SENSE OF PLACE:
PART 1:
MAKING CONNECTICUT
The Primal State of Architecture

Architecture hasn’t changed that much. The Roman architect Vitruvius defined this most complex of disciplines as the union of “firmness, commodity and delight.” Using more familiar language, architecture strives to produce buildings and spaces that are structurally sound, useful and beautiful.

This trinity of criteria also applies to the Connecticut River lowland, the loaf-shaped valley embedded in the heart of our state.

In Connecticut’s case, the first building material brought to the site was little more than sandy mud, caught up in a three-way tectonic collision between North America, Europe and Africa. In the process, the mud was forced deep within the Earth’s crust, perhaps to a depth of fifteen miles, well beneath a mountain range of Himalayan proportions. There, the mud baked slowly under such high temperatures and such enormous pressures that the originally soft raw material metamorphosed into a crystalline solid, completely devoid of spaces. It is this pressure-baked material that comprises the bulk of the tenacious, light-colored rocks of the eastern and western highlands, where colossal fieldstones abound. Granite, gneiss, schist and quartzite are their names.

In contrast, the brown and barn-red rocks of the Connecticut River lowland were formed when the weather-beaten residues of these originally tough rocks washed together as layers of gravel, sand and mud that were later pressed tightly together, then even later cemented by rust, which accounts for their earthy hues. These are the familiar tilted layers of brownstone that peek out at us from roadcuts and excavations throughout the central valley, and which are proudly exhibited in landmark buildings all over the Northeast (for example, Hartford’s Asylum Hill Congregational Church). The most famous “brownstone” of all, however, is a bedrock slab in Rocky Hill that — in a successful architectural juxtaposition of material and form — is carefully protected beneath an aluminum geodesic dome at Dinosaur State Park. There, the mica-laden mud contains dinosaur footprints called Eubrontes, Connecticut’s state fossil.

The gathering point for these residues was a rift valley not unlike those of east Africa today, a generally dry place with turquoise-colored lakes, sandy rivers, marshy shores, rumbling earthquakes, steaming volcanoes and the shrieks and squawks of early dinosaurs. All of this took place some two hundred million years ago, when the Eubrontes track-maker, Dilophosaurus, a large, three-toed flesh-eating creature that walked on its hind legs, would have been free to stalk its prey...
not only across Rhode Island, but also straight into what is now southern Morocco. The Atlantic Ocean didn’t yet exist. In its place was a tired mountain range already being thinned and stretched as the earth’s plates, having reversed their direction, were beginning to tear the land apart.

One of the early breaks is now an escarpment, extending from Enfield to Haddam. There, the hard rocks ruptured along a fault, yielding a giant block that sank downward into the earth’s mantle. The block on which Hartford now sits dropped downward like the keystone of an arch whose sides were being pulled apart.

Then something critical happened. A new break formed to the east, between what are now Rhode Island and Morocco. There, the fault was deep enough to start a new ocean, which began as a narrow sea, then widened as it aged (like many of us). Meanwhile, the gathered layers of river and lake sediments from New Haven to Holyoke — some infused with dinosaur footprints and the remains of ancient trees — had sunk deep enough into the moist warm earth to become compacted and cemented into relatively weak, crumpled layers of red-brown rocks.

Since their formation, these softer rocks of the state’s heartland have been less able to withstand the wear and tear of time (the exposure to the sun, wind and rain) than the harder rocks on either side of the valley. That same differential weakness was evident when the glacier slid south over New England, gouging, scraping, and rasping the lowland into an elongated basin. What had once been the highest part of New England had became its largest lowland, one big enough to capture runoff from Long Island to Quebec, and channel it past Hartford, where it flows strong and brown every year, especially during March, when northern snowmelt and warm spring rains coincide. The only high places in the lowland — trap rock ridges such as Talcott and Avon mountains — are the hard places, which are composed of cooled lava, rather than sandstone and shale.

The Connecticut River lowland meets all the criteria for architecture. It is structurally solid, having long since recovered from its earlier episode of rifting. It is useful, so much so that early 17th century scouts from Plymouth Plantation deemed it an agricultural Eden; three centuries later, the cities and transportation networks in the valley still testify to its utility. Finally, there is the beauty. Although blemished with urban blight and often undetected from the vantage point of an automobile, the enchantment of the valley can be seen from any long vista across it. At that scale, what passes for human architecture — for better and for worse — is subsumed by the work of earth’s original architect, who worked long before the days of ancient Rome.

Granite from Branford. Brownstone from Portland. Marble from Kent. Traprock from lava ridges. Fieldstone from nearly everywhere. All of these stones have been plucked from their initial geological settings, brought to the heart of the state, and recycled by human architects into the beautiful buildings, monuments, walls and pathways of our everyday lives.

We live among ruins of an earlier age.
Some say the world will end in fire,

Some say in ice.

So said, Robert Frost, poet laureate of New England. Although Frost chose fire, he was sufficiently ambivalent to add:

… for destruction ice
Is also great
And would suffice.

As a professor of “ice-age” science, and as one who liked glaciers enough to get married beside one, I take issue with the poet’s destructive view of ice.

True, the passage of an ice sheet over a landscape does evict life, poets included. But the passage is only temporary and does not destroy the land. In fact, the entire Connecticut landscape is a gift of the glacier.

Our safe harbors, historic mill sites and early farm economy were made possible by an ice sheet that oozed down from Canada between 25,000 and 15,000 years ago. The ice sheet also gave us fertile lowlands along our large rivers, gracefully curved upland pastures, gravel riffles in trout streams, verdant marshes fronting shoreline villages, a patchwork of stone walls, bricks for colonial buildings and solitary boulders, stranded here and there as if they were hillside shipwrecks. All of these are glacier gifts.

Yet it is Frost’s notion of “ice-as-destroyer” that they teach in school. In this version, a jagged, mile-high cliff of brittle ice grinds its way to Long Island Sound. Stones are crushed in the shear zone between bedrock and black ice. Ledges are scoured by relentless pressure. Finally, the ice withdraws, leaving a scene of rocky desolation. But there is another way to look at it.
The Connecticut River Valley — the broadest, loamiest, most fertile stretch of agricultural land in New England — is a glacial gift. Formerly the site of a tropical salt lake during the Jurassic period, this area was glacially deepened, then dammed to form a shallow, turbid lake whose shores shoaled with sand-moving waves. When it finally drained about 12,000 years ago, the stone-free bottom of the lake would become the breadbasket of New England. Its clay-rich mud — when mixed with sand, molded and fired in a kiln — would become brick for building America, then and now.

Above the valley is the gift of green hillside pastures. These rolling hills remain lush — even during late summer, the result of a layer of glacial hardpan immediately below the surface. This hardpan — more properly called lodgment till — was plastered onto the landscape by slowly moving ice. In the process, rock crevices were filled, rough outcroppings were swept away or buried and the land was smoothed into beautiful streamlined hills. Most important, the hardpan, being virtually impermeable, keeps the water of summer rains within reach of plant roots.

Farther downhill, water is filtered by its passage through aquifers created by meltwater streams. Having been rinsed free of mud, these masses of sand and gravel hold and release groundwater, steadying the flow of streams. Additionally, most colonial mills were located where this flow cascades over bedrock narrows, places that were plumbed by the flow of pressurized water beneath the ice. Industry in New England owes its hydropower beginnings to the glacier.

Stone walls, the signature landform of rural New England, are my favorite glacial gifts. Crisscrossing nearly every village and town, they were built as upland farmers rolled, dumped and stacked billions of glacial stones beneath wooden fences. During the last ice age, these stones were plucked from nearby ledges, spread over the land and dropped in place, just before the last ice melted. Farmers reversed the process, picking them up, scuttling them aside and concentrating them into walls, as if they were rebuilding what the ice had torn apart.

From Stonington to Greenwich, each of Connecticut's shoreline towns is located where an erosive tongue of glacier ice deepened an old river channel. Then, sea level rose, converting these rock channels into deepwater harbors behind ice-scoured hardrock headlands. The sand washing on those town beaches came largely from offshore patches of glacial sediment. The marshes behind the beaches developed as the pace of sea level rise slowed during the past few millennia (there was less ice left to melt on the globe).

The glaciers also left us with a grab bag of odds and ends.

Colossal boulders the size of cars (erratics) dot our towns; each was laid down gently as the ice thinned to zero. Stair-step benches in valley bottoms (kame terraces) show us where gravel-braided streams cut themselves downward, one notch at a time. Sinuous bouldery ridges (eskers) indicate places where tunnels beneath the ice became backfilled with gravel as the meltwater flow waned. Ponds and vernal pools mark places where blocks of ice, detached from the main mass, were buried by water-washed sand (kettles). Odd hills are often dunes, built when strong cold winds swept up a local surplus of glacial shoreline sand.

The most precious glacial gift of all is Long Island Sound. Its placid waters are protected behind Long Island, built during spasms of glacial dumping and thrusting at the outermost edge of the ice sheet. This ice-pushed “moraine” barrier gave early settlers the extra dose of protection they needed to establish permanent footholds on otherwise hostile shores. In some ways, Connecticut is like a medieval castle, protected by the moat of Long Island Sound. The outer wall of that fortress — Long Island — should be ours as well, especially since it consists of crushed-up Connecticut.
Scientists now know that the world will end in fire. Approximately 5 billion years from now, Earth’s sun will run out of nuclear fuel, expand into a red giant and hot-flash the Earth back into the vapor from which it was born. Until then, the worst hazards we face are urban blight, pollution, endless sprawl and the homogenization of the landscape by a species (Homo sapiens) no longer constrained by the use of natural materials.

Perhaps the solution to all our environmental woes is patience. If we wait long enough, Nature will send her ice sheet down from the north to erase what we have wrought in the name of progress, then restore the landscape to the way it looked when Adriaen Block first sailed up the Connecticut River. That scene was a gift of the glacier.

I end with my own version of Frost’s poem:

Some say the world was made by fire.
Some say by ice.
For the most beautiful landscapes, however,
Ice suffices.

*Photo: Horse pastures are often on drumlins underlain by lodgment till.*

PART 3: LOSING GROUND
Connecticut’s Endangered Acres


In his poem “Wealth,” Ralph Waldo Emerson clearly identified the true source of riches in early America. It wasn’t our great cod fishery, tall timber, animal pelts, whale oil or veins of gold. It was soil. Soil formed the basis of this country’s early agricultural society. It provided the bread, butter, bacon and beer that nourished the militia that sent the British packing.

That resource — the essence of terrestrial life — was 15,000 years in the making. Only in the past half-century have we dramatically reversed its growth by covering it with America’s favorite substance, bituminous pavement, the sine qua non of modern society.
From air the creeping centuries drew
The matted thicket low and wide,
This must the leaves of ages strew
The granite slab to clothe and hide,
Ere wheat can wave its golden pride.

Emerson knew that air and sun are the raw material for photosynthesis, as well as water from rain, snow and vapor. He knew that the leaves of plants drop to the ground and decompose. He knew that, over time, soil develops, thickens and eventually covers the granite crust of the earth. Only then can wheat — his metaphor for the staff of life — nourish humankind.

That process described by Emerson was the most important historical development in New England since the melting of the last ice sheet.

Cold dry air drained from the dome of leftover ice to the north. Melted snow and Atlantic rains soaked into an otherwise sterile soil, converting glacial grit to clay and rust. Pollen — manna for microbes — blew in from the south. Lichens encrusted the boulders. Mosses, sedges and ground-hugging grasses took root. Strewn dead leaves became food for other windswept plants, then for insects, worms and, eventually, every creeping thing.

Wave after wave of life followed, each contributing to the soil in its own way: tundra; coniferous taiga; deciduous forest; livestock pasture and tillage; then, finally, back to forest, which to this day spreads and thickens the soil.

First came a tidal wave of tundra that carpeted what the ice had wrought from stone. Shrubs of willow and birch — resembling Japanese bonsai trees, or those forming the treeline on Mount Washington — bravely weathered the harsh winds to anchor the soil, catching more dust. These trees also caught the rain, their roots creating pathways in the stone that allowed the water to seep beneath the surface and quicken the pace of soil development. Mammoths and mastodons drank from small ponds blue as the sky.

Next came a forested wave of spruce, fir, pine, hemlock and birch, separated by vistas of grass and sedge. Caribou and moose followed, followed by Paleo-Indians, human predators who roamed the landscape in search of game or harpooned marine mammals along the rocky coast. Many blue ponds turned to peat bogs covered by cranberries and tamarack.

Then a third soil-making wave rolled in with surge after surge of oak, beech, maple, ash, hickory, walnut, cherry, elm and others. The resulting soil, richer, helped to feed different woodland creatures — beaver and deer — along with cougars, bear and wolves. Rinsed free of glacial silt, streams sparked with spawning fish. About 9,000 years ago, archaic peoples moved in and stayed for millennia, leaving behind their seasonal camp sites, fishing gear and shell middens, most of which are now submerged. Many bogs became forested swamps, either blazed by red maple or crowned by Atlantic white cedar.

The fourth wave crept upward into rocky estuaries, not unlike those of today’s Maine coast, creating wet soils ahead of the rising sea. Then, about 4,000 years ago, the sea slowed. Gray clam flats formed, as well as tan-colored beaches and green reedy marshes in bays and rivers kept free of trees by seasonally standing water. With this change came a new wave of humans, of Algonquian origin, who named their great rivers the Housatonic, the Connecticut, and the Quinebaug. Known archaeologically as the Woodland Indians, they gathered and hunted from seasonal riverside
villages, stored food in chambers and made earthen pottery. Then, a few thousand years ago, they learned to till soil and grow crops on lands enriched by deposits of river silt.

The next wave of immigration came from across the Atlantic. Beginning with the Vikings at the turn of the 10th century, wooden ships began probing Connecticut’s coast and its rivers. Then, during the four centuries after the arrival of the Pilgrims in 1620, there was an unbroken wave of exploration and immigration — and exploitation of the soil that, for all their ingenuity and power, these settlers were unable to ruin.

At first, they drained and plowed the ribbons of marsh, converting them to square patches and strips. Hay, wheat, barley, oats and orchards replaced marsh and meadowland. Within a century, their descendants moved inland and uphill, felling the forests, replacing them with park-like pastures grazed not by ice age beasts, but by herds of cattle and sheep.

Next, in a spectacular reversal, most of these upland pastures, which had been cleared of stones for generations, were abandoned. Tens of thousands of New England sons and daughters walked away from the fields of their childhood for what they hoped would be a better life somewhere else: the industrialized cities, the stone-free Midwest or the gold fields of California. The fields they abandoned filled first with wildflower weeds, then with oaks and pines in sandy pastures, beeches and maples in moister ones, and hemlocks in shady glens. The soil had survived in most places through it all.

Only within the last century — only since we learned to inject fossil fuels into our engine veins — have we been able to scrape and cover the soil to the point of no return. New England soil, it seems, has the power to recover from anything Nature can throw at it — glaciation, dune-forming winds, hurricanes, meteorite impacts. Only we, it seems, have the power to do what nature cannot. Within the past half-century, we have covered the soil with bituminous pavement and other impervious surfaces faster than glacier may have paved the land with ice. In our rush to pave, we are destroying the true source of our wealth: the soil.

We won’t starve as a region, even if we cover every inch. But there is a need to plan. Other than locally grown food, the principal crop for today’s soil is trees. Collectively, the patchwork of parks, land trusts and undeveloped acreage produce what are called “ecosystem services.” For the simple price of letting trees grow, they stabilize the land surface, reduce flooding, enhance recharge to our aquifers, recycle our airborne pollutants, moderate our climate, provide habitat for all kinds of creatures, and delight our senses with the sights, sounds and smells of lush forest.

With each acre of woodland lost, the state looks and feels more like an abandoned parking lot: hot and dry during summer, bitter windy-cold during winter, and always gray.

Now that’s poverty.

*Photo: Generic stone wall as a result of forest conversion.*
PART 4:
EXIT RAMP CULTURE
How we Built it and Where it's Taking Us

Urban and regional planners have been wringing their hands over urban sprawl for nearly half a century. Perhaps because I moved here from Alaska, an enormously large place, it strikes me that New England is already sprawled to the max. What I mean is that you can live almost anywhere, grab a morning coffee, get on an interstate freeway and drive somewhere else to work.

Thus, for me, the question isn't sprawl itself, but how to rid ourselves of its byproduct, the exit-ramp culture created by the unholy trinity of the real estate industry, the mass merchandisers and the transportation bureaucracies, which treat each exit ramp as if it were a commercial teat on an endlessly long sow.

What's needed isn't sprawl control, but the political will to undo the ugliness, energy waste, ethnic unfairness and congestion, the hallmarks of the exit-ramp society. What we need are serious market incentives and a government strong enough to stand up to the carnage.

Sprawl has a negative connotation. Hence, I will hereafter use the word “spread.” Homo sapiens spreads out over the landscape because we have a biological imperative to do so. Somewhere, deep in our evolutionary heritage, is a visceral craving for open space, whether it is a territory to hold and defend from encroachers or a patch of turf in which families can take root. The urge to spread is almost as strong as the urge to congregate in large groups, which, in the most extreme cases, culminates in the large cities found in every culture and on every continent. There is no instinct to build an exit ramp.

New England has spread three times. Each time, we have done so with good intentions and with a different view toward the land. Each time was also accompanied by the haphazard ugliness of sprawl, which is the downside of rural progress, regardless of historical era.

America’s first episode of spread helped create our Jeffersonian “nation of farmers,” each of whom wanted to carve his own little piece of heaven out of what was then wilderness. The image I conjure up in my mind is the Minuteman, the early American self-sufficient farmer, standing alone, plow on one side, flintlock rifle on the other, simultaneously husbanding and protecting a mini-kingdom surrounded by stone walls and rail fences. This image was to be found not in the shoreline cities, but in the rolling hills away from the coast, beneath which was a soil nearly perfect for grazing livestock, growing hay and tilling the soil. Almost anyone willing to clear the forest, move the stones and work
hard could earn an honest living from the soil. So, young families spread themselves out over nearly the whole landscape, converting it from forest to farm. This was America’s first imagined utopia.

But sprawl was there as well, something the visiting Europeans were quick to point out. Coming from lands with tidy villages that had been tilled for millennia, they saw here an irregular patchwork of clearings, complete with stump fences, tottering stone walls and crooked lanes, the smell of manure and the sounds of livestock and their flies.

Beginning about 1825, however, and continuing for a century, the eyes of our culture shifted toward the industrializing cities, the American West and the Civil War battlefields. Even those young families who stood to inherit good farms simply walked away from them. Land was abandoned.

America’s second episode of spread took place during the expansion of suburbs in the late 1940s and 1950s. Though the countryside beyond cities had already begun to be repopulated when automobiles became affordable, spread accelerated dramatically during the baby-boom years following World War II. Young middle-class families drove away from the cities to that idyllic land of kids running in packs through communities created not for working, but for sleeping, playing, going to school and worshiping.

Most of the commerce and the jobs remained in the cities or their perimeters. Gasoline was cheap. And by today’s standards, housing was even cheaper because the land on which houses were being built had been abandoned and was virtually free for the taking. This was America’s second imagined utopia.

Sprawl was there as well, often assuming the form of crowded housing developments just beyond the city lines, and cities beginning their long and precipitous decline. Commuting by car on roads first laid out as cow paths and cartways, led to traffic congestion of the sort that we now experience near county fairs, but with billboard ugliness inconceivable by today’s standards. Highways between smaller cities were often bumper-to-bumper. The concept of “rush-hour” became compellingly clear.

America’s third episode of spread skipped right over suburbia to the land of small rural towns lying within commuting distance of city jobs. This was greatly accelerated by the interstate highway system, of the 1960s and 1970s. Though designed principally for cross-country travel, the interstates made it so easy to get from place to place, that the land between town villages filled up with people commuting every which way, creating something called ruburbia. As suburbia engulfed more of ruburbia, and as the cities that spawned them both went into decline, the focus shifted to the exit ramps of the interstate highway systems, places generally devoid of history and almost wholly removed from civic affairs.

This time, sprawl struck with a vengeance. At important off ramps, enclosed shopping malls sprouted like glass and steel temples to materialism, each surrounded by moats of asphalt pavement for parking. At others exits, the malls were three-sided affairs surrounded by an ocean of parking, with an anchor store at one or both ends. Access-road restaurants, parasitic plazas, multiplex cinemas, and stand-alone superstores developed around the fringes of malls which slowly merged.

One can now get on almost any interstate within a metropolitan zone, take almost any exit ramp, and spend the entire day driving from one parking lot to another, all without entering a mall. A place with no parks, no historic architecture, no civic purpose, no museums, no sense of community … nothing that might succor us beyond the goal of buying more for less. A place summed up by the statement “There is no there, there,” as Gertrude Stein once said.
What next? More spread, of course. But hopefully with less sprawl, with much of the exit-ramp culture either done away with or cleaned up, and with the cities reinvigorated. Hopefully, this will be America’s third imagined utopia, a place where we neither work the land for a living — as we did in the days of the Minutemen — nor merely live on it — as we did in the early suburbs — but instead, actually live with nature, listening to what it has to say, instead of listening to the cacophony of car-related things.

Go ahead. Call me a dreamy idealist. I acknowledge that we must face the real-world politics of urban renewal, fuel-efficient cars, mass transit, county-scale governments, and a broader cultural blend in human communities, and corporate telecommuting. But until that day comes, we will endure the death-by-a-thousand cuts of the exit-ramp culture, which unfolded somewhat accidentally during the age of easy oil, and the age of hyper-materialism, through which we have already passed, just in case you hadn’t noticed.

Photo: Typical ambience of where much of America get’s its food.