heat. There was an abundance of fuel for the wood fired bath. Finland's geography and climate lend themselves to welcoming the sauna. The country is densely forested and infiltrated with lakes. Its northern latitude delivers harsh winters. Its citizens know a revitalization through the sauna that escapes most Americans.

Similarly, the Poland Spring site is forested and sited between lakes. While Maine's winters are milder than those in Finland, they are cold by American standards. It is presumed that increasing energy consciousness in the United States would lead to inviting the sauna's intensity of heat, per-
A traditional Finnish sauna was visited to gather the atmosphere and formal considerations for transference to the retreat. The sauna visited is sited on a lake at the base of a hill. The hill slopes up to a cluster of farm and dwelling structures. From there the sauna roofs are just barely visible. Its back closes down into the hill, while a porched front opens to the lake. The sauna's organization resembles the southern "dogtrot" house, with circulation outside. Necessary ventilation to the

haps coupled with enduring lower temperatures elsewhere.

In addition to climactic similarities, the health retreatment emulates a model of revitalization found in the sauna going Finn.
saunas are thereby provided. One passes across the shaded corridor to enter the sauna, skin chilled with brisk air. From there the distant lake is seen glistening in the sunlight. Its cold depths are not sought until after the dry heat of the sauna brings about a sweat.

The T-shaped access defines two territories within the sauna. One side serves bathing purposes. The other is a room where people gather after the sauna, typically with homemade beer around the fireplace. Within the bathing section are a sauna, a smoke sauna and a washing room. The individual saunas are contained in wooden walls with masonry near the heat source. A slipped roof alongside the building shelters wood stacked six feet high.

The smoke sauna is lit once weekly. It takes all day to generate the heat needed for the
long burning fire. The temperature is higher in the smoke sauna but also dryer, so people stay in for a long time, intermittently with dips in the lake. Since the fire needs tending throughout the day, the farmers utilize the time for maintenance. Wood is chopped, floors are scrubbed and the woven rugs are washed by the lake.

Patterns establish seasonally as well as weekly around the sauna. In the spring, young birch boughs are gathered for the "vintah" or birch brush. Before use in the sauna, the vintah is dipped in a pail of warm water, releasing its woody perfume. In the dead of winter, this would cause one's nostrils to widen for more of the sensory pleasures of spring.

While artic winter's bitter cold would apparently be departed from when the days lengthen in spring, a tremor of that cold is sought through the warm months. One jumps in the cold lake after
the contrasting heat. Coldness is manipulated as contrast, rather than being gruelly endured. Physiologically this hot and cold complements stimulates the flow of blood through one's system. (It is not, however, recommended for heart patients.) In a broader sense, the sauna is an institution reflective of a varying season.

The sauna cycle requires patience and time beyond the typical American lifestyle. If one could occasionally take time, its results would appear therapeutic. The intent of the health retreat program is to encourage communion with the landscape and to step back from an urban pace. Architecture can build the landscape connection.

It is the user's option to extract therapeutic value from the place and ritual.

One approach in the project to developing reciprocal reciprocity is the proximity of saunas to larger building mass, water and "claimed" ground.
"The Secret produces an immense enlargement of life. Numerous contents of life cannot even emerge in the presence of full publicity. The secret offers, so to speak, the possibility of a second world alongside the manifest world; the latter is decisively influenced by the former."

- George Simmel

Retreat visitors often seek a new perspective on their lives. This common objective is approached differently by individuals.

The nature of retreat-like space should be permissive, providing a range of spaces for participation or detachment. Kevin Lynch refers to the necessary components of a contemplative space as center, frame and reference. The center is a person's location in a habitable edge. The reference is an object to focus in a public territory. The frame offsets the space of the center from the public domain. The public territory can be in a building or in the landscape. The space withdrawn to can be up in the roof zone, a cavelike excavation, sheltered outdoor space or between structural elements.

The proximity of retreat-like to public space provides the opportunity for the detachment necessary for reflection to occur.
Building Method

The work of Alvar Aalto reflects the architect's premise that the landscape should actuate the form of the building. The articulation of edges allows light to penetrate deeply into buildings. Entrances continue the direction of landscape by their relationship to hills. An indoor landscape develops when neighboring trees transform to columns and screens. The outside of buildings is made habitable through the extension of structure beyond the building skin. Mountain forms echo in buildings with the departure from angularity. Curves define a shift in territory at building and site size. Large masses respond to the harsh Finnish climate and protect the splintering into delicate screenwork.

Two of Aalto's works are analyzed for their application of displaced dimensions. At building and site size, these references stabilize spaces and build the landscape. Other works are referred to for various

Reference

Lappia House, Rovaniemi, Finland
responses to the landscape. While the interpretation of vocabularies results in different forms for the project, this architecture was an appropriate reference for design in a northern climate in the United States.
Part Two: Design Explorations

This section exhibits site and building designs and the references that helped to generate them.

A series of site plans tracks the development of a courtyard. In the design process, systems of ongoing elements were worked with to define positive use space in the landscape. The design at site size is explained through the movement of three elements: retaining walls, water and roads.

The section on building design presents four territories; receiving terrace, athletic tract, treatment cluster and post-treatment repose. The existing bottling complex is part of the receiving terrace, and is used as a springboard for spacial organization and a new structural system applied in the athletic tract. Buildings chosen for development were the gymnasium and pool building of the athletic tract. These buildings were selected since they lend themselves well to the exploration of
retreatlike space. Orientation, dimensions and use were explored in the treatment cluster and post-treatment repose areas. Sketches, photographs of a model and references present suggestions for development. The development of these areas was carried to where the relationship of these buildings to the site could be determined.
The primary job of retaining walls is to build terraces by holding back land. They run in the direction with the contours, with returns in the perpendicular direction. The direction of walls determined the placement of buildings along them. A strong adherence to the walls was deemed necessary before an exception could become understandable.
Vocabulary

Habitable terrace.
The agricultural terrace (a) needs containment to define a habitable territory. A positive zone of exchange develops when displaced surfaces share a common roof (b). A retaining wall rises above grade to contain the upper level (c). A cavernous space results from adding depth to the retaining plane (d).

Vocabulary

passage
Walls passing each other (by a minimum dimension of the width they define) build an entrance territory.
The courtyard is built between two retaining walls, with a terrace above and pools at its base. The rear wall moves in from grade at the bottling complex, carrying a channel of water. The wall rises to a floor height as it approaches the courtyard, allowing access at its base to generate the closed edge. The rear wall curves to follow the contour, but is thought of as the rural counterpart to the straight edge of an urban geometry. The front edge is then allowed to undulate since the back is continuous. When the rear wall shifts, two segments pass.
each other to contain a stair entrance down to the court.

A farm stand registers to the retaining wall at the terrace level above the courtyard. Cavities in the wall house a root cellar and parking garage.

At the front of the courtyard, the wall inhabited by the gym pushes forward to make space for the athletic field. The entrance of the pool building makes a partial containment at the south end of the field. The land wall makes a sweeping curve in the theatre, setting off the field from the treatment court.

The land wall splinters at the north end of the courtyard, building the closed end. The walls
define vehicular access at the back of the courtyard, staff parking below the medical building, a terrace extending from the laboratory, parking beneath the terrace and laboratory and finally terraced steps, which open the courtyard to the landscape.

**Reference**

A. Aalto
project for a funeral chapel
Helsinki

Site design, deploying roads and retaining walls to intensify contours

scale: 1 inch = 600 feet

roads

retaining walls
By applying the system of displaced dimensions, the courtyard at the University of Jyvaskyla becomes part of the built world. The running track is the generating dimension for other spaces and buildings.

By registering with the track, the athletic building at the back claims it as an extension of its territory into the landscape (A, a). Displaced to the ridge edge, the Athletic building length appears twice; open and closed. The closed segment (B) runs the straight building edge. It builds the ridge edge strongly, containing the courtyard. The open dimension (b) is an aggregate of smaller buildings, including one at the level above the courtyard. The major portion of continuous building (C) equals the dimension of the aggregate of buildings and space of courtyard level (c).

In the short direction, the width from the terrace edge to the athletic building (c) is equal to one ridge segment (C, c). The longest width of the courtyard, where the back edge moves away from the end, equals the track length (a). The narrowest width of the
**Vocabulary**

Built landscape.
Positive outdoor use space results from building similar dimensions in the building and the landscape.
Roof generates building height.

courtyard (d) equals the protrusion from the end building on its uphill side (D). The length of one ridge segment (C, c) repeats in the building at the end of the courtyard (C). By displacing from the courtyard width (c) and moving past the end of the back building, it opens the courtyard out to the larger landscape. The "use-U" (e) is the open reverse of building segment (E). By receding from the building edge, a small territory is built off the courtyard.

What is access in the landscape (f) is the full width in the building (F). These dimensions are perceived in their totality in the landscape. Within the buildings, the access may span the full length, but many spaces comprise the total building dimension. While this system may not be consciously perceived, it brings the "right size" to an environment. Buildings belong to the landscape and the landscape becomes an extension of the buildings.
Access
The main approach from the street leads to the open end of the court. One can depart at the back, to enter the athletic building or continue up the gently sloping site. A passage slips between the two buildings which terminate the courtyard in the short direction. Since the hill rises abruptly behind these buildings, the longer one acts as a retaining wall. Its lower level opens to the courtyard, while the second level meets grade behind the courtyard. One can filter through the built ridge to a terraced cafe. Terrace terminates access to the downhill side.

Vocabulary
Field Organization
The bigger the building, the more imperative it is for its direction to parallel the contours. The building is stabilized in the landscape when shorter segments lead off perpendicularly. The landscape is "built" by its containment within the fingers. In a small building, the fingers remain inside a continuous closure edge.
Access system

Roads run parallel to the contour, following the pattern established by retaining walls. Roads lead to buildings from uphill to their back and sides, leaving the front free of traffic. Roads continue beyond the buildings they lead to. As a rule, a spur departs from the continuing road, drops to the grade level of the building and doubles back to approach the building. This system responds to the sloped site, maintaining slopes easy to ascend by car, foot or by a golf cart style vehicle available for visitors.
Vocabulary

access; site to building
When the site is a positive part of the use-program, one travels a built distance beyond destination before entering
a) to build outdoor space
b) to encourage familiarity with site

Reference

Taliesin East, Spring Green, Wisconsin
Frank Lloyd Wright
Considering that the ability to walk may be limited for some guests and that the weather can be inclimate in winter, direct vehicular access is provided to buildings.

Cars approach the medical building under a porte cochere, then double back to park in a retaining wall garage. Vehicular access is restricted from the courtyard to enhance the contemplative nature of the program and to ensure good air quality and safety in the athletic fields. The buildings of the front ridge-pool, gym and educational buildings are accessed by foot at their backs and from the side by vehicles.

The second level of the educational building moves out from the courtyard, spanning the road to the northeast. This builds a covered dropoff area. Cars then double back to a parking lot niched into the hill.

The road forks down from here to the amphitheatre and hostel. This terminates car access into the site. One continues along trails by cart or foot to the pond.
road organization

In the rural site, a fork in the road substitutes the urban system of perpendicular streets.
One prong remains continuous while the other moves off.
**Vocabulary**

access; building to building

Orthogonally sited buildings act collectively as a virtual single building, limiting access between. Buildings whose geometry do not align imply access between them. As the shift from alignment increases, access becomes more public.

**Key to buildings**

a. spring house
b. processing building-kitchen
c. conveyor belt-restaurant access
d. packaging building-restaurant
e. storage building-canteen
f. directory
g. farmstand
h. medical
i. bandstand
j. medical laboratory
k. theatre
l. gymnasium
m. pool
n. amphitheatre
o. hostel
Vocabulary

water; direction of movement
When water leaps vertically,
it moves against contours.
When water descends gradually,
it moves with contours.
When the spring house was active, guests were served water from the source by an attendant. One conduit rose to the spring house while another ran underground to the processing plant. Visitors could look on to production from a mezzanine and lobby. The water was bottled here and carried by conveyor belt through a partially underground corridor. The bottles were capped, labelled and packed in cartons in the packaging building. The bottles were then loaded into trucks for distribution, or stored in a building parallel to the packaging plant.

Since the allure of Poland Spring has been the water and its lush surroundings, it seems unfortunate that the
water is restricted to the bottling plant. The point centered spring house precludes an exchange with the landscape. Site organization that would build an exchange between the spring house and landscape and bring water through the site would extend the limited flow into a whole territory of built water. It has historically been popular for guests to complain about "taking the waters" at spas. An early morning shift was reserved for lower class guests for whom the water was prescribed to cure afflictions. At midmorning, the borgeousie took the
waters, often as a mere gesture toward health. Food, drink and raguish behavior to follow undid any therapeutic value bestowed by the water. The precious singularity of the water source dictated that the heathens take its cure.

A range of water forms would provide options for the users to choose their degree of involvement. The least devoted health seeker could stroll along a water trough and take a footbath in a pool.

Brion-Vega Cemetery
Carlo Scarpa
Reference

Continuity from building to landscape develops when an element (water) moves along building into landscape.
Drinking water is confined to the spring house to ensure purity. In the landscape, water runs in channels to order space and widens into pools at stopping places and entrances.

Water first appears outside of the spring house forming a square which abuts the front of the building. Its dimension repeats the twenty foot bay. Water recurs as a trough displaced six feet eight inches from the bottling complex to its entrance into the front of the restaurant. This minimal access dimension is derived from the arch openings of the processing building. The access dimension widens to repeat the width of the building it runs along a square before its end, signalling the water's departure from the bottling complex.

The channel continues at the same elevation until it reaches the courtyard. The length of the channel from the end of the bottling complex to its entrance into the courtyard equals the
length of open space defined by the bottling buildings. A dam terminates the channel. This exhibits a built pool in that it detained the natural inclination of water to fall by gravity.

Water leaps against the contours to a trough at the base of the retaining wall. Partial segments of the running track curve displace in arcs of water to build a minimal return to the courtyard. Two of the arcs continue out against the contours, ending in small elevated pools. They build territories for viewing the track or exercising away from the highly visible track. By building slivers of water against the contours instead of a continuous slip, the continuous direction of the land moves through the courtyard. The water returns to the horizontal direction at the lower edge of the court behind the pool building. This trough hints at the many pools found on the open side of the hill. A twenty foot square pool terminates the trough, marking the entrance to the building.

The pool complex includes two pools at courtyard grade and three below the courtyard. The last retained pool takes on much greater
greater dimensions since it is liberated from the building enclosure. A ribbon of water connects outcroppings at both ends. Depending on the season, one can swim or skate along the contours, with the far outcropping as a destination. This terminates the built water in a square. From here, the water is channelled at grade to the bottom of the hill, where it flows into the pond.

Vocabulary

water; retained
A dam retains water at the edge of the raised level before it plunges to a trough at the base of the retaining wall.
Building Size
The large mass of the approach protects the multiplicity of screens around the lawn.

Villa Mairea

The proximity of the house to the sauna builds the lawn as an outdoor room. Rather than blend off to the bordering conifer forest, the lawn is built with a system of displaced dimensions. What occurs at site size at the University of Jyvaskyla campus occurs at building size in the Villa Mairea.

The full length of the house (B) equals the distance from the sauna to the interior stair (b). The zone between the stairway and the closure is there-
by part of the outdoor room. Two segments \((A, a)\) add up to the length of the facade, with \((a)\) as protruding screen and \((A)\) continuous surface penetrated by the doorway.

"Building cell by cell, the generating principle of biology and culture is a sounder method than striving for a preplanned totality."

Aalto 1949

The width of the interior public zone \((A)\) is generated from one front segment. The resulting square "stabilizes" the public zone. The square is broken with the introduction of the stairway to the upper level. The public zone further continues out
of the square to the foyer and dining room.

The full length of the open space within the house (D) repeats in the return of the stone wall (d). The sauna length (e) reads as a displaced slice of the private wing (E). The length of the face (F) to the lawn is found in the stone wall's extension from the house (f). The protrusion of the screen from the front facade builds the entrance territory (g). Inside, the same dimension spans the dining room (G).

Substitution of wall with columns allows easy movement from access to place.
Reference
Paul Klee
Revolution of a Viaduct

Vocabulary
Individual Recognition
Each arch preserves its own personality with a collective family resemblance.
Receiving Terrace

At the onset of the project, the following options for development were considered:

a/ renovate and extend the existing bottling complex for dining/dietary use
b/ build the edge of lower Range Pond with bathing and boating facilities
c/ build from the bottling complex to the pond edge
d/ build next to the bottling complex

Since the site was suffering from a lack of built continuity, it was decided that the new development would build the eastern slope alongside the bottling complex.

Drinking water is confined to the spring house to ensure purity. In the landscape, water runs in channels to order space and widens into pools at stopping places and entrances.
A story recalled from childhood seems analogous to the departure from singularity in the springhouse.

A little girl who lived at the edge of the woods always wished for fortune. She had heard of a special tree somewhere in the woods. An elf inhabited the tree, where he also performed his craft of goldsmithing. The little girl searched and searched, conspiring to steal the gold. Finally she discovered the small empire, and captured the elf. There was such an abundance of gold, she could not carry it. She would need to go home for her wagon.

But how to recognize the tree?.. She tied her kerchief around the trunk, and made the elf promise that he would not remove it.

She returned in a little while to cart off the fortune. The clever elf kept his word, but also saved himself. Every tree in the forest was tied with an identical kerchief.
The existing buildings would serve as a dimensional resource for new construction. The point-centered structure of the spring house and planar organization of the processing building should transform into a spacial system in new construction, providing spaces to "retreat" within the structural elements, adjacent to (directional) public territories. This would be achieved through the proximity of columns to continuous surface walls, intensifying the containment by structure with "wall beams" and displacement of structural elements in such a way that areas typically packed with structure become use space.

Observations of the spring house and processing building construction display the origin of structural explorations. The form of the
spring house speaks of containment. It is square and capped with a dome. It houses a reception hall separated from the spring room by a bronze and glass plate wall. The structure of the building is a twenty foot square bay with a two foot six inch "slack" dimension between continuous surface marble closure and freestanding columns.

The materials and craftsmanship of the spring house are unique to its turn of the century construction. It should be valued as a historic building. The only alteration to the building itself would be to move the entrance to the side away from the processing plant, opening the front edge to a balcony over a post.

The singularity of the building would be departed from by repeating its dimensions in both new construction and the landscape. The twenty foot bay recurs in the structural systems of the athletic buildings. In the landscape, twenty foot square pools denote changes in direction. The two foot six inch slack dimension also recurs. In an outdoor pool, columns march into the pool to indicate entrance and edge zone. The columns
Column conditions
a) pivotal
b) directional
c) habitable
d) territorial
e) built definition
rest on footings two feet six inches inside the pool edge.

The beams of the processing building measure eleven feet on center with a thirty-six foot span across the building. The arch openings in the facade are seven feet wide with four foot closed segments between them. The twenty foot bay (from the spring house) can be arrived at by adding three six foot eight inch segments, similar to the seven foot arch dimension. The four foot continuous surface transforms to a column which at maximum would be four feet square, and at minimum would be supported by a raised footing measuring four feet square.

The arch opening repeats in the new buildings. Instead of abutting a floor slab, the arch props off the floor by a minimum of one foot four inches. A "spacial wall" evolved from the planar arched walls of the processing building. A head projects horizontally from the column which can support a wall at its end or top. By offsetting the wall from the column, a sense of containment by the wall evolves.
At the Seinajoki Town Hall, the garden is differentiated from the entrance by a berm rising to meet the second level. The street edge builds a columned entrance under the upper level balcony. Low wall height and absence of overhangs at the back build a sunny garden to move out to after familiarization with the interior.
Structural system deployed deployed in generic section.

20 foot bay

entrance at mezzanine below prop into arch

upper level extends beyond lower level to cover entrance.

8 foot four inch space frame props up to admit light into upper levels.

mezzanine level moves past retaining wall at front, sheltering access below and opening balcony to sun.
In the new home for single parents in Amsterdam, Aldo van Eyck transformed the components of the adjacent building which it extends from. The institution wished to change its image to reflect a new attitude. It was felt that residents should not be looked upon as outcasts. Instead, they should be able to integrate with the city. The architecture promotes this social view. The old continuous surface facade is complemented with a new framework structure. Concrete wall transforms to oval columns of concrete that penetrate a glass and metal panel skin. The pediment capping the old building repeats in partial circles in the new building’s plan. The new fenestration borrows an arc from the pediment. In the curved glazing, rectilinear panes, coupled and tripled, repeat the dimension of the old building’s single windows.
To mimic the building would have been anachronistic. The buildings have similar dimensions, forms and materials while maintaining individual characters.

"For thirty years now, architects have been building outside instead of inside, but that is not their job at all; their job is to provide inside even if it happens to be outside."

- Van Eyck 1962
The same approach taken at site size in the running track is applied to the gym. Spaces to "retreat" into, beside and above the basketball court, provide the user with the opportunity the option of detachment or involvement to the user.

The structure is deployed to indicate zones ranging from containment at the ground to openness in the "roof zone".
The gymnasium is sited on the ridge, building a return to the athletic field before the slope descends abruptly. Similar dimensions repeat in the lengths of the gym, running track and playing field. The repetition of dimensions allows the track to "belong" in the site, rather than overwhelming the buildings it neighbors. The width of the track, along with the adjacent "grandstand," wide access at the back of the court, and minimal access at the back of the pool building collectively define the open end of the courtyard. By displacing the track from the back of the gym, the slack space for the playing field develops.

A road, primarily for emergency and delivery vehicles, approaches the lower level from the north. A covered walk-way extends from the pool building to the entrance of the gym.
an access mezzanine at the back of the building overlooks raquetball courts below. Stairs follow the building direction. Beyond the stairs, the access widens into a public territory serving as a woodchop-
ping area in relationship to the saunas at the lower level. Its sides are defined by the masses of the stairway and bathrooms that border the end of the access at entry level.

The stairs lead down to the lower level where raquetball and tennis courts and outdoors, saunas and a pool, are entered. This level takes the form of fingers, moving toward the pool. As the design evolved, the saunas moved away from the building to define outdoor space. and

Access at the lower level is wide for ongoing circulation.
a band of light illuminates this circulation where the mezzanine recedes from the closure. Off the main access, local territories provide gathering spaces for groups of two and three courts. The stair moving up from the access mezzanine leads to the basketball court. Since the basketball court required an eighty foot clear span, the depth of beams is six feet eight inches. This repeats the depth of the arches in the processing plant. The beams supporting the main level are steel reinforced concrete. Above the main level, the
Vocabulary
Elements extend beyond their region of concentration in a smaller capacity.

Blackman House
Maurice Smith

Reference

beams lighten into three dimensional trusses, with the same depth and breadth.

The concrete beams developed into "wall beams" to emphasize the cavernous nature of the fingers at the lower level. Columns join beams in a continuous surface, with openings for passage. The wall beam rises up into the gym near the back, extending the ground form above grade. This acts as a node to move around, defining an entrance into the basketball court while also building a territory for stretching and warming up.
The front of the gym extends outdoors to the south. A slip leads to a square platform over the pool, in the nature of a boardwalk. This allows the opportunity for an outdoor break from exercise. The edge zone of the swimming pool below is sheltered under its cover.

The roof zone becomes a habitable place by the displacement of trusses. A spatial relationship ensues between this level for dance, yoga or meditation and the main level by receding the floor slab from the front closure allowing one roof to pass over both the upper level and part of the gym. The trusses terminate at the front in boxed windows generated by reversing
valley view that was blocked from the courtyard by the gym is regained from the deck. Roofing is hung from a truss behind the building, decreasing the headheight to a more intimate scale for outdoor access.

**Vocabulary**

light admittance
glazing substitutes roof at edge, allowing light to penetrate into the building.

**Reference**

Public Library, Rovaniemi, Finland
Vocabulary

Range of containment

Elements have a life of their own.
are autonomous

Ground form

Water

Columns

Walls

Roofs

etc.

can extend beyond the elements
they define

As a departure from volumetric containment, this building method defines a range of enclosures.

one truss segment over the end of the truss. At the front of the building, the flat roof over the truss is a deck accessed from the upper level. The upward projection terminating the truss gives containment to the deck. The
Vocabulary

Roof depth
Depth of space frame is displaced dimension of arch, or habitable head height.
Reference

excavation showing ruins at Bath, England.

Vocabulary

water  reciprocity
ground

When ground form projects above grade, it builds an entrance into water.
The pool is sited at the south end of the ridge. It recedes from alignment with the gymnasium to allow a view and southern exposure at the end of the gym. The pool building shifts in angle from the gymnasium to register with the curving contour. The width between the buildings equals the width of the pool building. Initially, the building was placed its own dimension away from the gymnasium, opening the courtyard to the downhill view. The building ends approached each other, limiting access and view to the lower level. This terrace for access to the outdoor pool and saunas should be a "discovered reward" after exertion.
Vehicular access is limited to delivery and emergency vehicles, at the rear south. The pedestrian access leads in at the rear north. An entrance territory is defined by the placement of an equipment shed away from the check-in block. In fair weather, one can correspond with an attendant from outside. The entrance leads in with the direction of the building, overlooking the pool.

The width of the corridor is generated from the added widths of stairs leading up to locker rooms and down to the pool, continuing access

**Vocabulary**

Sloped site access
Building is approached from the uphill side. The options of moving into the building or continuing along the terrain are parallel. Inside, there is an overview of the lower level, as from ridge to valley.
and a slack dimension off the access. Circulation continues through the building to an outdoor pool.

The organization is similar to a double loaded corridor. The back side is massed with check-in block, whirlpool, private baths, and bordering the access to the outdoor pool, mechanical and equipment storage. The front of the corridor opens to an unobstructed view over the pool.

The massing of the building is long and solid at the back. The front is shorter to admit southeast light and build outdoor "coves."

An exchange between ground form and sky is activated in the pool building through raising masonry walls at pool edges and straddling circulation with "fingers," and by slipping roof planes, allowing light to filter through trusswork.
The building is structured with twenty foot bays, transforming from piers at the back to slender double columns at the front. At the upper level, three fingers move out perpendicular to the building. The two larger fingers house locker rooms. One passes over the outdoor entrance territory, introducing building enclosure. Columns supporting this finger set into the water to define an edge zone for the pool. The other locker room finger moves out over the end of the access and straddles the closure, providing
Vocabulary

Recede the upper level from the front closure
a) to increase the penetration of light into the building.
b) to build an interior spatial relationship between upper and lower levels. The lower level is defined as most public through visibility from upper level and higher ceiling.

Référence

Tuberculosis Sanatorium, Paimio
shady cover at the end of the outdoor pool.

The third finger extends from a lower mezzanine level. It builds a virtual entrance after arrival functions (foyer, check-in counter and stairs). This finger is a double beam which displaces to form a raised corridor leading to a hot tub.

The access is directed around a semicircular opening to the pool below after passing under the "corridor beam". An alternate route to the lower pool moves from the pool at the access level to a slide.
Vocabulary

Pools
When pools are built at different levels, the retaining wall becomes a double sided continuous surface. One side contains upper level pool. The other side defines territory of lower pool.

Reference
Swimming pool,
University of Jyvaskyla
curving around the circular end of this pool, swiftly delivering swimmers to the lower pool.

Vocabulary

A circular form infers containment inside and movement around its edge.

Reference

Aldo van Eyck

The Wheels of Heaven
Climactic Response

A brief exploration of passive solar gain was taken for the pool. Heating the extensive volume of water would be too costly with mechanical heating alone. An extrusion of the optimal solar 60 degree angle limits the admittance of light to a single plane and can give a fierce image to a facade. Double glazing could be displaced to become volumetric, with a vertical plane of glazing above the sloped glass roof. Alternatively, the truss system can support one pane of glass on its outer edge and another on the inside edge.

"But we are all governed by traditions which belong to climate, natural conditions and with those tragedies and comedies in which we have taken part."

Aalto 1967
Pool edges can act as trombe walls where they rise above ground. A space between glazing and the wall can range from minimal to a habitable access dimension. The high temperature of the trombe "wall" would be welcomed, briefly, in circulation leading from a cold plunge pool outside back into the heated pools.

The intent of passive solar systems is to contain heat in a building. While this is a critical issue for northern climates, this thesis is more of an exploration of the exchange between inside and outside space. The direction then taken was to develop outdoor space for seasonal use variation. The largest pool is outdoors. Its use would vary from swimming in the summer to skating in the winter.
When the continuous direction of the land varies from the optimum solar orientation, the foundation can run with the contours, while they sky zone faces the sun.
The theatre is the most "cave-like" structure at the site. The stage dimension reverses in light in an outdoor "lobby" off the courtyard.

The building pivots from registration with the contour at the curved edge to pass over access at the far end. The curve offsets the athletic field from the treatment cluster.
Reference
Aalto
Lecture Hall,
University at Otaniemi
The Winter Night

As night drew on, and from the crest of wooded knolls that ridged the west, The sun, a snow-blown traveller, sank From sight beneath the smothering bank, We piled, with care, our nightly stack of wood against the chimney-back, The oaken log, green, huge and thick, And on its top the stout back-stick; The knotty firestick laid apart, And filled between with curious art The ragged brush; then, hovering near, We watched the first red blaze appear, Heard the sharp crackle, caught the gleam On whitewashed wall and sagging beam, Until the old, rude-furnished room Burst flower-like, into rosy bloom; While radiant with a mimic flame Outside the sparkling drift became, And through the bare-boughed lilac tree Our own warm hearth seemed blazing free.

John Greenleaf Whittier
The post treatment repose area supports informal gatherings, inside in a hostel, and outside at an amphitheatre.

The hostel is sited into the hill to provide grade level access for all floors. The main entrance is approached through an "outdoor room"—an excavation of the hill retained by a six foot garden wall. This area is intended as a maintenance area for bicycles or skis and for woodchopping.
Habitable ground
To build a positive relationship between landscape and a space whose floor slab falls below grade, the ground can be excavated next to the building. Then, an outdoor room is contained between the building and retained ground which the interior space extends out to.
All praise be yours through
Brother Sun,
All praise be yours through.
Sister Moon,
By Mother Earth my Lord be
praised,
By Brother Mountain, Sister
Sea,
Through Brother Wind and
Brother Air,
Through Sister Water, Brother
Fire,
The stars above give thanks
to thee,
All praise to those who live
in peace.

Canticle of Brother Sun
From Earth Mass
Paul Winter Consort
10/83
Conclusion

Movement systems in the rural site relax from the tight restrictions of an urban environment. However, vocabularies remain necessary, though of a different nature, to actuate the landscape into a "built" territory. The primary rule is generated from the direction of the land. Since the magnitude of the site exceeds the build development, buildings should establish a directional field along the contours. Once the field is well established, the opposite direction can be developed to define local territories.

Admittance and transformation of landscape elements into the building along does not satisfy the criteria for making a whole environment, inside and outside, positive use space. Particularly in a cold climate, fragments of containment must extend from their region of concentration to provide shelter in the landscape.

Town Hall,
Seinajoki, Finland

"Northern climate that requires clear separation between the warmer inside spaces and outside has become a stumbling block to the architect...the garden (courtyard) belongs to the home just the same way as any of the rooms. Let the step from the herb garden be a much smaller contrast than from the street or road to the garden...a Finnish home should have two faces."

- Aalto
"Man is an integral part of the environment, and it can only lead to human alienation and environmental destruction if he forgets that."

The approach of building slack adjacent to public territories is not a building "type" restricted to alternative health facilities, but a building method which, I feel, can be extended in part to all building which respects the imperative need for individual choice.

It may appear atopic to remove a health facility to a rural setting. However, I maintain that the effort made to leave one's environment and to focus exclusively on relaxation and health is more likely to leave an enduring impression with the user than local "quick cure" treatment would, where the user is too easily tempted to resume old habits.
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