In Search of Order:

The Transformation and Re-use of Midwestern Grain Elevators

by Ronna J. Fibikar

Bachelor of Arts in Architecture Iowa State University, Ames, Iowa, 1985.

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 January 1990.

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Signature of Author

Ronna J. Fibikar Department of Architecture 19 January, 1990

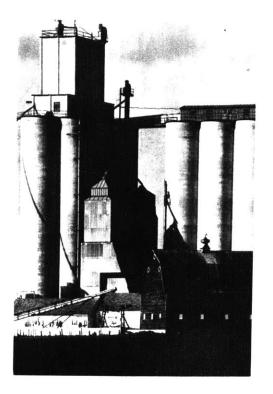
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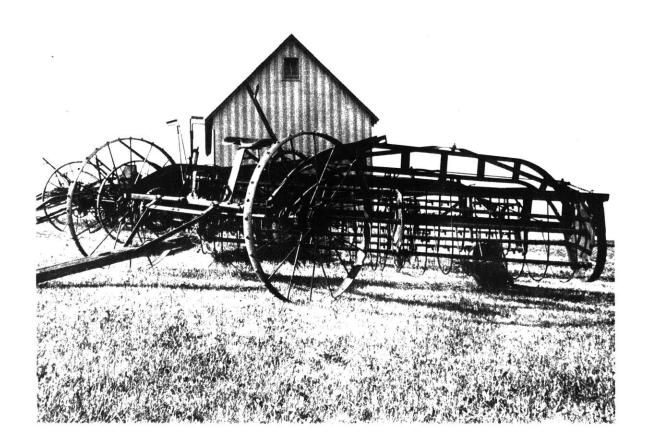
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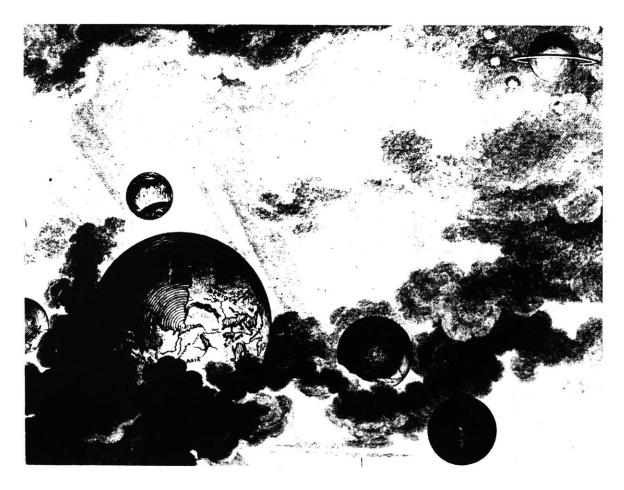
for my family

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"Two things will never stop threatening man-order and disorder."

Paul Valéry

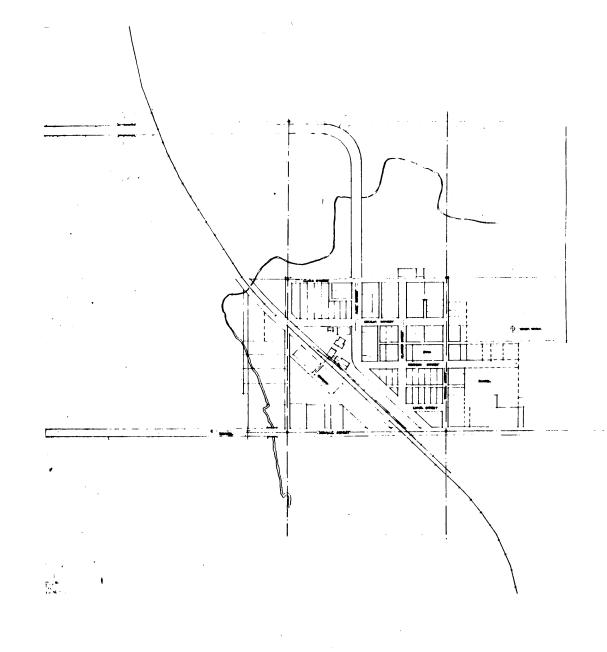
Abstract:

We filter the reality of the world through our perceptions, gaged by memories of past experience. It is the task of art, and therefore architecture, to bring us closer to the reality of the world--to somehow raise our level of awareness. Through the abstracted situations an artist creates, we are able to experience aspects of the world in a way that changes how we see the reality of 'things'.

To the non-native, Iowa is experienced mainly by driving across it on Interstate 80 on the way to Chicago or somewhere else. It appears (like its surrounding neighbors) as merely flat farmland, absent of landmarks achieving definition only through the use of something applied and unwavering--the one mile square grid. But, in fact, Iowa is a place layered with a multitude of more subtle orders.

The object of this thesis is to define these existing orders by describing the patterns forming layers that distinguish lowa as a place. Places are locations with a particular way of life reflected in the built environment which expresses the inhabitants' relationship to the world. These understandings will then be used to guide the transformation of this existing order into a new logic. The architectural project involves looking at a particular building type--the farmer's co-op elevator--to determine its formal qualities and transform it into an alternative use type without diminishing the physical or social patterns of structure which presently order the place.

Thesis Supervisor: William Porter Title: Leventhal Professor of Architecture and Planning Head, Department of Architecture



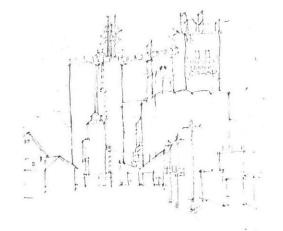
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Farmer's long Elivitar Wasterter 3. Aug - 81

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Acknowledgements

My thanks begins with the still thriving Farmer's Co-operative in Woolstock, the State Historical Department and Bill Cochran for sharing their expertise at the start of my search. I would also like to extend my appreciation to the other lowans who contributed, especially Doug Frey for lending an ear.

I am grateful for the diversity of opinion provided by the M.I.T. faculty in Bill Porter, Imre Halasz and Jim Axley, and also the students--especially the support of Mike Heffron and Mike Wolfson.

Most of all I would like to thank my family and Noel Brady for their patience with a struggling thesis student prone to anxiety attacks. This work could not have been completed without their understanding.

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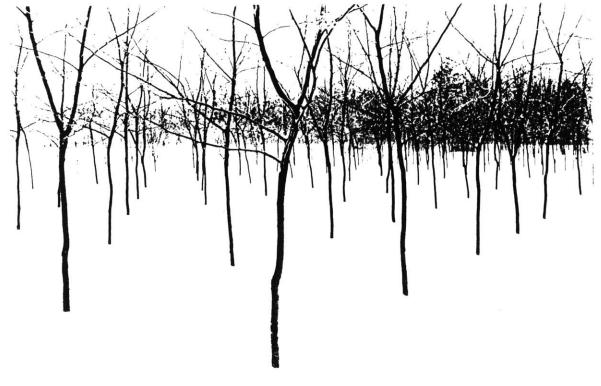
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"Even in early youth, when the mind is so eager for the new and untried, while it is still a stranger to faltering and fear, we yet like to think that there are certain unalterable realities, somewhere at the bottom of things. These things may be ideas; but more often they are merely pictures, vivid memories, which in some unaccountable and very personal way give us courage. The sea-gulls, that seem so much creatures of the free wind and waves, that are as homeless as the sea (able to rest upon the tides and ride the storm, needing nothing but water and sky), at certain seasons even they go back to something they have known before; to remote islands and lonely ledges that are their breeding grounds."

Obscure Destinies Willa Cather "Art is the oldest and richest inventory of man's perception and comprehension of nature. It is the poetic image of what man has felt the universe to be and how he gradually became friends with different layers of materials and different layers of situations...Art brings together the work of nature and the work of man."

Words

Frederick Sommer



Introduction: On Order

We as a common people strive for, along with the most basic needs to survive, a clear understanding--an ordering--of our relationship to the world between earth and sky. An order is a system of recurring patterns which form a logic that guides the behavior of things in their relationship to one another.

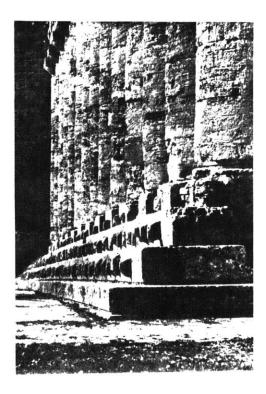
There are natural orders and man-made orders. Natural orders are made up of the unconscious behavior of natural elements, from the structure of a single atom to the structure of the universe and beyond. Each ordering system belongs to a larger pattern and contains within it more intricate patterns, all intertwining to form a unified composition. People create different orders that help them to understand their position in the pattern of the world. Their orders are constructed consciously from perceptions which grow out of experiences and aspire to the appropriateness of the natural orders in the places where they dwell.

Religion, science, and art are ordering systems people employ in seeking to explain their observations of the patterns they perceive in the world. The difference between them is not in their larger goal, but in their methodology.



"Mother said that the true creator was the one that planted the seed and let the weather determine the crop, writing about that is illusion... it's like life, but it isn't life. The arts bring experience to an end, rounds it out and finds the pattern."

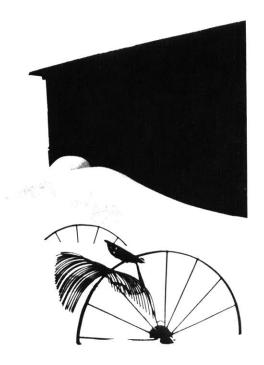
Interview James Hearst



Religion claims that the world is too complex to comprehend and creates a new frame of reference separated from the world in an effort to simplify it. Science grabs on to aspects of the world, hypothesizes about what they might be, and through analysis and experimentation breaks down the whole into manageable parts--explained in model form. Art begins with an idea, inspiration, insight or notion and moves toward the concrete--the artifact--adding complexity as the understanding is widened through experience.¹

Art, including architecture, attempts to heighten our awareness as a means of understanding our position in the world. An artist does not create a direct model of the world, but a situation where the viewer is moved to perceive an aspect of reality in a different light--the perception changes, but the reality of a thing stands as a truth and cannot be changed. The audience becomes aware of something not seen before. The understanding of a place (or a world) grows out of these essential experiences.

Because art and architecture are man-made creations, they involve a conscious act which is subject to reason or theory. This thesis is based on the idea that reason and theory are, in part, produced by our memories of past experiences. Only through experience can people perceive or become aware of the environment; and only through this awareness can they form an understanding--an ordering--of the world in which they live. It is our capacity to perceive order that allows for our growth through transformation. The purpose of this thesis is to define the patterns that explain a particular way of life in a specific location--a place. Through determining the order that presently exists in a place, we are able to build upon these perceived patterns and create an enriched environment. It is the goal of the architectural project to stimulate new possibilities for interaction through a heightened awareness of the world by identifying the existing order (which is in itself a transformation of ourselves), and to bridge between our own experience and reality.



In the short story Last Man Home the Norwegian writer Tarjei Vesaas tells about Knut, a youngster who is out in the forest to fell timber...

The forest discloses itself. His own place is revealed. This is an important day for a human being. Therefore Knut becomes "last man home." The others leave, but he has to remain to see "how the great forest prepares itself for the night. To see how the darkness leaks out of the ground, from the sky, from the horizon. He is spellbound. He does not know what has happened to him, but he feels that he has to remain in the forest his whole life--if his life should be right and true...And still there is nothing which makes this evening different from the evening yesterday or the day before...Yesterday it was the same. And the day before. And last year. And when father was young, the forest was the same. But tonight it is something new for Knut. Tonight he senses everything as it is: a great kinship. He has grown out of these hills and valleys and the flowing water...Tonight the mind is open like a bowl."

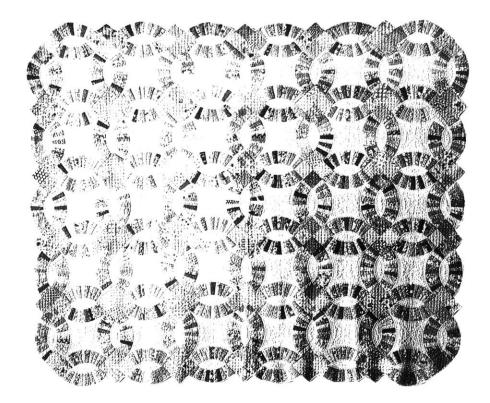
To dwell in the qualitative sense is a basic condition of humanity. When we identify with a place, we dedicate ourselves to a way of being in the world. Therefore dwelling demands something from us as well as from our places. We have to have an open mind, and the places have to offer rich possibilities for identification.

The Concept of Dwelling Christian Norberg-Schultz

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"I found the poems in the fields and only wrote them down."

> John Clare 1840



Place:

One of the worlds that I know best is located between the middle borders on a vast expanse of rolling plain bounded by the Father of Waters and the Great Muddy²...

It is, like any world, made from a system of orders which build layers that begin to speak about a particular place. These layers work in the same manner as the quilts my grandmother and great-grandmother used to construct, cutting shapes of material from old dresses, each a different pattern...a different memory. When these pieces are put together they each define smaller patterns beneath the structure of the quilting stitch--unnoticed unless one looks carefully.

The following pages contain efforts to make concrete some of the memories that represent the pieces of material in a quilt [layers that order the place] where I spent my childhood.

..."I-o-w-a, this is the place...beautiful land."3

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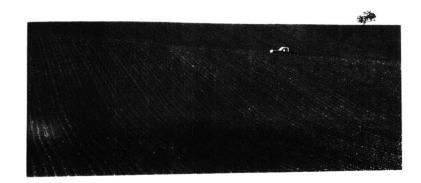
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No one who lives here knows how to tell the stranger what it's like, the land. I mean the farms all gently rolling squared off by roads and fences, creased by streams, stubbled with groves, a land unformed by the mountain's height or tides of either ocean, a land in its working clothes, sweaty with dew, thick-skinned loam, a match for the men who ride it. It breathes dust, pollen, wears furrows and meadows, endures drouth and flood, its muscles bulge and swell in horizons of corn, lakes of purple alfalfa, a land drunk on spring promises, half-crazed with growth--I can no more till the secrets of its dark depths than I can count the bushels in a farmer's eye as he plants his corn.

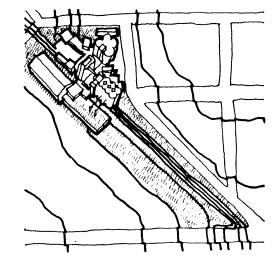
James Hearst





Iowa was once under the sea, near the equator, a pine forest. A million years ago, the Pleistocene glaciers began to form. As snow failed to melt in the summers, each winter increased the size of the compacted ice and a glacier was eventually set into motion. As it moved it became a rasp, a saw, a file. Sand, gravel, and boulders frozen into the bottom of the ice moved over rugged hills and were broken into fragments. These pieces then acted on the following hills grinding them down. Sometimes a gigantic boulder was left behind, intact, bearing scars parallel to the movement of the ice.

Each of the glaciers left its mark in rolling hills, soft undulating land. Ridges were left on the surface as long fingers stretching down from the north. As the ice age drew to a close, the climate became moderate and plant life revived. The accumulation of prairie and woodland plant litter, root systems, and organisms have all contributed to the transformation of raw glacial material deposits into rich soils.⁴ Rivers, bearing strong north/south orientation, wind down between the ridges. Deciduous trees line these rivers, marking their location. Nothing reaches very far above the earth, the eye sweeps across the prairie unhindered, the horizon becomes a bowl, the sky a tent.



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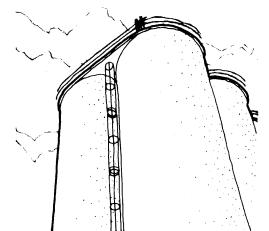
"Above us the sky, so clear and deep blue as I have ever seen it, such a timbre about that color, I had the constant impression of the sky as a vault, a tremendous blue-painted dome"

Asplund Erik Gunnar Asplund



The sky stretches above the horizon. We disappear in its vastness, deeply feeling both our insignificance and our belonging at the same moment. Ever changing skyscapes, unlike static mountain scenes, are alive and often catch us unaware. Heavy clouds may press down upon us as we work; we feel our connection with the earth. The farmer knows to watch the horizon continuously for changes in the weather. Lines on foreheads speak of the rain that came too soon, or didn't arrive at all. Yet every change in the weather is accepted with a sense of calm that comes from knowing nothing can be done to control the element's whims. The wind and rain are there or not there.

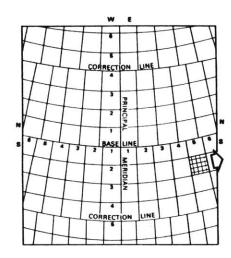
The people who live by the land are influenced by nature's cycles. In lowa, even the town people know the importance of the weather to their livelihood. The amount of daylight determines the number of work hours; the seasons are the gages which determine what tasks need attention. The sun rises; spring is the awakening. Every last ray of summer's light is utilized to accomplish the workload. In the fall, the planted crops burst into color celebrating the season of the harvest. Winter is for resting; the sun sets early. The lightening bug's twinkles answer the stars.





"There shall be orderly division of the land..."

Land Ordinance of 1785

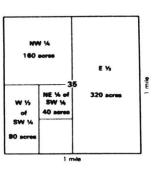


TOWNSHIP 2 SOUTH, RANGE 5 EAST (T.25, R.5E)

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7	8	9	10	11	12
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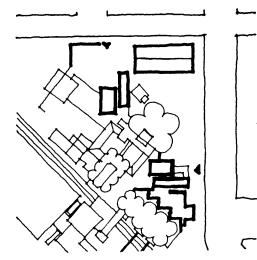


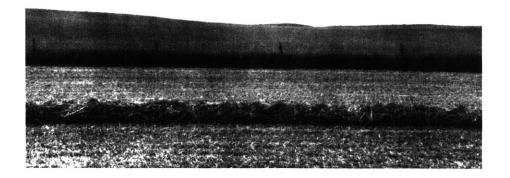
1 link = 7.92" 25 links = 1 rod 100 links = 1 chain or 66' or 4 rods 80 chains = 1 mile or 5280' or 320 rods 1 sq. mile = 1 section 36 sections = 1 township



Jefferson believed that the way to protect the democratic system was to give each citizen a particular responsibility.⁵ This responsibility seemed to translate directly into land ownership. In 1785, the Federal Land Ordinance created an abstract system of ordering the land for expedient surveying and parceling that was applied to all of the United States west of the Appalachians. Although politics determined the final borders of states, the grid-iron system set up by the ordinance was used for further divisions: the county and the township. Each township was numbered with reference to a baseline and a principal meridian and subdivided into thirty-six sections. Sections were measured by chains, rods, and links.

These parcels were then numbered...I spent my childhood on the eighty acres described as the S 1/2 of the SW 1/4, section 12, township 85 north, range 26 west. The gridiron system of land division had a great effect on the population-directions no longer referred to people [right and left], they were adapted from the abstract system. My grandmother directed people to things in her kitchen by using the cardinal references, "They should be in the north cupboard on the east wall just to the south of the dinner plates."





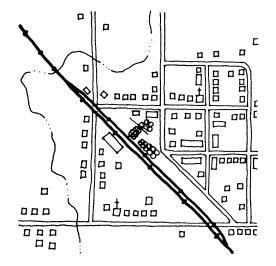




"The Toledo & Northwestern tracklayers reached Woolstock depot Saturday afternoon, and the smoke, as it issued from the mouth of the majestic 'fire hero,' may be seen for miles around and the clang of hammers and buzzing of busy workman show each and all to be men of business qualities."

History of Wright County, Iowa Birdsall, Editor The 18th century provided lowa with a system of ordering the land for settlement which 19th century progress disregarded. Railroads paid no attention to the established grid system, they chose the path of least resistance for their tracks--along rivers that naturally found paths of little grade change. The railroad companies became all powerful, they determined the fate of every existing town in the state by the lay of their tracks. People lobbied heavily to have the trains run through their communities; rail lines were extended and slashed through the more fortunate towns. The coming of the railroad meant people were finally connected to the rest of the country and farmers were better able to transport their surplus grains to markets in the east.

The hopeful business climate did not last--the rail companies moved too far in their desire for more profits, farmers eventually united to break their monopoly. Many wealthy companies went bankrupt, and others could no longer afford the passenger services. One community in Iowa is now attempting to revive the memory of trains that once dominated the landscape by re-establishing a small length of passenger rail. Recently they bought the last steam engine to be made anywhere in the world, built by a Chinese factory now converting to diesel.





"And if not skies, the wind or the vagaries of the weather remind. Nature is everywhere and barns and silos and windmills or fenceposts are the only anchors for the eye and the mind."

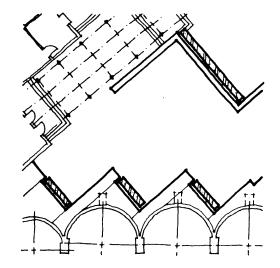
The Heartlands "Windmills" Susan Strayer-Deal





Before there was an organized road system, people followed paths along the ridges attempting to stay clear of the mud. A proper system was needed at the turn of the century when the invention of the model-T made automobiles available to the masses. The state could not afford to buy up vast tracts of land in the same manner as the railroads, therefore the road system had to be inserted in between properties already owned by the people--each owner giving up a strip of land at the section line. Thus we have the one mile square grid, once an abstract ordering system, invisible but for fences, made visible to the eye. Only the rivers had the power to disrupt the grid's relentlessness.

Other systems man added to the landscape follow the roads. With the delineation of roads and ditches for drainage, came new fence rows marking off people's properties. The invention of electricity and telephones brought a need for a method of suspending wires that reached out, connecting all the farms. Equally spaced telephone poles reinforced the grid lines and set a new rhythm, longer than that of the fence posts but shorter than the lengths of fields which make up the sections.





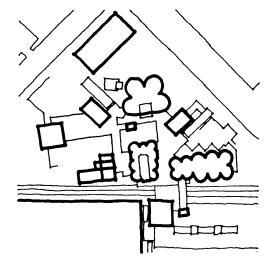
"I have merged, like a bird, with the bright air."

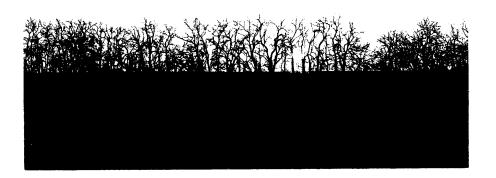
The Abyss Theodore Roethke



Farmsteads sprinkle the landscape, with houses and their out-buildings letting the sky touch the earth in the distances between. They stand rigid against the pull of the earth. Buildings are painted white or red to relieve the eye of green in spring and summer--in winter the white buildings disappear. An informal dialogue exists between the farm structures, their positions being determined by work routines, even though their orientation rigidly follows the cardinal directions. Each is built for a particular function and named likewise: chicken house, milk house, machine shed, corn crib, grain bin. The great wood-lathed barns, hold hay and winter the animals in the severe climate. Buildings and names sometimes outlive their original functions and are recycled--tin cans were stored in the milk house waiting to be hauled away and old machinery parts in the hog house; the chicken house became a woodshop.

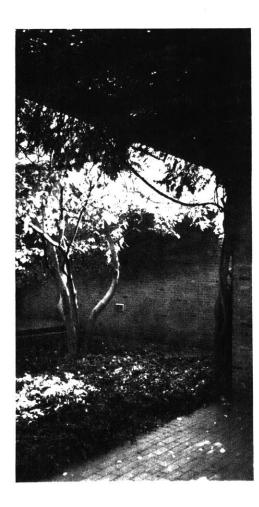
Farms support the towns which are marked in concrete by their grain elevators and named by the letters painted on their water towers. The business districts are either arranged about the courthouse in a town square, or more commonly along a strip--main street. Churches and schools sit prominently within the neighborhoods. Houses are built leaving each other room for gardens and lawns meticulously kept by their inhabitants.





"...the garden is a personal gathering of nature, and the room is the beginning of architecture."

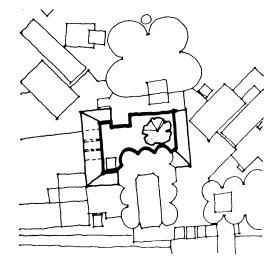
Between Silence and Light Louis Kahn





Trees not only mark the rivers, but the towns and farms. Groves are planted as protection from the wind that builds speed as it travels across the open prairie. Pines and Honeysuckle often line the north edge of houses while deciduous trees are dotted about between the buildings. Maple, elm and mighty oaks give shade at a grand scale. My sister and I used these as tree houses with nothing more than a few ladder boards nailed to the trunk and our imaginations as definition. One house had a seat in the crotch between two branches that the tree had accepted as it's own, growing bark over the ends and holding them close.

My grandparents had fruit trees along the vegetable garden's edge...cranberry, cherry, pear and apple were all made into pies. After harvesting a small crop of carrots, or peas, or beets, or cabbages, or tomatoes, or potatoes, or stringbeans, or lettuce (or others according to the season) grandma would seat herself on a metal lawn chair under one of the trees. This was the stopping point, the resting place. Here, enjoying the breeze coming up from the south and keeping a sharp eye on the road in case a neighbor passed, she would peel, shell, slice or snap the vegetables. The chair was turned over when not in use to avoid the rain that *might* come.



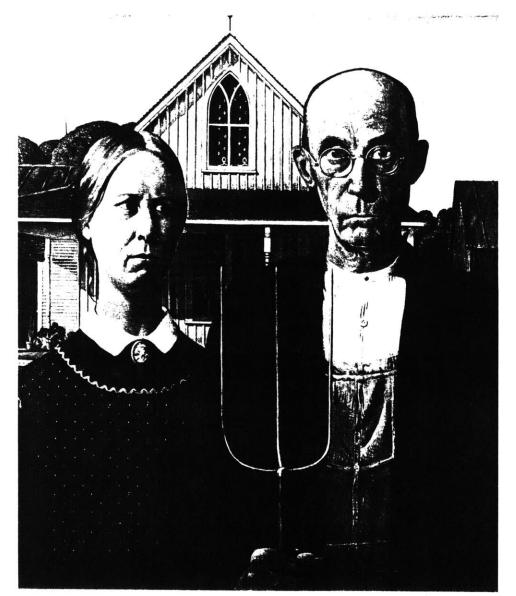
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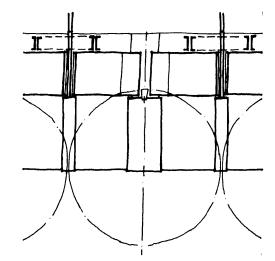
"He was to work in the garden, where he would care for plants and grasses and trees which grew there peacefully. He would be as one of them: quiet, openhearted in the sunshine and heavy when it rained...Plants were like people; they needed care to live, to survive their diseases, and to die peacefully. Yet plants were different from people. No plant is able to think about itself or able to know itself; there is no mirror in which a plant can recognize its face; no plant can do anything intentionally: it cannot help growing, and its growth has no meaning, since a plant cannot reason or dream."

Being There Jerzy Kosinski

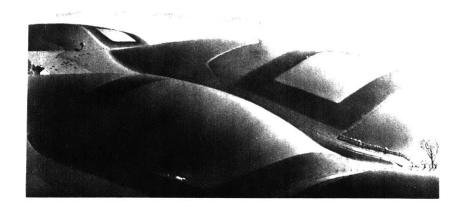


The people between the middle borders seem to take on the stability of the landscape. In a place where everything can be seen coming from a great distance, there is no need for obvious display. Farmers move as though they are afraid of wasting motion, energy they might need later. Acknowledgement of another farmer, passing vehicles, may be nothing more than the lifting of an index finger from a steering wheel. My father's directions contain landmarks just as subtle: a four-way stop, the tree past the second gate, the corner where something *used* to be. Little is given away in facial expressions, 'How are you?' is replaced with 'It's been hot lately.' No one speaks of themselves, reveals any emotion; even close friends are kept at an arm's length.

My grandfather's brother, Frank, grew up farming land which was all located within one square mile. His favorite place in the summer was the east side of my grandfather's house. We often found him in the afternoon sitting on a metal lawn chair in the shade, contemplating the view. If we would hang around long enough, he would slowly rise and pick out a four-leaf clover. Silently, he would hand it to one of us; if one paid close attention a hint of a smile could be found more in his eyes than in the corners of his mouth.



...





"A backyard is a novel about us, and when we sit there on a summer day, we hear the dialogue and see the characters."

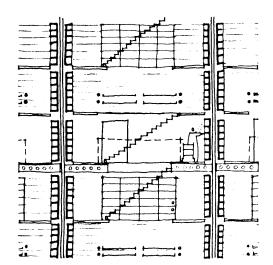
Leaving Home Garrison Keillor



We Called

Story-telling is a way to pass the time on hot summer days sitting in the shade with tall glasses of lemonade on ice, or in the winter after a round of cards; no one minds that they are repeated over and over. To get just the right timing one needs practice--my grandfather can make us laugh even though we already know the jokes, many but a single line. The stories told have no thrilling climaxes or morals in the end, they are merely descriptions of people and landscapes and situations told in the midwestern tone--with a shallow lilt that matches the rolling landscape. Pauses are drawn out enough to let slow summer breezes carry faint sounds of rustling corn up from across the gravel road. The audience is left to gather any meaning on their own.

My grandfather's brother Henry was a barber of the old school, spinning tales as he trimmed around the back and about the ears. When he retired he took up oil painting through a beginner's course taught at the local YMCA. It was as though he had to find a way to document the thoughts that guided the stories for the now more rare audience that his customers had provided. He painted memories of places he had been and landscapes of what he knew. He painted his dream--a garden with the plants in full bloom and the swing tree and Aunt Ann waving from the back porch.



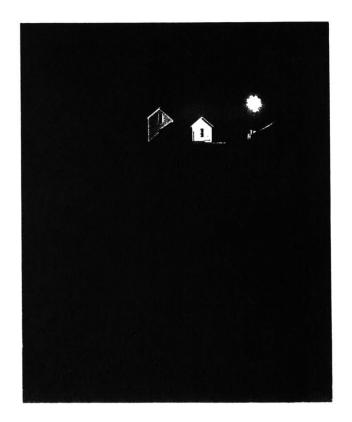
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"A culture is not a collection of relics or ornaments, but a practical necessity, and its corruption invokes calamity. A healthy culture is a communal order of memory, insight, value, work, conviviality, reference, aspiration. It reveals the human necessities and the human limits. It clarifies our inescapable bonds to the earth and to each other. It assures that the necessary restraints are observed, that the necessary work is done, and that it is well done.

A healthy farm culture can be based only upon familiarity and can grow only among a people soundly established upon the land; it nourishes and safeguards a human intelligence of the earth that no amount of technology can satisfy or replace."

The Unsettling of America Wendell Berry



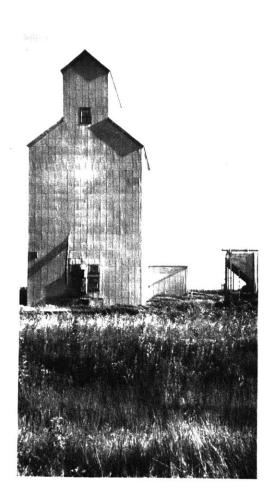
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Situation:

lowa has always dealt with the distances between in some manner; farmsteads are separated therefore people are separated. Efforts to overcome poor road systems, improve the means of communication, and maintain the quality of education have attempted to mediate negative social consequences of rural isolation. Technological advancements helped progress these efforts; the invention of the model-T (an affordable car), telephones, radio and television broadcasting, and the consolidation of the school system. But is seems that even with these technological advancements which seemed to solve isolation, there is a vital dimension missing in our lives.

It used to be that grain elevators were never more than twelve miles apart, which meant that a farmer could haul a load of grain to the elevator in an afternoon. When transportation improved and farming became mechanized, the distances between grain elevators increased. As elevators grew farther apart the cost of transportation, which was negligible when the energy for a team of horses was produced on the farm, became elevated because the farmer had to buy or rent a truck. There were suddenly two markets standing between the farmer and his profits, neither of which he controlled.

Farmers began with a nurturing instinct that guided their motives to produce; the husbandry and utilization of the land were in balance. When control of



production costs were lost, farmers found themselves under the industrial compulsion to produce--a force foreign to agriculture in its purest form. The demand to produce more left less time to adequately care for the land; nutrients were depleted and the need for fertilizer added to the costs. Their own efficiency caused prices at the markets to fall as the cost of production became inflated.

Eventually, the only way to produce more grain for more profit to meet their growing debits was to invest in more land. Bigger tractors were then required, which were more expensive to maintain and only increased the need for more produce. This left even less time for farmers who were now unable to grow a garden or keep livestock for the family's use. Elevators became specialized in grain storage--including new high technology methods of drying needed for grains harvested earlier by more advanced machinery. The farmer's grain was no longer milled into flour at the elevator. Farmers and their families were forced to become consumers, "the economic bond servants of the market, which they continued to supply with an abundance of cheap food."⁶



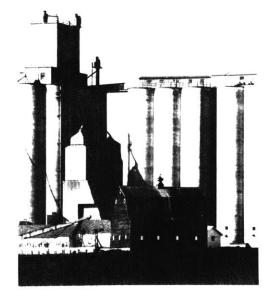
As the size of farms and elevators increased there was less work for the people, who began moving to the cities; the people who remained lived farther apart. Smaller towns no longer had adequate populations to support their business districts and many communities vanished in the same manner as the smaller farms and elevators disappeared. This put even more pressure, on

those farmers who were left, to produce--at greater costs in land, fertilizer, machinery, taxes and interest.⁷ Between 1970 and 1980 land prices increased nearly five fold. In the last decade these pressures came to a head when the price of land dropped by nearly sixty percent, largely due to inconsistent government policies.⁸ The banks that loaned farmers money according to land assets were forced to foreclose when the farmers could no longer make the payments; corporations gained control of the land.

The cycle in which farmers are presently trapped cannot continue indefinitely. The trail of destruction it leaves does not consist only of eroded lands and the farms and towns they support--our very lives are also left standing in the weeds. This thesis is not a plea to bring back the family farm; the demise of the farmer's elevator is the demonstration of a problem which has a broader scope than rural America. The base of the problem lies in the dimension of the world in which we now live. The structure that presides over most of America presents a framework that does not allow the more intricate layers of particular places to survive. It operates at a dimension beyond the scope of individuals or places. When we lose sight our position in the greater structure, we are no longer able to perceive the effects of our actions. It becomes easy to behave irresponsibly when we believe our actions have no effect on our own lives.







Townspeople slowly escort an 85-foot-tall grain elevator down a Pella street to the elevator's new site.

Grain elevator worth watching when it rides along Pella streets

Elevators were built as the result of a particular way of life--they are cultural artifacts which provide an important layer in the built landscape. In the past culture acted as our guide, ordering how people were to live through a series of traditions and rituals handed down by those who remembered a well defined way of life. The memories that they passed on connected us to the earth, and to a specific place, which we also began to know through our own experiences. To know our position in the world, we must have a definitive built structure at a scale we can understand. When we comprehend the order we are able to build upon it, providing for its growth and our needs through change.

Uncle Ned Goes to Omaha

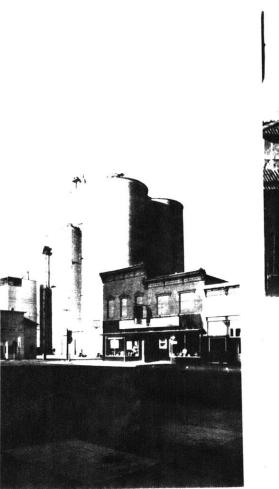
It was his first time to the city, but, he said, being a farmer, he knew how long it took weeds to come back; that if left unattended for just a few seasons, cocklebur, daffodils, buttonweeds and yellow blossom sweet clover would break up Dodge Street and tear down the malls -- dogbane, milkweed, shattercane; and everywhere, the grasses. He knew, being a farmer, that everything has its life-span, and when the buildings perished and all the people were gone, the bronze horses in the parks, underneath the statues of our greatest heroes, would run wild again through a new uncharted countryside which, at some future date, God, in his infinite wisdom, would see fit to replant with Indians.

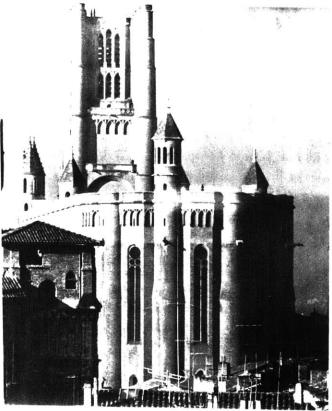
The Noise the Earth Makes

Michael Carey

"Many of the most lively, intimate expressions of spirit spring from the joyous, continuous contact of human beings with a particular locality. They feel the age-long spirit of this valley of that hill each with its trees and rocks and special tricks of weather, as the seasons unfold in their endless charm. If life can be made more secure in each community and if the rewards of the different communities are distributed justly, there will flower in every community not only those who attain joy in daily, productive work well done; but also those who paint and sing and tell stories with the flavor particular to their own valley, well-loved hill, or broad prairie...Every community can become something distinctly precious in its own right. Children will not try to escape as they grow up. They will look to the possibility of enriching the traditions of their ancestors."

Henry Wallace





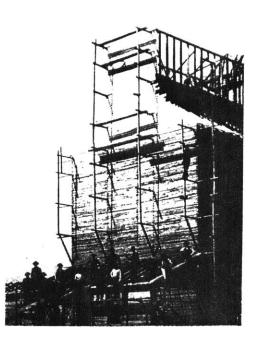
Program

Architecture cannot control (and thus change) the political and economic factors that have given us a deficient structure through the demise of the small town farmer's elevators. However, it can make an attempt to retain a layer of the physical and social order existing in Iowa by reclaiming the elevator structures and transforming them into something that will continue their positive contributions to the various communities in which they stand.

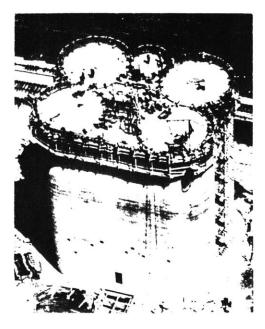
The Physical Order

In a landscape where nothing reaches very far above the earth, country grain elevators (averaging only 140' in height) seem to soar. They are the midwestern skyscrapers--cathedrals demonstrating the earth's power to produce. Elevators anchor the eye in a sea of rolling hills that sweeps from horizon to horizon, striving to measure the unmeasurable--the sky.

The original elevators were built using wood for 'crib' construction. Two-byfours, sixes, or eights were laid flat-wise, so that no joints aligned, and were spiked together.⁹ The properties of wood limited these storage bins to straight walls, usually ten to fourteen feet long, which resulted in a maximum bin size of only ten thousand bushels. Farmers experimented with other materials--tile, brick and steel--when these wooden structures proved to be too costly to build, and prone to fire and termite problems.¹⁰ The first concrete elevator was built



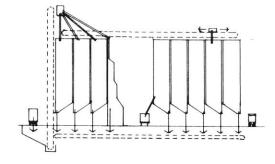
in 1900 in Minnesota near Minneapolis. There are presently an estimated 1200 of these structures in Iowa, built between the end of World War II and the mid-1970's.



The concrete elevator is an engineering solution to grain storage using a construction technique--the slip form--that only recently has become utilized by architects. Once a three foot deep reinforced foundation slab is poured, a concrete form is constructed from two-by-sixes with segments of the bin's circumference cut into them. These are laid flat-wise six deep and nailed to make up the complete bin system. When the inside is sanded smooth, the two-by-sixes are separated with pickets providing support for the plywood, which shapes the inside and outside of the walls (usually six to eight inches thick). Concrete is poured around the clock so that there are no joints; the form moves upward on hydraulic jacks supported by the reinforcing bars. The roof slab is poured when the full height is reached; the concrete cures as the mechanical systems are built.

Elevators operate by a system of 'legs'--conveyor belts made of rubber with scoops attached to them. Legs carry the unloaded grain from the base to a distribution system at the top which directs grain to the appropriate function. The 1950's structures housed this distributor in a 'head house'--the nerve center--located above the bins. If the grain is too wet to store, it may be dropped through a drying system attached to the outside of the silos before being cycled

back up the legs and stored. The grain must always move in a cycle--vertical movement via the legs and gravity, and horizontal movement via conveyors at the top and bottom of the silos. Metal chutes at the bin bases unload the grain into trucks, or more often rail cars, to be transported to terminal elevators or shipped directly down the Mississippi River.







"This (the farmer's) patience is the basis of character and the promise of endurance and continuance. The fields, the hills, the woods, and the illimitable heavens are the farmer's constant companions. They steal in upon him and impress him until unconsciously his character takes on rugged simplicity. Nature а continually impresses him with the stability of her purpose, yet she keeps his eyes and ears ever on the alert with new bounties of landscape and voices from field and grove."

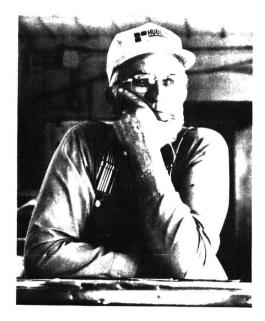
The Riddle of the Sphynx N.B. Ashby

The Social/Political Order

Elevators have always marked the place where people come together. They mark towns as the stones of ancient peoples marked their important places. People congregate here because of the importance of what these structures hold; grain, the fruits attained from a year long cycle of work.

As soon as the settlers were able to grow more grain than they could use themselves, they had to deal with how the surplus would be transported to market. The farmers who had little means of storage were forced to haul the grain directly to the markets in Chicago. The first country elevators were probably built around 1850--organized by middlemen who realized a profit could be made in grain storage facilities. By the next decade, farmers were complaining about the exploitation, wastefulness and inefficiency of these line elevators and the whole distribution system; they formed organizations to discuss alternatives.¹¹

The cooperative system proved to be the most successful in protecting farmers from unfair pricing and monopolies. A cooperative is a politically neutral service organization, without concern for profit and open membership. It operates on limited interest with the remainder of the funds redistributed according to patronage; each member receives one vote on questions of policy. The plan originated at Rockwell, Iowa in 1889. In 1904 an Iowa Association of Farmer's Grain Dealers was formed at Rockwell with twenty elevator members, the next



year seventy-eight elevators were included, and by 1913 it had increased to three hundred and forty-seven.¹² Most of the concrete elevators were built by and for cooperatives.

Farmers would come to the elevator to buy the seeds they would plant in the spring, to find what fertilizers they would need to replenish the land's nutrients, or to meet with a neighbor and discuss what was happening on their own lands and in the world. Large meetings were held here to keep members up to date and determine the future of the elevator, in which each of the farmers had a stake. Because it was a place where farmers gathered, politicians would come here to campaign. In the fall, tractors with wagons and trucks would line up, waiting to deposit their profits in the storage silos and trading stories--fisherman tales of the record crop that got away.



The Orders Transformed

The new program must take into account both the physical structure of the grain elevator as a found object and its social/political role as a meeting place. It should also strive to continue the significance that farmer's elevators held in the past with their function as storage containers for an important regional thing--grain.

The original idea for the program was a library, the storage of grain being replaced with the storage of books. In a mostly rural environment, a problem lowa libraries face is the scale of the facility the public can afford to support. Although lowa towns support nearly six hundred public libraries, the collections and services any one of them can provide is minimal. Libraries, through books and other means of thought documentation, help keep safe ideas accumulated throughout history. The art of story telling has always been a key in keeping a culture alive, passing on what is known and providing a base for future generations to grow. The proposed program would concentrate less on the library as an information service and more on the library as the keeper of knowledge.¹³ For only information that is not continuously outdated gives us time to digest so it can be added to our knowledge base, giving us meaning.

One of the possible uses of the elevator would be as storage for a collection base that libraries across the state could share in hope of strengthening the



smaller libraries currently at a disadvantage. If the total resources available in the state would be compiled on a computer disc, the addition of a terminal in every small town library could make this information available. The role of the new people's library would be to find a way to efficiently distribute any needed materials. Orders placed by computer could be distributed from the people's library to the seven regions by air and within the regions by road or rail. A browsing collection could be generated periodically that would travel about a circuit of small public libraries. It would work in a similar manner to the original farmer's co-operatives, pooling resources for the benefit of all those involved.



In order to move into the 21st. century--fast approaching--libraries need to embrace the new technologies as ways of enhancing their cause. To the storage of books, collections of audio/visual material and artwork could be added, as in many larger libraries. The age of broadcasting would allow a central library to transmit this collection, via a radio and television broadcasting station, in educational programming which would supplement the Public Broadcasting Station. The people's library could also provide classroom facilities for librarian certification and continuing education; school children could be bused in to learn how a large scale library works. The elevator could remain a place of gathering if an exhibition space was provided for art and displays of interest, or space for the discussion of political issues. The physical structure of the elevators should retain the restraint that guided their original construction--part of their distinction in the height they achieve is strengthened by their visual simplicity. Movement should be concentrated at the upper and lower levels so that the cylinders are kept relatively in tact. Their strength comes in part from their packing behavior--the concrete is thickened at the places where they touch. Any additional spaces needed can be built from lighter materials set on a more dense base, concrete or stone, that connects to the earth. Mechanical systems should follow the lead of the existing, with the dryer units acting as parasites to the silos, creating their own order outside of the concrete.



"The richness of Stanhope community is shown by the grain storage structures which reach to the sky. The early pioneers worked hard to build a community here, can we not accept the challenge to build an even better life for future generations?"

Stanhope: 1869 to 1976 Anonymous

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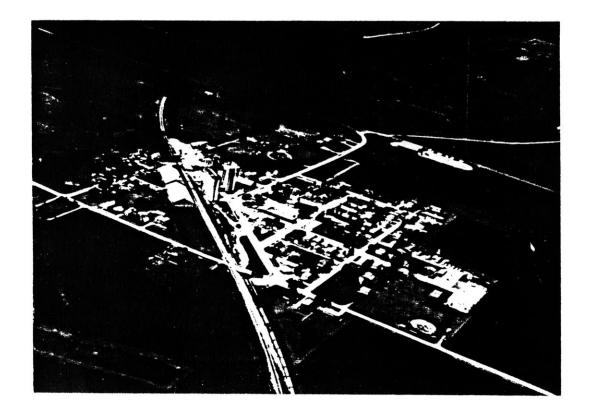
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"Not in the pursuit of an architectural idea, but simply guided by the results of calculation (derived from the principles which govern our universe) and the conception of A Living Organism, the Engineers of to-day make use of the primary elements and, by co-ordinating them in accordance with rules, provoke in us architectural emotions and thus make the work of man ring in unison with universal order.

Thus we have the American grain elevators..."

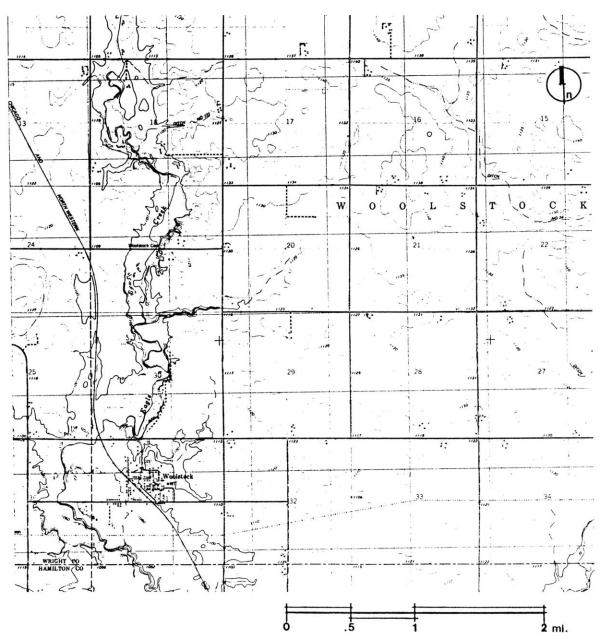
Towards a New Architecture

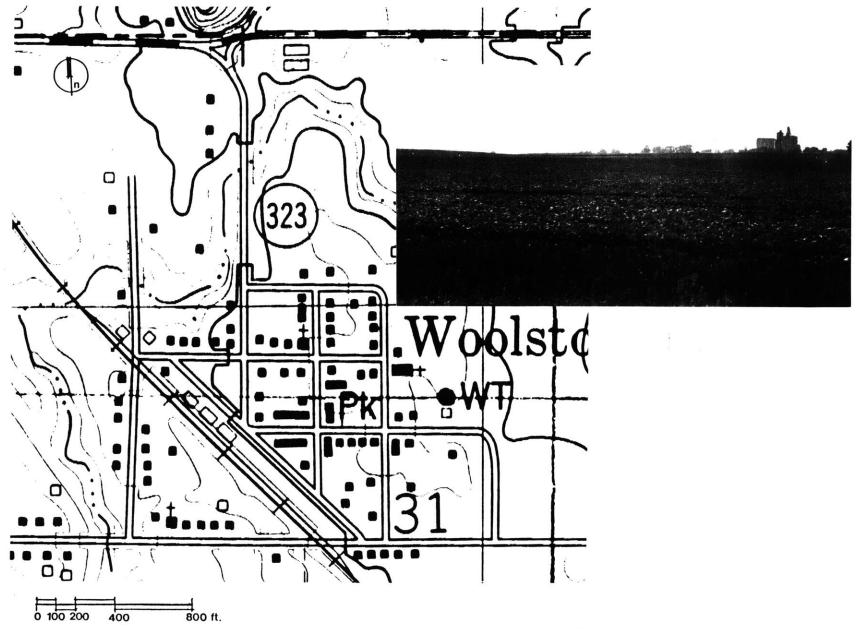
Le Corbusier



Project:



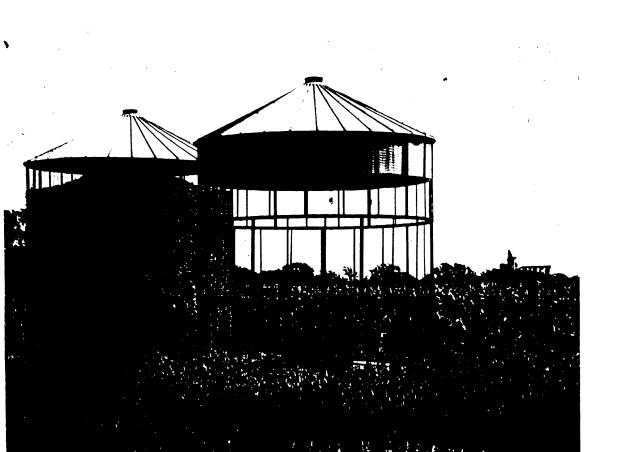


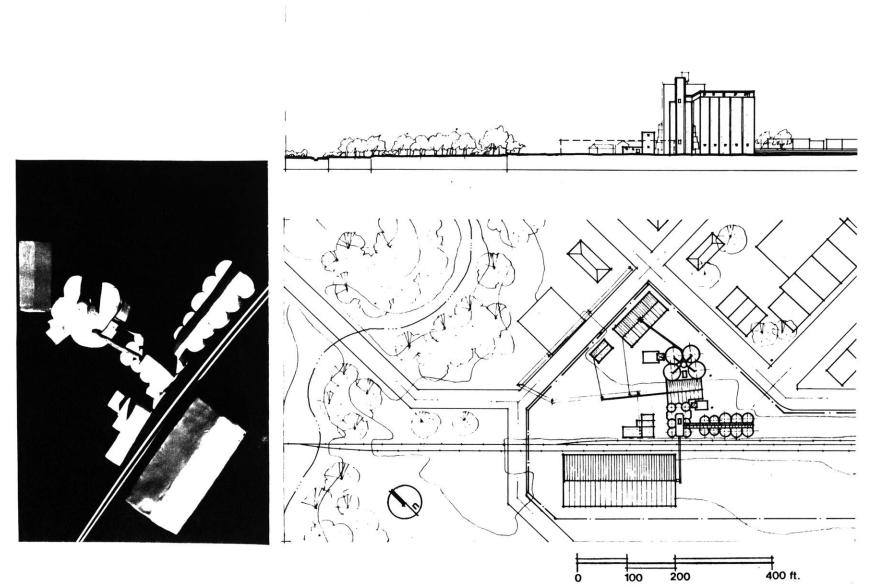


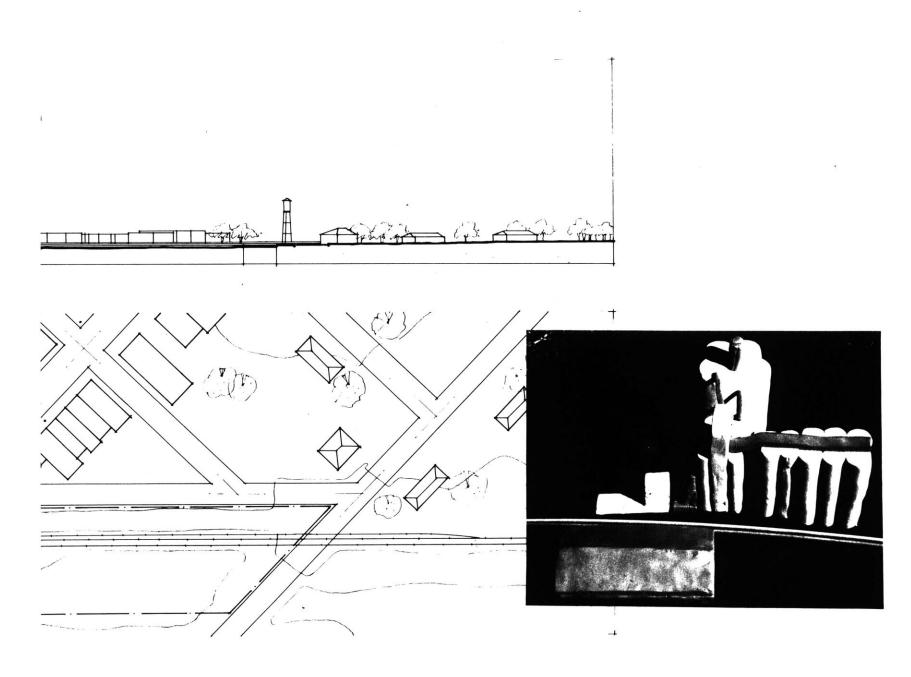
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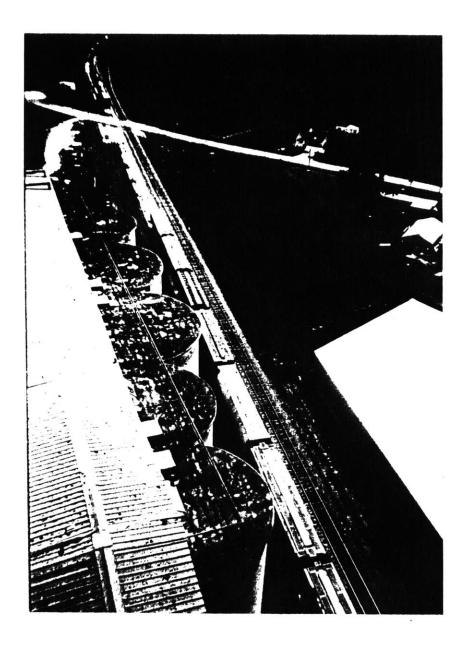


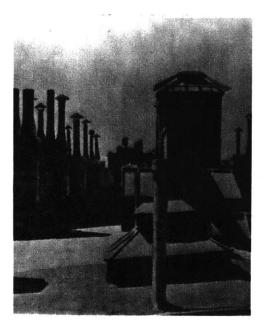


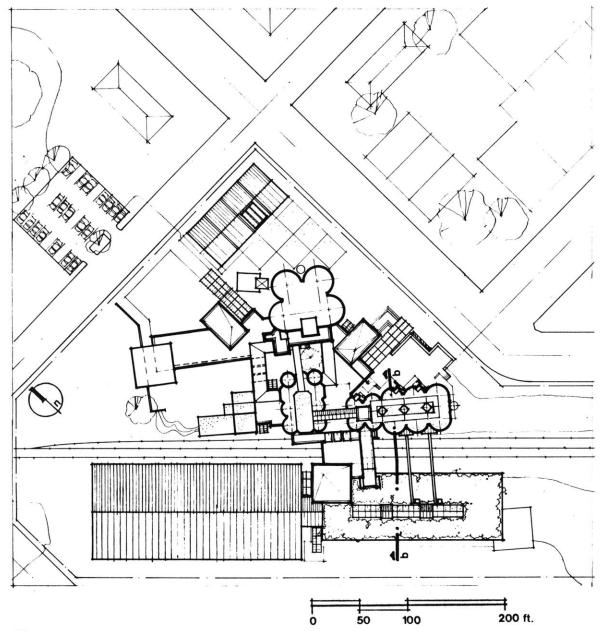


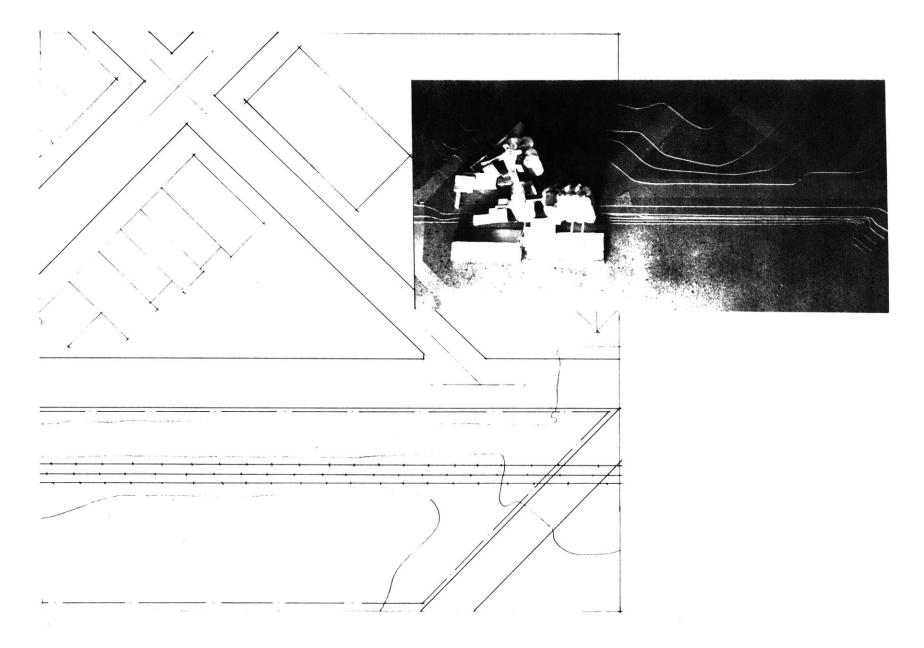
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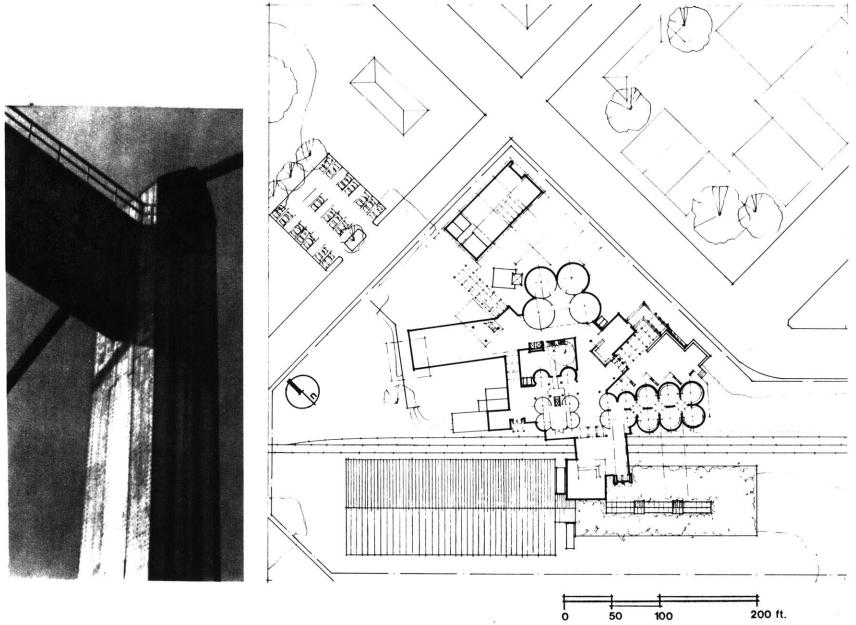
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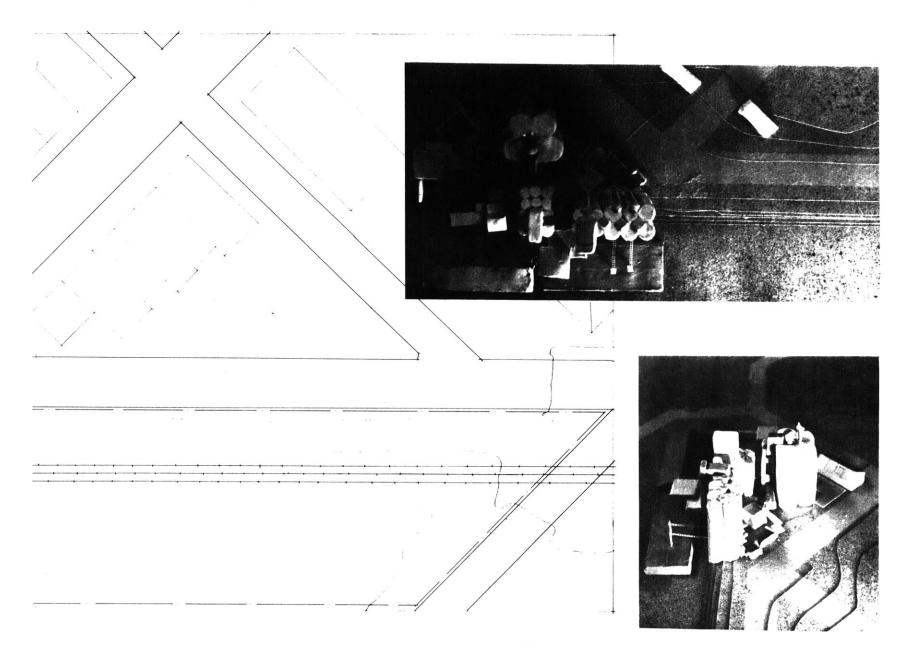


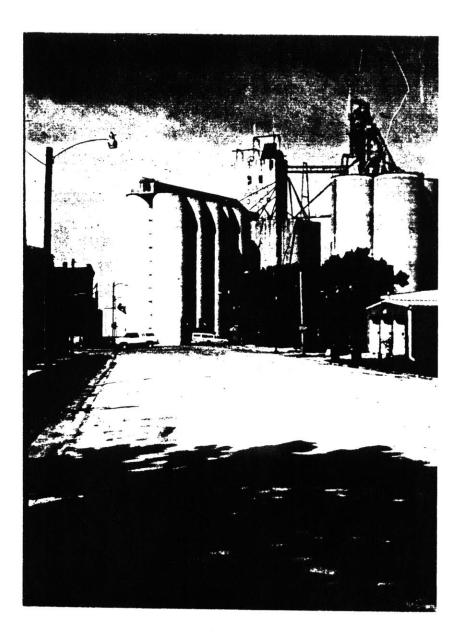


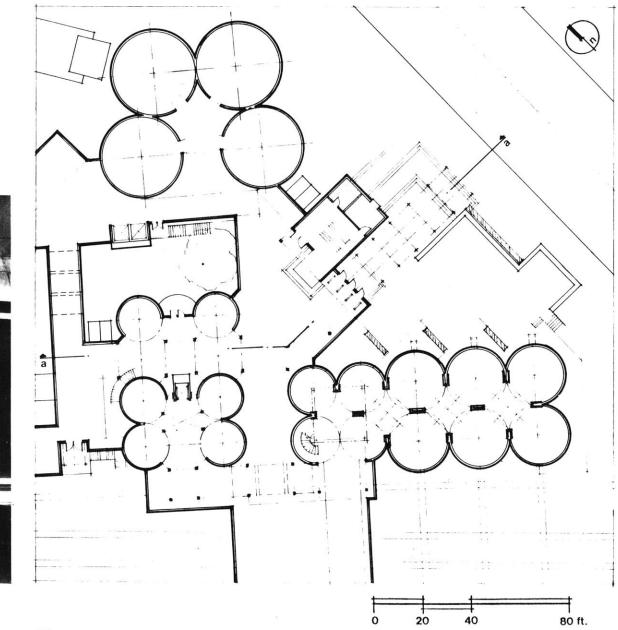


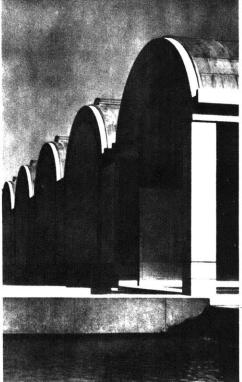


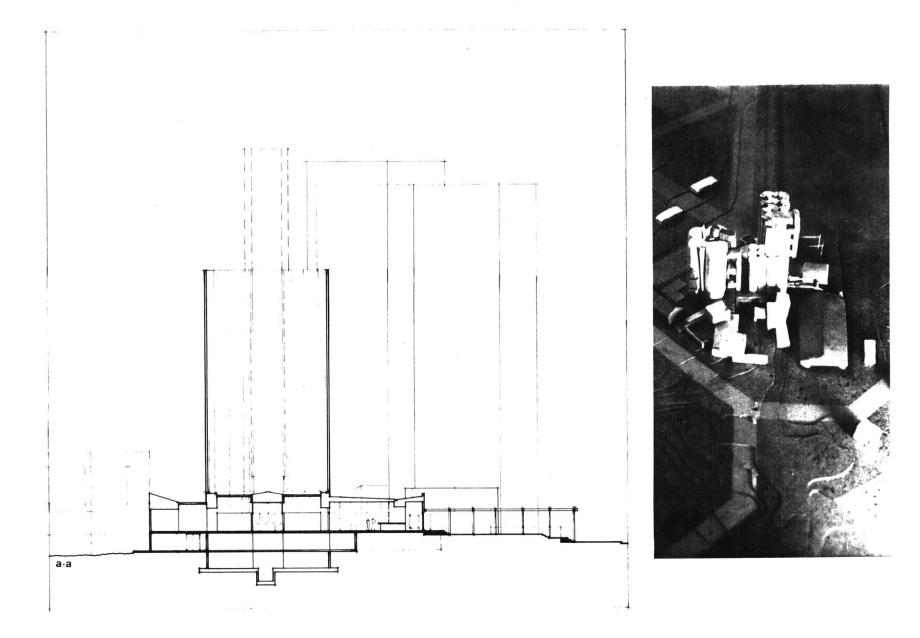


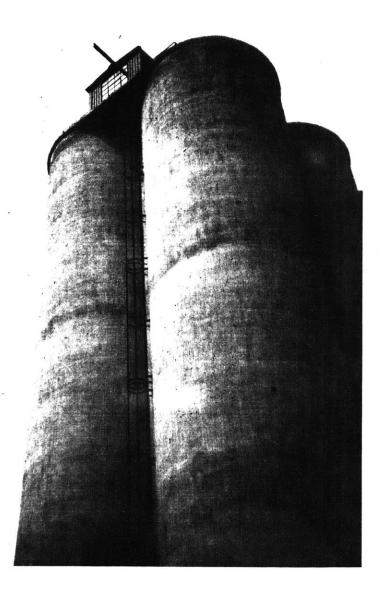


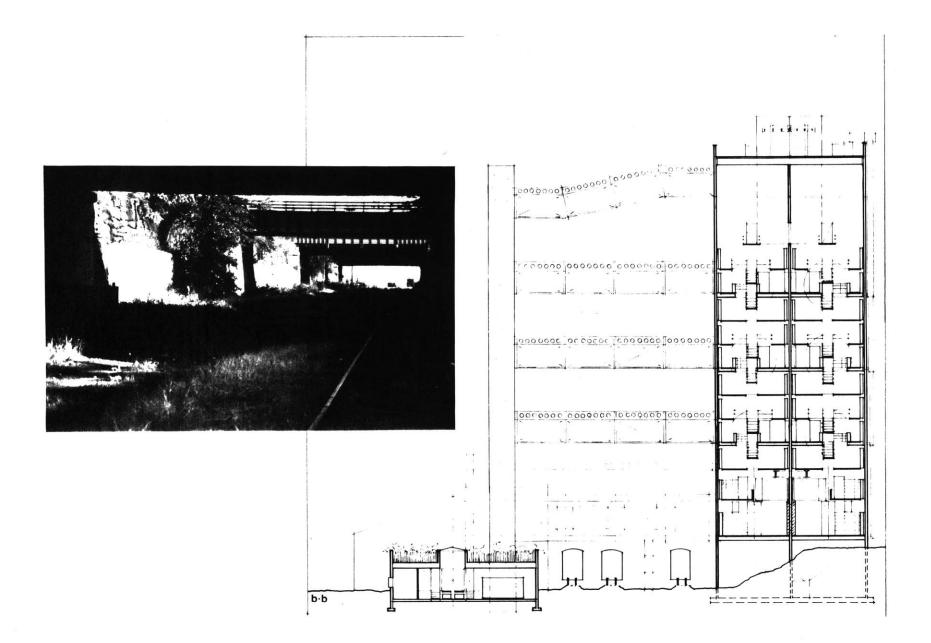


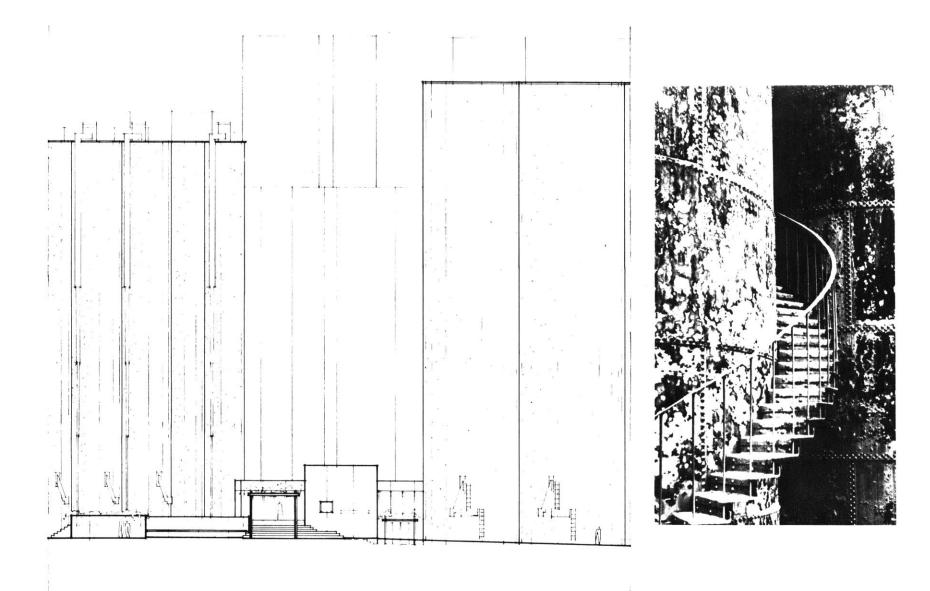


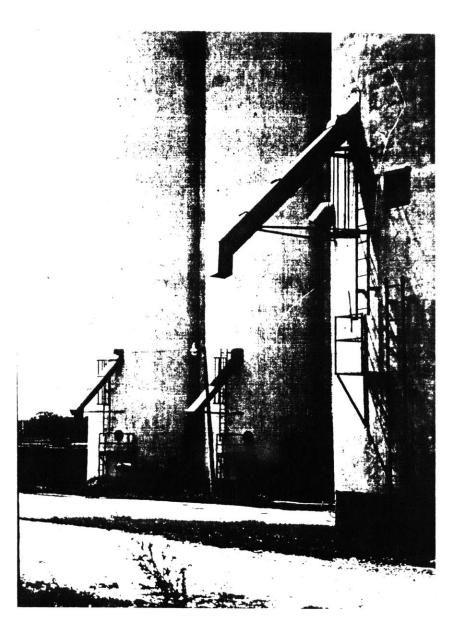


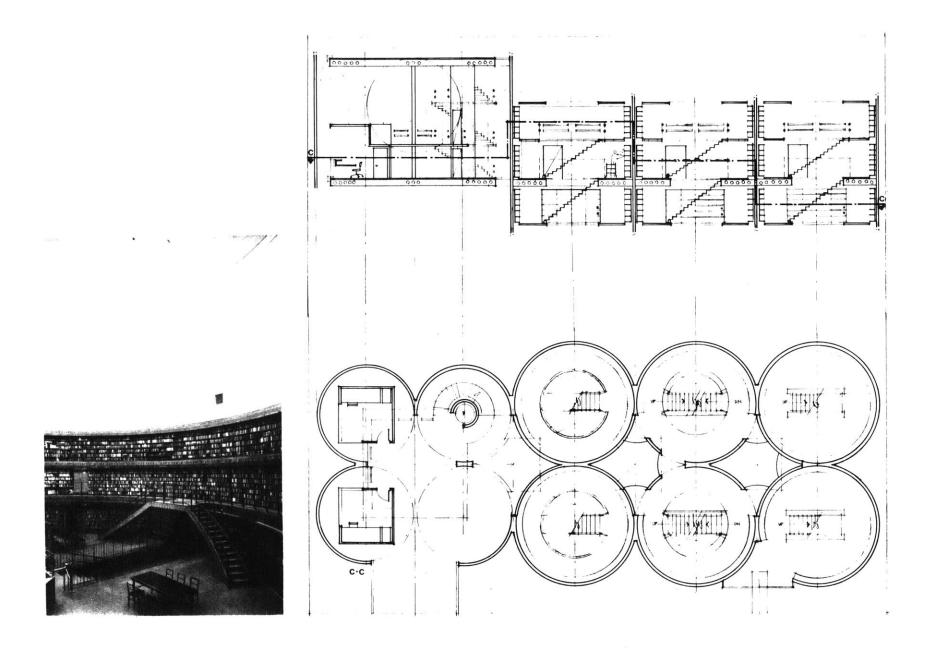


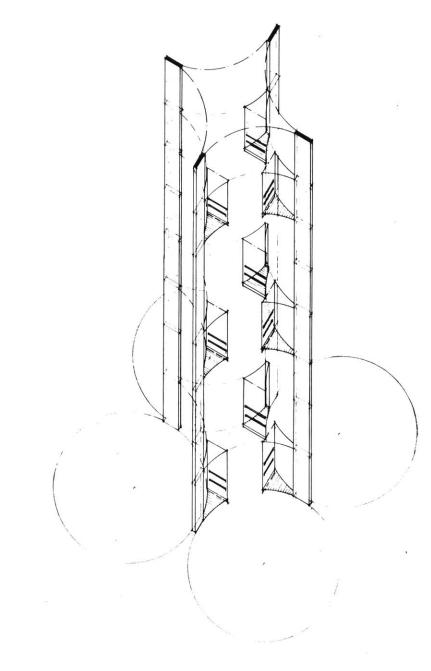


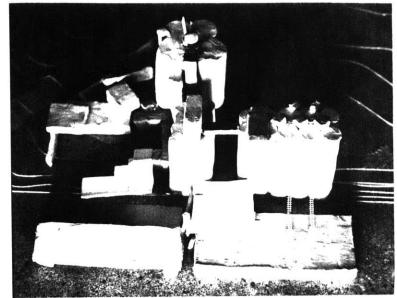


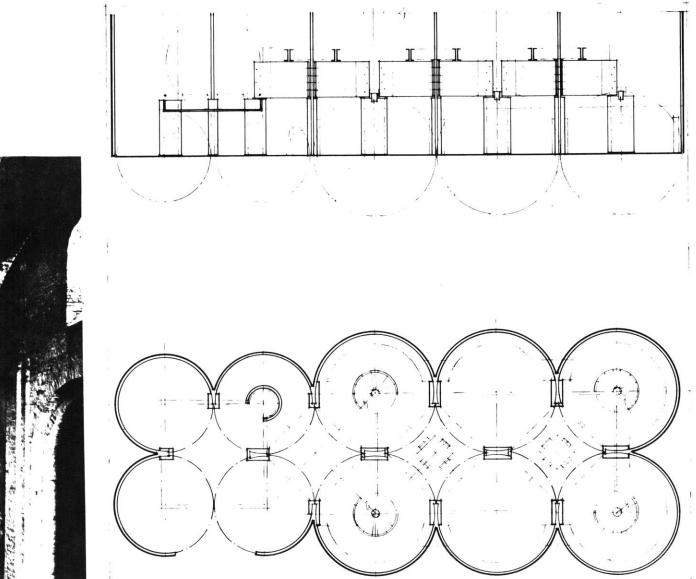




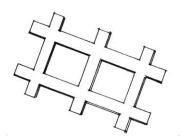


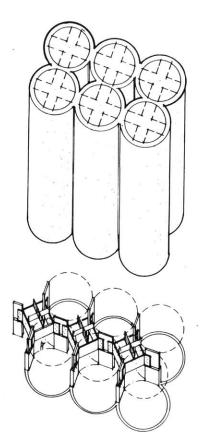


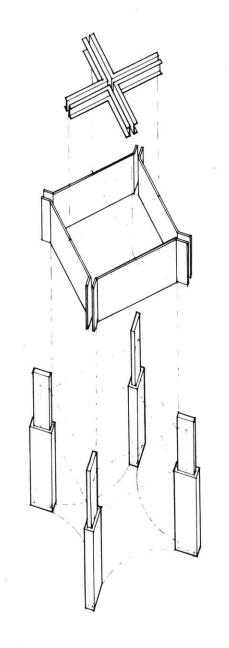












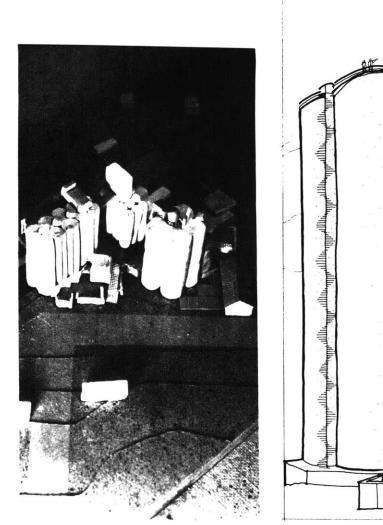


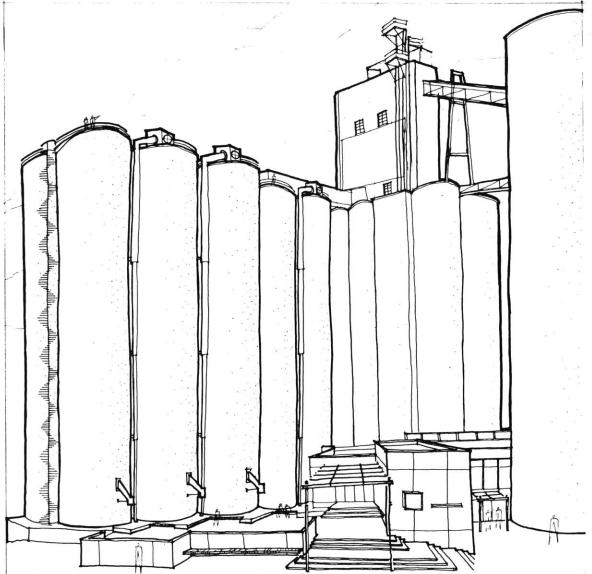


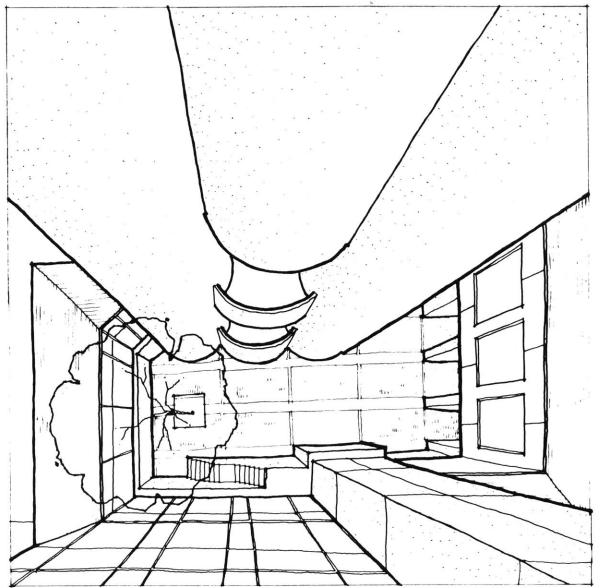
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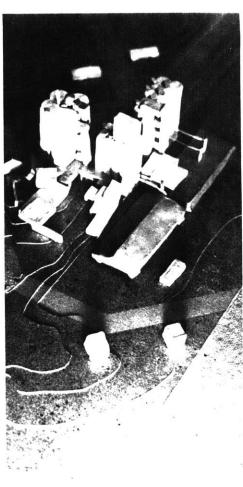
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"The end of all our exploring will be to arrive at where we started and know the place for the first time."

•

T. S. Eliot

Endnotes:

1."Experience, which is the basis of culture, tends always toward wholeness because it is interested in the *meaning* of what has happened. It cannot hope or desire without remembering. It is necessarily as interested in what does not work as in what does. Its approach to possibility is always conditioned by its remembrance of failure. It is therefore not an 'objective' voice, but at once personal and communal. The experimental intelligence on the other hand is only interested in what works; what doesn't work is ruled out of consideration. This sort of intelligence tends to be shallow in that it imposes upon experience the metaphor of experiment. It invariably sees innovation, not as adding to, but as replacing what existed before."

Quoted from The Unsettling of America by Wendell Berry, p. 168.

2. The english equivalent for the Indian rivers Mississippi and Missouri, from <u>History and Legends of Place Names in Iowa: The Meaning of Our Map</u> by Hills, Leon C.

3. Translations of the Indian word 'lowa' from the 1989 World Almanac.

4.<u>Iowa's Natural Heritage</u>. Tom C. Cooper, Editor. Iowa Natural Heritage Foundation and the Iowa Academy of Science. 1989.

5."In the mind of Thomas Jefferson, farming, education, and democratic liberty were indissolubly linked...to keep people free, he thought a people must be stable, economically independent and virtuous." from Berry, Wendell. The Unsettling of America. p. 143.

6.Wendell Berry, "Abandoned Grain Elevators: Beyond the Reach of Team and Wagon" American West, vol. 22, Jul/Aug 1985, p.38-43.

7.Many of the ideas in this section were extrapolated from Wendell Berry's article "Abandoned Grain Elevators" cited above.

8.Information from <u>lowa Facts: A Comprehensive Look at lowa Today, County</u> by County, by John Clements.

9. Information from Walls, Bins and Grain Elevators by Milo Smith Ketchum.

10.Information from <u>A Practical guide to Elevator Design</u>, the complete proceedings of the original elevator design conference conducted by the National Grain and Feed Association, Sept. 27-28, 1979

11.See Norse, E. G., "Fifty years of Farmer's Elevators in Iowa", <u>Agriculture</u> extension Station, Iowa State University of Agriculture & Mechanics, Bulletin 211, 1923, for more historical background.

12.Information from Iowa Agriculture: A Historical Survey by Earle D. Ross.

13."I would like to focus your attention on the distinction between Knowledge and Information, the importance of the distinction, and the dangers of failing to recognize it...

In my lifetime we have moved from an Age of Publishing into our Age of Broadcasting. In that Age of Publishing...the great vehicle was the book. Knowledge was thought to be cumulative. The new books did not replace the old. When today's books arrived people did not throw away yesterday's-as if they were old newspapers or out-of-date bulletins of information. On the contrary, the passing years gave a new vitality to the books of past centuries.

We too easily forget that the printed book, too was a triumph of technology. The dead could now speak, not only to the select few who could afford a manuscript book, but to thousands at home, in schools and in libraries everywhere...Books have conquered time.

But the peculiar, magic vehicles of our Age conquer space... the commodity of our electronic Age of Broadcasting is *Information*...

While knowledge is orderly and cumulative, information is random and miscellaneous. We are flooded by messages from the instant-everywhere in excruciating profusion...information tends to derive knowledge out of circulation. The oldest, the established, the cumulative, is displaced by the most recent, the most problematic. The latest information about anything and everything is collected, diffused, received, stored, and retrieved before anyone can or could discover whether the facts have meaning."

Quoted from Daniel J. Boorstin, the Librarian of Congress Services, remarks at the White House Conference in Library and Information Services, Nov. 19, 1979. Text documented in the appendix of <u>Foundations in Library and Information</u> <u>Science</u>, Robert D. Stueart (Series Editor), vol. 15, "Information needs of the 80's: Libraries and Information services Role in 'Bringing Information to People'".

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Illustrations

Note: all photographs not credited here were taken by the author.

- 1 David Plowden, <u>A Sense of Place</u>, p. 121.
- 4 << L'architecture >> de Ledoux from Gallet, Michel, <u>Claude-Nicolas</u> Ledoux, p. 239.
- 12 B.A. King photographs for <u>A Place to Begin: The New England</u> Experience, p. 50.
- 13 lbid., p. 34.
- 14 Doric order from Lobell, John, <u>Between Silence and Light: Spirit in</u> the Architecture of Louis I. Kahn.
- 15 B.A. King photographs for <u>A Place to Begin</u>, p. 70.
- 18 Double Wedding Ring quilt from postcard.
- 21 David Plowden, <u>A Sense of Place</u>, p. 14.
- 22 Ibid., p. 39 and *Young Corn* from Dennis, James M., Grant Wood, p. 176.
- 25 David Plowden, <u>A Sense of Place</u>, p. 158.
- 26 From <u>lowa's Natural Heritage</u>, Tom C. Cooper, Editor and from Norberg-Schulz, Christian, Architecture, Meaning and Place.
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62	lbid., p. 121. and "Grain Elevator Worth Watching," Bob Modersohn, from <u>The Des</u> <u>Moines Register</u> , fall, 1989.
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67	Wooden elevator under construction, from Dammssch, Hans, <u>Prairie</u> <u>Giants</u> .
68	Concrete elevator under construction, from <u>A Practical Guide to</u> <u>Elevator Design</u> .
69	David Plowden, <u>A Sense of Place</u> , p. 118.
71	Ibid., p. 132.
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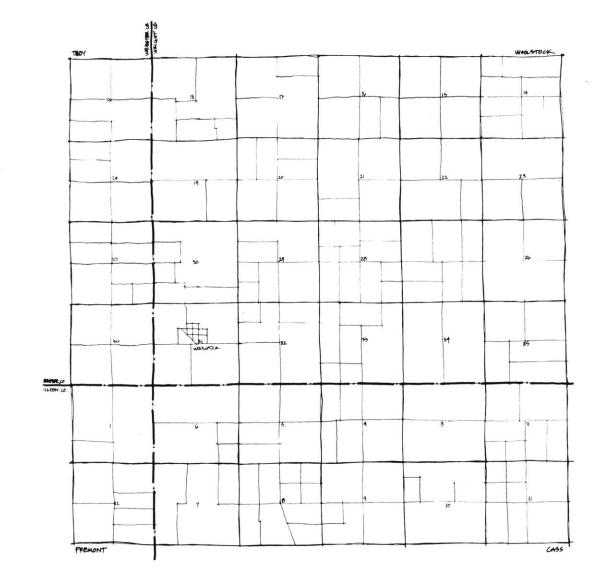
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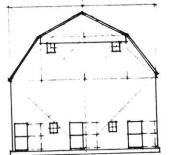
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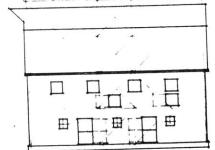
- 74 Book Coupe, from Dickson, Paul, <u>The Library in America</u>, p. 82.
- 75 David Plowden, <u>A Sense of Place</u>, p. 74.
- 80 Woolstock Quadrangle, from U.S. Department of the Interior Geological Survey, 1978.
- 81 Ibid.
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Appendix

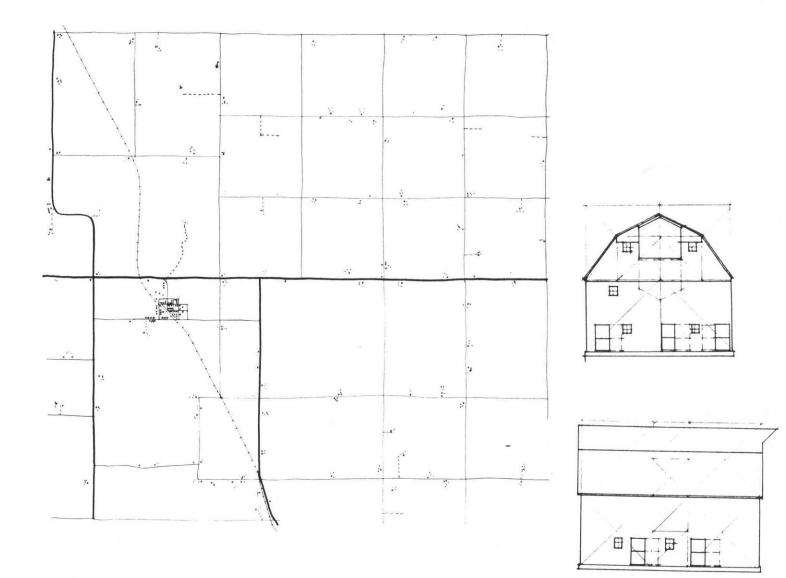
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the lights and make ware always there as part of the city -what Jean-Michel Javre dut was order them the Houstman's awareness of their environment was heightaurt. -0 -0 -0 -0 1 1.14 .1 -0 -0 -0 q 1 -9 -0 --We keep or renty by finding duald -In theary one is aware -0 -9 that the earth revolves, but in practice one does not perceive it, the ground your which are treads seems not to mave, and one can live life undisturbed. So it is with time in one's life!

the industanding of the midwest and the grid (as the averriding) order. · orientation to the compass directions . Knowing where are is in relation I to the survise/set. · distance, measurement miles, rads ichalins · landmarks : the country store

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