Building in the Climate of the New World:
A Cultural or Environmental Response?

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The relationship between appearance, available technology, and environmental context is one of the central concerns of Amos Rapoport’s famous *House Form and Culture.* This essay examines the evolution of a particular seventeenth-century building type, the English “hall-and-parlor” house, in response to new climatic and cultural conditions experienced by the first English settlers in Massachusetts, and its subsequent transformation into the New England “saltbox.” In this review of the impact of environmental factors on cultural assumptions, attention is given both to the layout of individual houses and to larger settlements. The essay underlines that a response to the demands of a new climate can engender or reinforce significant cultural change.

*The Lord hath been pleased to turn all the wigwams, huts, and hovels the English dwelt in at their first coming, into orderly, fair, and well-built houses, well furnished many of them, together with Orchards filled with goodly fruit trees, and gardens with variety of flowers. . . .*

Most analysis of the early colonial architecture of North America makes reference to the issue of climate response. It is not surprising, given the cultural complexity of a situation which saw groups of colonists from different regions attempting to found settlements in the face of an unfamiliar climate, that this analysis has largely chosen to follow the architectural history of the different national colonies, whether English, Dutch, Swedish or German. What has remained unclear is the degree to which, and the manner in which, new house types that emerged in each colony were a continuation, an evolution, or an abandonment of “old-world” models. If, initially, ideas concerning what a “fair house” should look like, or how it should be constructed, were a fusion of different regionally derived opinions, in what way did these ideas evolve subsequently?

The “orderly, fair and well-built houses” referred to above in Edward Johnson’s depiction of the neatly ordered landscape into which the wilderness of New England had been transformed by the end of the seventeenth century resembled, but were not of identical form or construction to those the colonists had left behind in England. In particular,
the “saltbox,” a typical colonial house type of the period, was recognizably different from the models on which its construction had been based. Importantly, it was able to offer a very different level of protection from the climate than the houses which had preceded it in the colony.

Recent scholarship on the architecture of New England has focused on the adoption of new or previously unusual construction methods and on the increasingly substantial size and complexity of the houses, rather than on the issue of climate response per se. In contrast, the earlier work of James Marston Fitch and M.S. Briggs discussed climate issues in greater depth. This earlier work has provided the spur for this more detailed speculation on the aspects of historical development attributable to the need to make climatically more appropriate buildings. Here, an analysis of differences between the climates of England and Massachusetts that draws on both contemporary descriptions and more recent data will be used to preface a discussion of the way in which the concern to survive the winter dictated both changes in building practice and the manner in which houses were organized and inhabited.

This analysis of the gradual improvement in environmental performance of English colonial architecture (characterized by Johnson as the difference between dwelling in a hovel and “a fair house”) also underlines the way in which changes in house form influenced settlement pattern, and the social structure which it articulated. Finally, it attempts to demonstrate the inevitable reciprocity between cultural and climatic adaptation that underlines the difficulties inherent in approaches driven by climatic determinism or arguments concerning “style” alone.

“SEPARATISM”: REJECTION OR CONTINUATION OF ENGLISH TRADITIONS?

The majority of early English settlers in New England were Protestant “separatists,” who were driven to leave England by a wish to practice their form of religious observance without fear of persecution. Defining this “persistent localism,” Breen has suggested that their principal concern was to re-create in America an age-old rural way of life which had been thrown into turmoil by the meddling political, military and religious initiatives of the Catholic Charles I. In December 1620, the Colony of Plymouth was founded when the first 102 colonists stepped ashore in Massachusetts from the Mayflower. Given the ramshackle character of their initial dwellings, winter living conditions were extremely harsh, and after three years the Plymouth settlement consisted of just twenty dwellings, housing the sixty original colonists who had survived. Yet, twenty years later, following a series of milder winters that accompanied the period of the “Great Migration” in the 1630s, the colony was on a much firmer footing, with a population numbering 26,000.

Many of the settlers came from Essex and the surrounding East Anglian counties, though there were others from farther north and west in England, from Yorkshire and the West Country. Unlike the English colony in Virginia, these people were a mixture of middle- and working-class folk, with no aristocracy and few gentry among them. They came over in families or small, close-knit neighborhood groups that tended to resettle together after arrival. Most of those from the lowlands in the southeast of England would have been familiar with compact, two-story houses of timber-frame construction, whereas those from the colder, less fertile uplands of the north and west would have known smaller, lower, stone-walled houses of more linear plan.

As R.W. Brunskill and A. Quiney have pointed out, a number of different English plan types of this period can be identified, all of which include at least one chimney stack. Widely adopted in English dwellings by the sixteenth century, a chimney stack allowed smoke from the fireplace to be vented directly out of the house, and thus created interiors which were less smoky, and therefore easier to keep clean. The most common plan types in the East Anglian region have been described as “hall-and-parlor” houses. In such houses, a chimney was located at the center of the plan, or on one or both end walls. The availability of brick generally allowed the former, but if only stone was available the stack needed to be of greater size, and this tended to mean that end-of-room locations were more appropriate.

Both chimney locations had evolved from the medieval hall house over the previous century, and necessitated a shift in domestic arrangements that left the decorum of dwelling somewhat confused. Despite the less obvious spatial hierarchy, it seems clear that life in these houses still centered on the fireplace in the “hall,” now a single-story room that retained the name more on account of its use than its scale. The parlor, or inner room, a space for sleeping but also for more formal use, generally lay at the “upper” end of the hall, while the “lower” end was usually occupied by a service room. The upstairs rooms were bedchambers.

The most widely accepted form of this type in southeast England by the end of the sixteenth century was well-suited to timber framing (due to the compartmentalization of the plan made possible by a bay structure), and featured a tight lobby/entry space beside the central chimney stack (Figs. 1, 2). This was the principal model that the settlers imported to New England, along with the tools and skills to build it. Though many families desired a house exactly like those they had left behind, the colony was home to a limited number of master carpenters. The only option for most settlers was to accept the design offered by whichever carpenter was available, whether they were familiar with the same building methods and house type or not. It is this fact which explains, to a degree, the remarkably uniform house designs developed in New England.

Once in Massachusetts, settler families needed to express a minimum two-year commitment to the colony, which took the form of a readiness to share expertise and work collectively in the erection of settlements. Following an initial period in one of the older, more firmly established communities, groups of colonists might then expect to acquire a slice of territory.
known as a “town” from the colonial government, which they could divide up to provide each family with land. Agricultural practices imported from England tended to dictate the location of settlements. As a result, most townships were concentrated along the coast and in the major river valleys, which provided marsh hay for livestock and fertile soil for cultivation.

As David Grayson Allen has underlined, English attitudes to the land were both benevolent and presumptuous. Assuming that they might occupy and work the apparently vacant land, the colonists justified their possession of it on the basis of natural right. This was a widely recognized principle in England from the medieval period onward, according to which all men might exploit “waste” land that had not previously been possessed. The right of Native Americans to the land was thus deemed by the settlers to extend only to the territory on which they grew crops.

Indigenous cultural attitudes to land ownership and settlement could not have been more different. The Native Americans of this region believed that land could only be held in common by the tribe. They had no conception of fixed boundary lines or of exclusive rights to natural resources such as timber or water. Their dwellings were also very different to those which the colonists had previously experienced. Local tribes practiced a form of communal living that put little store in the right to privacy, but which ensured that the weak did not go hungry as long as food was available.

The indigenous house form typical of this area, the wigwam, was a lightweight demountable shelter constructed from poles that were fixed in the ground before being bound together and covered with mats. Heating was provided by a central fireplace located below a smoke hole in the roof. Reed mats formed its inner and outer walls, providing both...
insulation and protection from wind and rain. Typically dome-shaped or of more elongated elliptical form, it provided housing for a number of family groups.

In the context of this study it is interesting to note the comments on Algonquin villages offered by Captain John Smith in 1624. These indicate that the New England colonists were almost certainly aware that despite its makeshift appearance, the Native American house provided a surprisingly high level of comfort. According to Smith, the houses were “so close covered with the mats, or the bark of trees, very handsomely, that notwithstanding either wind, rain, or weather, they are as warm as stoves.” In contrast, John White’s earlier account of Powhatan houses noted the ingenious way in which mats were removed in favorable conditions in order “to admit as much light and air as they may require.” Exploiting seasonal diversity by means of mobility and subsistence cycles, the Native American tribes also moved from summer residences among their corn fields to winter quarters deep in the forests. This migratory existence was an intelligent strategy in climatic terms, ensuring that their dwellings were given additional protection from cold winds. Yet it was a way of life much different in character to that with which the colonists were familiar, and so it failed to provide the colonists with any lessons on which they could build.

NEW ENGLAND CLIMATE

In both early descriptions and later commentaries, opinions differ on the extent and impact of differences between the North American and English climates. It is possible that the first accounts, with their indications of a country rich in natural resources and mild and hospitable climate, were influenced by the desire to encourage settlement. One of the first detailed reports on the weather conditions in New England, published in 1634, made light of the difficulties of getting through the winter:

[Only the northwest wind coming from the land, is the cause of extreme cold weather, being always accompanied with deep snows and bitter frosts, so that in two or three days the rivers are passable for horses and man. But as it is an axiom in Nature, Nullum violentum est perpetuum, No extremes last long, so this cold wind blows seldom above three days together, after which the weather is more tolerable, the air being nothing so sharp, but peradventure in four or five days after, this cold messenger will blow afresh, commanding every man to his house, forbidding any to outset him without prejudice to their noses: but it may be objected that it is too cold a country for our English men, who have been accustomed to a warmer climate, to which it may be answered, (Igne levatur hyems) there is wood good store, and better cheap to build warm houses, and make good fires. . . .]"

In a report on his voyages to the colony between 1638 and 1663 John Josselyn noted both the more extreme cold and the more frequent sunshine of the Massachusetts winter:

Cold weather begins with the middle of November, the winter’s perpetually freezing, insomuch that their Rivers and salt-Bayes are frozen over and passable for Men, Horse, Oxen and Carts: Aequore cum gelido zephyrus fert xenia Cymbo. The North-west wind is the sharpest wind in the Countrie. In England most of the cold winds and weathers come from the Sea, and those seats which are nearest the Sea-coasts in England are accounted unwholsome, but not so in New-England, for in extremity of winter the North-east and South-wind coming from the Sea produceth warm weather, only the North-West-wind, coming over land from the white mountains (which are always (except in August) covered with snow) is the cause of extreme cold weather, always accompanied with deep snows and bitter frosts, the snow for the most part four and six foot deep, which melting on the superficies with the heat of the Sun, (for the most part shining out clearly every day) and freezing again in the night makes a crust upon the snow sufficient to bear a man walking with snowshoes upon it."

Though it is generally agreed that the climates of England and Massachusetts today are not as cold as those experienced in the early seventeenth century, a comparison of the two using current data still usefully illustrates the difference between them. Recently published climate information for Boston and London indicates that on both a daily and annual basis the air temperature variations in Massachusetts are greater than in southeast England, with an annual average temperature range that is greater by 10 degrees C (fig.3)."

While the greater heat and humidity in the summers might be expected of the more southerly latitude, the cold and length of the Boston winters is perhaps surprising. Annual precipitation levels are higher, with more violent rainstorms, occasional hurricanes, and heavy winter snowfall (fig.4). For several months each winter snow covers the ground, sometimes until as late as May. Winter winds, and with them driven rain and snow, are a major cause for concern, particularly when they blow from the northwest, bringing arctic conditions southwards. Even today wind chill remains a subject of particular concern in New England, as a result of the fact that strong winds can rapidly cause severe exposure outside, even in relatively mild conditions.

Away from the milder maritime climate of the coast, winter conditions are more extreme still. Occasional respite from these bleak conditions is, however, available: Massachusetts generally enjoys a considerably greater number of hours of winter sunshine than England (fig.5). This appreciably affects comfort for those people, or within those spaces, that are exposed to it.
Many of those who came out intent on making this their new home were ill-prepared for the hardships they had to face. Considerable numbers died as a result of ill-health brought on by the sea voyage or their inadequate first shelters. According to one chronicler, they had to . . . burrow themselves in the Earth for their first shelter under some hillside, casting the Earth aloft upon timber; they make a smoky fire against the Earth on the highest side; and thus these poor servants of Christ provide shelter for themselves, their wives and little ones, keeping off the short showers from their lodgings but the long rains penetrate through to their great discomfort in the night season.\textsuperscript{15}

Later, given a timber lining that improved their thermal performance considerably, these “dugouts” were able to take advantage of the greater thermal stability of the ground (ground temperatures are higher than air temperatures in winter, but lower than air temperatures in summer). Alongside them, the early reports also mentioned “cabbins” and “wigwams,” which were more lightweight constructions built by driving stakes into the ground. These frames were then either given an infill of a wattle and daub or covered with mats, pressed bark, or skins to provide temporary shelter. Opinion differs as to whether the settlers’ use of the term “wigwam” indicates that they were willing, at least initially, to adopt a form of dwelling employed by the local indigenous peoples, or that the similarity in appearance between the “wigwam” and a type of shelter constructed by English shepherds and charcoal burners prompted the use of this term for what was in fact an imported building tradition.\textsuperscript{16}

The settlers were not long content with this state of affairs. They set about building more substantial houses with remarkable energy, beginning with the back-breaking task of clearing the ground of trees. It became rapidly obvious that the most important resources that New England had to offer for this project were an abundance of wood, many fast flowing streams, and limitless “vacant” land. Good building timber had become increasingly scarce in England during the previous two centuries, but in Massachusetts, one settler noted, “wood grows so fast at every man’s door that after it has been cut down it will in seven years’ time grow up again from seed to substantial firewood; and in eighteen or twenty years ‘twill come to be very good board timber.”\textsuperscript{17}

On the other hand, a chronic labor shortage significantly affected building practice. Thus, the early establishment of sawmills — prior, indeed, to any in England — was prompted by the lack of manpower, and mitigated against the manufacture and widespread use of brick in rural areas.

Of the first proper houses that were built, there remains only limited written evidence. It seems that they were of the
simplest English construction, “huts” in Johnson’s terms, of one-room plan type, with a large chimney stack at one end. They were of crude timber-frame construction throughout, including the chimney, and wall infill was of lath and daub, protected either by boards laid flush, or by hand-split cedar clapboards. Most reconstructions indicate that their steeply pitched roofs were covered with thatch. This roofing material is rarely mentioned again in later years, however, and it seems probable that it could neither effectively withstand the heavy rain and snow, nor resist catching fire, adjacent as it was to the flimsy wattle-and-daub chimney.

THE NEW ENGLAND SALTBOX

Over the first eighty years of the colony a number of significant developments in house-building practice took place, engendering a form known as the saltbox (figs. 6, 7). A detailed description follows, with the aim of evaluating the degree to which its evolution was climatically inspired.

Most of the English and many others, have their houses made of nothing but clapboards, as they call them there, in this manner: They first make a wooden frame, the same
as they do in Westphalia, and at Altona, but not so strong; they then split the boards of clapwood so that they are like cooper's pipesvates, except they are not bent. These are made really thin, with a large knife, so that the thickest end is about a pinch (little finger) thick, and the other end is made sharp, like the edge of a knife. They are about 5 or 6 feet long and are nailed on the outside of the frame with the ends lapped over each other. They are not usually laid so close together as to prevent you from sticking a finger between them, in consequence either of their not being well joined, or the boards being crooked. When it is cold and windy the best people plaster them with clay. Such are most all the English houses in the country, except those they have which were built of other nations.29

This contemporary description is extremely useful because it indicates what was unusual, and therefore worth reporting, about the construction methods of the English colonists. Chief among these is that it identifies the use of clapboarding. Such cladding protected and braced a timber frame, which was vulnerable to movement and cracking due to the extreme temperature variations in New England. Brunskill and Briggs both noted the extremely restricted use of clapboards or weatherboards in domestic building of this period in England.30 Their use was confined to southern East Anglia and Kent, and even then mostly for barns and other agricultural buildings.

The colonists used a tool called a froe to split the clapboards from logs of cedar, oak or pine. Split or riven timber is less prone to mold decay than sawn timber — an important factor in America, where exposed timber was employed more frequently. They were then secured with wooden pegs or, on occasion, with hand-forged nails. Even unpainted clapboards were a more effective protection against wind and rain penetration than the external plaster covering common at this point in England, and for which the lime was, in any case, rare.31 In later years the insulating capacity and air-tightness of such a wall was improved still further by nailing an extra flush layer of boards, or “sheathing,” directly to the studs.

The roofs of these early clapboard houses were simply pitched and generally covered with wood shingles, also riven by hand with the froe, and fixed over a layer of boards.32 Dormers and other complicated roof forms that might have led to problems of damp penetration were rare in the seventeenth century.33 Eaves were also close clipped to prevent wind damage. Once it was discovered that snow slid more easily off it, a steeper roof pitch began to be employed.34 And once the colonists discovered that shingles rotted more quickly in the shade, they also consistently located their houses away from tree cover.35

In plan, the most compact form of the English lobby-entry, hall-and-parlor house was favored, with its central chimney placement. A single story of extra service rooms were added, however, at the rear (rather than at one or other end) producing the familiar saltbox form, with a roof lower to the ground on one side than the other.36 The stair was also located centrally. These features gave the house a low surface-area-to-volume ratio and an organization that helped to prevent draughts.

The argument that this choice of plan indicates a climate response rather than merely the continuation of a culturally acceptable practice is bolstered by a comparison of these houses to English colonial building in Virginia. There, the compact lobby-entry plan was not commonplace. Instead, in response to suffocatingly sultry summer conditions, a more open plan was employed. This included a through passage, or “breezeway,” which meant that chimneys needed to be located at either end.

As in England, the two largest ground-floor rooms in the New England house, the hall and the parlor, had different functions. The hall was both the symbolic center of the house and the main hub of everyday indoor activities. As a symbol of its importance, it contained the only fire that was kept burning continuously throughout the day. Here, initially at least, much of the cooking and a range of domestic chores were carried out (spinning, mending, buttermaking). The hall also served as the main dining space, and the arrangement of seating at the large table at which meals were taken was highly symbolic of social status and seniority within the household. Lord of his “Little Commonwealth,” the male head of household presided over family meals from a position of authority in a great armchair usually located at the end away from the fire. Other family members sat on lower benches, stools, or smaller chairs without arms.

By contrast, the parlor served both as the master bedroom and the room in which more formal ceremonies or conversations took place. Meanwhile, the two upstairs chambers varied in use between storage (of either textiles or grains and tools) and sleeping, depending on the number and age of the members of the family and the domestic roles they fulfilled. Finally, beneath the apex of the roof lay a cramped garret that, like the cellar in the basement, was predominantly used for food storage.

As time went on, just as in England, a greater level of spatial differentiation was achieved, principally by displacing noisy kitchen activities from the hall to a lean-to at the back. This allowed an increasingly formal character to be given to the two front rooms. While the hall continued to be used for dining, and indeed became the “best room” (a kind of second parlor that could be used for entertaining and even for sleeping), the settlers’ desire to impose their own idea of order on the wilderness could now be articulated even more forcefully by the actual parlor. Considered a surprising luxury by some, given the frontier conditions, it provided culturally necessary privacy and an ordered presentation of the wealth of the household. As Robert Blair St. George has underlined, the refinement of the imported bed hangings, looking glasses, and display of metal plate both distanced it from the ordinary workaday domestic realm and presented a stark contrast to the untamed landscape outside.37
At the heart of the saltbox was the enormous chimney stack constructed of fieldstones, which often measured as much as 10 by 12 feet. As already mentioned, it differed from the normal English practice of locating stone chimneys in end walls. And within, it contained as many as five flues — the upstairs chambers normally having fireplaces of their own above those of the hall, parlor and kitchen. The scale of such stacks was not unfamiliar in England. What made them remarkable was their size relative to the low-ceilinged rooms they had to heat. In New England second-floor chambers were given ceilings, and were therefore of smaller overall volume than those in an equivalent English house. Above them a low, undivided garret ran the length of the plan.26 Despite being “a thief of warm air” as a result of the convection currents (and thus draughts) it induced, the massiveness of the stack did at least have the advantage of absorbing the heat of the flue gases and re-radiating it at the center of the house. Fireside seats or “settles,” designed to counteract the draughts and make the most of the heat by giving all-around protection to the arms, back and legs, could be moved around to provide more comfortable conditions, if necessary.

A further indication of the importance of climatic factors in the design of the New England house was that its small, shuttered casement windows were generally given glazing from about 1650 on, despite the high tax on the importation of this material. The significance of glass as a means of achieving greater levels of heat retention and air-tightness was also reflected in the fact that wills might occasionally bequeath glazing separately from the house to which it belonged. In England at this period glazing was still relatively unusual, particularly in rural situations. Oiled paper, a much cheaper alternative that was considerably less effective at restricting air movement, was used instead. During the seventeenth century the size of windows in New England houses also gradually increased, allowing the interiors to become brighter — though not all these windows were operable.

Normally, saltbox houses were built with cellars, an unusual practice in England. In this sparsely populated colony, where winter travel was sometimes extremely perilous, cellars were needed to store supplies that ensured survival. Their darkness proved ideal to protect one of the colonists’ staple foodstuffs, root vegetables, from both the heat of summer and frost of winter. Where the stone foundations emerged from the ground (beneath the sills of the main timber frame) they were given protection from the frost by piling up autumn leaves. Above these foundations, the fact that the ground floor was constructed with two layers of wide oak boards over the floor joists was a further indication of the general tendency to establish higher levels of insulation. In England at this period it was still usual to have earth floors, either stabilized with cattle blood or given a lining of bricks. In addition to providing an area for food storage, cellars helped ensure that the main rooms of the house were better cocooned, and that in winter the colonists themselves were never in direct contact with the cold ground.

Externally, the weather also dictated new approaches to site layout and building detailing. For example, the planning of a farmyard needed to take account of the pattern of snow drifting. To give greater protection against the elements in winter, covered walkways were also sometimes constructed between the house, the barn, and other outbuildings. Likewise, to counter the heat of summer, south-facing facades were often given shade by way of pergolas planted with vines.27

This incremental evolution in the colonists’ approach to construction techniques, detailing, and farmyard organization was accompanied by a further significant break with English tradition. By the start of the eighteenth century many of these saltbox houses were being given a specific orientation: the two main front rooms, the hall and the parlor, faced south, and the long sweep of the roof at the rear faced north. This orientation allowed the hall and parlor, the rooms in which people spent most of their indoor waking hours, to make the best use of their small windows to gain warmth from the sun in winter and light throughout the year. It also meant that the dairy was given an appropriately cool location to the north. It is not without interest that the adoption of a particular orientation seems also to have prompted a shift in room nomenclature away from dialect-derivative names based on function to a universal system based on location in relation to the points of the compass.28

Depending on its precise siting, this kind of orientation would also have meant that the house as a whole was less exposed to the worst of the winter winds. And this protection was enhanced by a judicious arrangement of the farmyard. Thus, the back of the barn took the brunt of the northwest wind (the animals’ stalls were normally located on the south and east walls). The house, in turn, sheltered the kitchen garden, which lay beside it to the south. Evidence has even been uncovered that so much importance was sometimes attached to orientation that the entrance to a house might face directly away from the road.29 This break with traditional settlement patterns speaks of an increasing self-determination and independence of thought among settlers no longer constrained by their cultural inheritance. It also illustrates well how the evolution of a cultural norm — the idea of a “fair house” — engendered by the new climatic conditions, contributed to cultural change: the development of American self-reliance or “frontier spirit.”

The climatic response that influenced the evolution of New England colonial architecture came primarily in reaction to extreme winter conditions. House designs suitable to the relatively mild, damp climate of eastern England had to undergo adaptation to provide adequate shelter in the New World. And though living patterns within the home changed little, building methods needed to evolve to better exploit the possibilities of hewn and sawn timber construction. Within a half century, the typical New England house was constructed almost entirely of wood; it featured higher levels of wall and floor insulation, glazed windows, and large fireplaces.
within large chimney stacks; and it made use of a method of wall construction that offered better protection against wind and rain penetration. Its compact plan represented a further step away from the English open-hall medieval type, since there was no longer any sense of a “lower” vs. an “upper” end to the hall. All these changes speak clearly of the higher relative importance colonists attached to combating the climate in a situation where accepted cultural practice could more readily be challenged.

"FRONTIER SPIRIT"

At the outset it was understood that each New England town should have at its center a church or meeting house and a village common, surrounded by house lots distributed along the roads nearby. Each house lot was typically large enough only for a garden, an orchard, a barn, and pasture for a small number of cows (fig. 8). But each individual also owned and farmed strips of land in the common fields that surrounded the village. An unsigned, undated document, probably from the 1630s, entitled “Essay on the Ordering of Towns,” illustrates these early assumptions about the reciprocity of spatial order and social structure in colonial settlements. It described the ideal New World township as a series of concentric circles within a six-mile square. The meeting house served as “the centor of the wholl Circomference,” which was to be surrounded by houses “orderly placed to enjoye the commfortable Communion.” In the third ring, at a distance no greater than one and a half miles from the center, were the common fields farmed by most of the town’s inhabitants, while in the fourth lay the larger 400-acre lots of individuals. Though farmsteads in the latter were inevitably more isolated, even these were not to be built more than two miles from the center. The fifth circle was composed of common land, of swamps and “waest grounds . . . which harbor wolves and . . . noyesom beasts and serpents.” The outer circle was land which was owned but not occupied by the town, and was thus designated as wilderness.

Local differences in attitudes toward land management, farming practices, and social structure ensured that subsequent patterns of settlement within the towns tended to differ depending on the inhabitants’ regional origins. As time passed, each group wished to shape the landscape in a manner that reflected a way of life whose rhythms and relationships it knew and understood. Those who came from the English regions where a common field system predominated (a broad area running from the southwest of England through the midlands to the northeast) were familiar with a landscape ordered by nucleated villages set within a network of common fields. Here the manor predominated in the regulation of production, individuals owned noncontiguous strips of land in the common fields, and many farming practices were organized collectively by common consent. Those from East Anglia, in contrast, were more familiar with a landscape of consolidated farmsteads. Here many small parcels of land were often brought together to create a much larger holding, which tended to engage in more specialized production. In such areas, manors were much weaker, and local government tended to be controlled by the wealthy few.

As David Grayson Allen has pointed out, the neighboring New England towns of Rowley and Ipswich provide good examples of the two different attitudes. Rowley, whose inhabitants were mostly from Yorkshire, retained the nucleated village form, and very little land in the town was divided during the seventeenth century. The East Anglian settlers of Ipswich, on the other hand, quickly reorganized land ownership through exchanges so that larger holdings could be created. This meant settlement reached the boundaries of the town by as early as 1643.

A significant difference between the landscapes of colony and mother country that deserves emphasis is the new scale at which the land was politically structured. Of considerably greater size than the ideal settlement described above, most of the early towns were in fact very large, with territory that varied in extent according to the topography, but whose average size was about one hundred square miles. This surprising aspect of community life was commented on at the time: “Some honest men of our town affirm that in their knowledge there are 68 towns in England, within as little compass as the bounds of Ipswich; I knowe neere 40 — where I dwelt.” Such large size meant that land could be found within the town for the sons and grandsons of the first settlers, an aspect of colonial life which encouraged initial consolidation of the regionally derived farming practices and social structures already described. On occasion, the inhabitants of a group of new farmsteads at a distance from the

**Figure 8.** Early Massachusetts settlement patterns. Ipswich, founded in the early seventeenth century, was a relatively compact settlement. Drawing by author, based on 1717 map of Ipswich, held in the Essex Institute, Salem, Massachusetts.
original town center might petition the colonial government for a new, more conveniently located meeting house to which they all had easy access, and a greater sense of local community might be re-engendered. But it seems clear that land division practices also began to reflect an acceptance of the growing insularity that typified life on more dispersed farms of larger size (Fig. 9).

Despite the initial prominence of the colony’s central government and the restrictions on local autonomy that a true “re-creation” of the conditions of archetypal English rural life should have entailed, the fact that many settlements took almost complete control of their own affairs very rapidly is worth underlining. The insularity that this engendered led to a situation in which settlement patterns were increasingly influenced by individual rather than collective needs. As colonization progressed, the form, character and siting of dwellings underwent a significant transformation in response to a process of acclimatization that dictated cultural change. Out of the mosaic of different regionally derived land-development patterns that characterized New England in the early colonial period emerged the model of a more isolated, more independent mode of existence. As individuals, the colonists wanted territory they could govern as they pleased and on which they could reestablish a familiar way of life. Yet the settlement of New England resulted in the imposition of a new kind of order on the wilderness, as individuals increasingly began to farm the land in accordance with their own needs and interests rather than those agreed upon by the community as a whole.

Certain inescapable aspects of colonial life (difficulties of transport in winter, the need to be self-sustaining in activities for which specialized help would have been available in England), meant that individual homesteads progressively became more independent as time went on. The value placed on self-reliance was further reinforced when the need for collective action began to diminish once the first struggle to found settlements was over. Indeed, despite protests from some quarters, the dispersion of colonial settlements increased as more settlers moved west to look for land. In this situation the interconnectedness of village life ceased to have the same importance, and the home became much more of an isolated unit in the wilderness. A “neighborhood” might then consist of the area reachable by horseback or canoe within a day. “Persistent localism” may have represented its original intent, but ultimately the settlement of New England could not prevent a significant cultural shift toward a dispersion of population and the increasing insularity of family groups. As has been shown above, this also occurred alongside a seventy-year-long transformation of the arrangement, appearance and construction of a suitable house for this purpose, largely inspired by the need to survive the New England climate.

PERSISTENCE AND CHANGE

In House Form and Culture, Rapoport underlined the primacy of socio-cultural factors over physical determinants in the shaping of vernacular building form.39 His analysis also gave weight to those aspects of context which help determine the quality, longevity and transportability of shelter. These include the effects of climate, availability of building materials, and knowledge of construction technologies — though he demonstrated that these aspects are frequently of only secondary significance, and sometimes not present at all.

Three of Rapoport’s conclusions regarding the role played by climatic determinism are worth emphasizing in connection with this study. First, he noted that vernacular architecture typically responds to climate very well, particularly when the climate is more extreme, and thus survival without an appropriate form of shelter is more unlikely.40 Second, he noted that the evolution of vernacular architecture is typically slow — i.e., it exhibits a robust persistence of form.41 Third, he pointed out that the development of colonial architecture provides a useful illustration of the way in which provision of appropriate shelter within a different climate can provoke a relatively rapid evolution of imported house types and the building traditions associated with them.42

This detailed history of one colonial house form illustrates and extends Rapoport’s comments on the relative importance of socio-cultural and climatic factors. In New England, English settlers initially adopted dwellings comparable to those inhabited by the indigenous people of the region. But they subsequently rejected these forms in favor of more permanent structures based on models imported from England. This demonstrates Rapoport’s main con-
tention that in the mind of its builders a vernacular house serves principally to perpetuate and facilitate a shared way of life. In other words, it serves to create an environment best suited to a collective understanding of how life should be conducted and choreographed in spatial terms.

The gradual adaptation of English models also demonstrates, however, that climatic influence on the evolution of building form can be significant. It may affect anything, from the scale of individual rooms, to aspects of detailing and overall form, to the way buildings are grouped and oriented, the way available materials are used, and the way buildings are inhabited. Yet the history of the transformation of the English hall-and-parlor house into the New England saltbox also underlines the typically incremental character of this process of climatic adaptation. This quality often makes it difficult to say whether a particular alteration reflected new assumptions about how to live, or whether it was intended to bring about improved environmental performance. The introduction of a cellar, for example, allowed more isolated farmsteads to store food through the winter, but it also prevented direct contact of the occupants with the cold ground surface.

Indeed, it is interesting to note how the provision of an appropriate level of shelter — or, in other words, a comfortable enough set of conditions — changed certain socio-cultural assumptions but not others. In New England, ideas about the spatial arrangement of rooms, basic volumetric requirements, orientation of the building and the acceptability of building materials were transformed. But the demand for spatial differentiation, represented by our insistence on the provision of the parlor, a space only in intermittent use and therefore more difficult to heat in winter, took precedence over the provision of an even level of comfort throughout the dwelling.

It is also interesting that by the close of the seventeenth century a further change of house form was dictated by the demand for greater visual order rather than improvement in thermal performance. Specifically, this had to do with unhappiness with the asymmetry of the side elevation of the saltbox. Eventually, it meant the ridge of the typical yeoman’s house shifted to integrate the service rooms into a more balanced side elevation. This confirms that, even in New England, climatic concerns were not always of overriding importance.

House form shapes social interactions and social relationships, and potentially articulates shared assumptions about how the rhythms of life should be orchestrated and its settings organized. In every culture ideas about what a house should look like represent deeply held socio-cultural assumptions that normally evolve slowly over time. This study has offered the opportunity to examine the manner and time scale of a significant shift in such assumptions. Perhaps its most important lesson is that whatever the apparent urgency, a rapid transformation of widely held assumptions about the decorum of dwelling can be difficult to achieve.

One implication of these lessons today is that new ideas about “sustainable” communities cannot simply be wished into existence. Politicians, planners and architects alike need to be reminded that the social consequences of radically new forms of housing cannot always be predicted. People will always need to understand and accommodate themselves to the way of life that their form of housing determines, if these forms are to have any long-term validity. In the current drive to produce more sustainable, energy-efficient architecture, it suggests that the need to satisfy cultural norms concerning matters of appearance and spatial hierarchy should not be underestimated.

REFERENCE NOTES

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3. In House Form and Culture (p.48), Rapoport adopted Redfield’s broad definition of “culture” as the total equipment of ideas, institutions, and conventionalized activities of a people. In contrast, he defined “tradition” in a narrower way, as the “direct and unconscious translation into physical form of a culture, its needs and values,” and noted that folk traditions “represent the bulk of the built environment” (p.2). These terms will be used in a comparable way in this article.
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7. For further discussion of the evolution of the English medieval “open hall” house, see R.W. Brunskill, Illustrated Handbook of Vernacular Architecture (London and
8. In contrast, a typical house from the English uplands needed no hallway to ensure privacy, and had service rooms that were less well hidden. This was a result of the fact that in a region dominated by the demands of a grazing economy people tended to live farther apart. Only a small number of examples of this kind of house have been located in New England.


16. Whiffen and Köeper (American Architecture 1607–1976, p.13) have suggested that the colonists noticed the similarity in appearance of their simple framed structures and those to which they were exposed in New England and borrowed the term. In Morrison’s opinion (Early American Architecture, pp.9–10), early settlers adapted the wigwam structure and the name, “improving” on it by providing a fireplace, a crude chimney, and doors in hewn wooden frames.


18. The saltbox form emerged in the years between 1650 and 1670. Four-room, two-story houses of the hall-and-parlor type were expanded by adding a single-story lean-to at the rear. By 1680 the saltbox style had become so popular that houses began to be built with the lean-to as an integral part of the construction.


20. Brunskill, Illustrated Handbook of Vernacular Architecture, p.64; and Briggs, Homes of the Pilgrim Fathers, chapter 5.

21. Paint would have had to be imported and was therefore expensive, but unlike glazing, it could not be justified on the grounds that it improved comfort conditions.


25. Ibid., p.41.

26. By the close of the seventeenth century unhappiness with the asymmetry of the side elevation of the saltbox ensured that the ridge of the typical yeoman’s house shifted back to integrate the service rooms into a more balanced composition—a change of appearance dictated by the demand for greater visual order rather than improvement in thermal performance.

27. St. George, “‘Set Thine House in Order,’” p.172.

28. Ibid., p.168.


30. According to Dell Upton, this shift can be identified from the third quarter of the seventeenth century onward. See St. George, “‘Set Thine House in Order,’” p.167.

31. St. George, “‘Set Thine House in Order,’” p.163.


34. These remarks appear in a letter sent by an early inhabitant of Ipswich, Massachusetts, Nathaniel Ward, as cited in Allen, “‘Vacuum Domicilium,’” p.4.

35. Rapoport, House Form and Culture, chapters 2–4.

36. Ibid., p.24

37. Ibid., p.46

38. Ibid., pp.86–87.