A "New Paradise" for Puritans: Massachusetts Bay

As these Puritans from the east of England sailed slowly across the western sea, every family among them was ordered by the Massachusetts Bay Company to keep a journal, which became a running record of their hopes and apprehensions for the New World. Francis Higginson's advance party sailed in the ships *Talbot* and *Lion's Whelp*. Their first sight of America was not encouraging. In the month of June 1629, when England was all in bloom, these weary travelers reached the Grand Bank of Newfoundland. Suddenly the wind turned bitter cold, and they passed an enormous iceberg hard aground in forty fathoms of frigid water, with the green Atlantic surf roaring against it. It seemed to be "a mountain of ice, shining as white as snow, like to a great rock or cliff," towering above their little ships. In great fear they sailed onward through a foggy night, while drift ice scraped dangerously against fragile hulls, and the ships' drums beat mournfully in the darkness.

A few days later the weather moderated and spirits revived. As these weary travelers approached New England, the ocean teemed with "infinite multitudes" of mackerel and "great whales puffing up water." The surface of the sea was covered with what Francis Higginson took to be brilliant yellow flowers. Rounding Cape Ann into Massachusetts Bay, they saw "every island full of gay woods and high trees," and the Higginsons suddenly felt very good about their new home:

> What with fine woods and green trees by land, and these yellow flowers painting the sea, made us all desirous to see our new paradise of New England, whence we saw such forerunning signals of fertility.

Not many people would have seen that stormy, cold and rockbound coast as a "new paradise." But the Puritans looked upon the world through very special lenses. "Geography," wrote Cotton Mather, "must now find work for a *Christianography*.

The New England location of this Bible Commonwealth was not an accident; its site was carefully chosen by the Puritans with an eye to their special requirements. It proved to be a perfect choice for a Calvinist utopia. Even the defects of the place were blessings in disguise for the builders of the Bay colony.

The first and most important environmental fact about New England is that it was cold---much colder in the seventeenth and eighteenth centuries than today. The Puritans arrived in a period of the earth's history which climatologists call the "little ice age." Ocean temperatures off the coast of New England were three degrees centigrade colder in the eighteenth century than the midtwentieth. In the coldest years of the seventeenth century, the water temperature off New England approached that near southern Labrador today. The Puritans complained of "piercing cold," and salt rivers frozen solid through the winter. One wrote that many lost the use of fingers and feet, and "some have had their overgrown beards so frozen together that they could not get their strong-water bottles into their mouths."

But after the first few years, this cold climate proved to be a blessing. It created an exceptionally healthy environment for settlers from northern Europe. Insect-born diseases such as malaria and yellow fever were less dangerous than in southern settlements. Water-borne infections including typhoid fever and dysentery were much diminished by the cold temperatures of Massachusetts Bay.
Summer diseases such as enteritis, which were the great killers of children in the seventeenth century, tended to be comparatively mild in the Puritan colonies. These New England advantages were only relative; terrible epidemics would develop throughout this region. But average rates of mortality in Massachusetts fell far below most other places in the Western world. At the same time, the cold climate also had other cultural consequences. It proved to be exceptionally dangerous to immigrants from tropical Africa, who suffered severely from pulmonary infections in New England winters. Black death rates in colonial Massachusetts were twice as high as whites'---a pattern very different from Virginia where mortality rates for the two races were not so far apart, and still more different from South Carolina where white death rates were higher than those of blacks. So high was mortality among African immigrants in New England that race slavery was not viable on a large scale, despite many attempts to introduce it. Slavery was not impossible in this region, but the human and material costs were higher than many wished to pay. A labor system which was fundamentally hostile to the Puritan ethos of New England was kept at bay partly by the climate. The climate also had its impact on the growing season, which was shorter in the seventeenth century than today. There were only about five months between killing frosts. This period, from late May to early October, was two months shorter than in tidewater Virginia. Family farms flourished in New England, but large-scale staple agriculture was not as profitable as in warmer climes.

Another environmental factor was the land. New England's terrain was immensely varied, with pockets of highly fertile soil. "At Charles River," wrote Francis Higginson, "is as fat black earth as can be seen anywhere." Concord, Sudbury and Dedham also had excellent soil, as did many other towns in Essex and Middlesex County. But most of the land was very poor---thin sandy scrub on the south shore of Massachusetts, and stony loams to the north. Much of the coast consisted of rocky shoals or marshes, and the rivers were not navigable for more than a few miles into the interior. By comparison with the Chesapeake estuary, there were comparatively few points of access for ocean shipping. Both of these factors---the distribution of pockets of good soil and the configuration of the coastline---encouraged settlement in nucleated towns.

But there were no dry and rainy seasons in New England. The average distribution of precipitation through the year was remarkably even; no month averaged more than four inches of moisture or less than three. As a consequence, the water supply in New England was abundant and stable, with little need for hydraulic projects or public regulation. Cool temperatures and a variable climate created an immensely stimulating environment for an active population. European travelers repeatedly observed with astonishment the energy of the inhabitants. One visitor noted that New England children seen normally to move at a full run. Another remarked that their elders invented the rocking chair so they could keep moving even while sitting still. These impressions have been empirically confirmed by the new science of biometeorology which measures the animating effect of variability in atmospheric pressure and ozone levels. It finds that the New England climate was in fact immensely stimulating to human enterprise.

Altogether, the environment of Massachusetts proved to be perfectly suited for a Puritan experiment. The climate was rigorous but healthy and invigorating. The land was challenging but rewarding. For historian Arnold Toynbee, New England was the classical example of a "hard country" which stimulated its inhabitants to high achievements through a process of "challenge and response." The vitality of this regional culture owed much to its physical setting.
The Chesapeake Environment

English folkways were not the only determinant of Virginia's culture. Another factor was the American environment. New England and Virginia were very different in their physical setting---more so than the distance between them would lead one to expect. Jamestown and Boston were separated by only five degrees of latitude (300 nautical miles). But they were much farther apart in their climate and geography.

The dominant feature of Virginia's environment was the Chesapeake Bay, always known to natives as the Bay. In ecological terms the Bay is an estuary, where fresh and salt water meet in a marine environment of exceptional fertility. The light of the sun reaches down through warm and shallow waters, rich in nitrogen and phosphorous, to nourish large populations of bacteria and plankton. The sandy bottom of the Bay is choked with eelgrass, sea lettuce and wild celery which support a great chain of marine life, culminating in the striped bass and shellfish that are an epicure's delight. For English colonists who settled on its shoreline, the teeming waters of the Bay held immense riches---and fatal dangers.

The surface of the Bay is a vast sheet of water, 200 miles long, 4 to 30 miles wide, and open throughout its length to oceangoing vessels. "No country can compare with it," wrote Hugh Jones, for "number of navigable rivers, creeks and inlets." The Bay is fed by hundreds of streams and forty-eight navigable rivers, some of immense size. The James River is larger than London's Thames; the Potomac is longer than the Seine. The Bay and its tributaries hold many dangers for unwary navigators---treacherous shoals, shifting sandbanks, coastlines that rise and fall without warning, disastrous worms which can devour a ship's wooden bottom. But with care, a colonial captain could sail where he pleased in this vast waterway and find good anchorages for the largest vessel. Virginia planter Robert Beverley wrote that ocean-going ships could anchor directly "before that gentleman's door where they find the best reception, or where 't is most suitable to their Business." Maryland's Dr. Charles Carroll observed that "planters can deliver their own commodities at their own back doors."

This fact led one visitor in the seventeenth century to predict that the Chesapeake would become "like the Netherlands, the richest place in all America."

This watery maze of rivers and streams created vast tracts of rich alluvial soil. The best land was quickly appropriated by Governor Berkeley's Royalist elite for their large plantations. "Gentlemen and planters love to build near the water," wrote Hugh Jones, "though it be not so healthy as the uplands and barrens." When William Hugh Grove sailed into the York River in 1732, he observed that it was "thick seated with gentry on its banks ... the prospect of river render them very pleasant [and] equal to the Thames from London to Richmond, supposing the towns omitted."

The "omission of towns" was encouraged by the structure of the Bay and its rivers. Their 6,000 miles of shoreline created an opportunity for dispersed settlement that did not exist in other environments. The people of the Bay were able to scatter themselves through a vast amphibious territory. Robert Beverley wrote that all the colonists on the Bay had "fallen into the same unhappy form of settlements, altogether upon country seats without towns.

The shape of the terrain differs on the two sides of the Bay. On the eastern shore it tends to be as flat as a billiard table. The western shore is a more varied and rolling countryside that falls to the water's edge in gentle undulations. Captain John Smith accurately described it as a succession of "pleasant plain hills and fertile valleys, one prettily crossing another, and watered so conveniently with their sweet brooks and crystal springs,"
as if art itself had devised them."

When cleared and cultivated, the western shore took on a quiet, pastoral beauty that reminded homesick colonists of southern and western England.

Between the rivers were ridges or "necks" that tended to be thin and barren land. Here poor whites pitched their small houses and scratched out a miserable living from the earth. Upland soil sold for as little as five shillings an acre in the eighteenth century. The price of rich bottom land was five pounds an acre—twenty times as much. The best river land was immensely fertile, and there was a great deal of it—vast tracts of virgin soil, which natives and visitors alike uniformly praised for its "extreme fruitfulness." It was farmed by primitive methods of husbandry, producing large yields until the late eighteenth century.

When Virginia was young, the tidewater was a lush, green country. "The whole country is a perfect forest," wrote Hugh Jones in 1724, "except where the woods are cleared for plantations, and old fields, and where have been formerly Indian towns." By the mid-eighteenth century more of the tidewater was cleared than today. The countryside around Williamsburg was described by the German traveler Johann Schoepf in 1784 as "a pleasant open plain." But he characterized the colony in general as an "eternal woods," broken by dense swamps and grassy uplands which the planters called "savannahs" or "barrens."

The Chesapeake woodlands were magnificent stands of ancient trees, soaring "thirty, forty, fifty, some even sixty or seventy feet high without a branch or limb." There were towering tulip trees with gaudy yellow-orange flowers, and aromatic sweet gums with delicate star-shaped leaves, and majestic white oaks as much as five hundred years old. The variety of trees was astounding—many as fifty varieties of oak alone. The swamps were dense with cypress and cedar; and the uplands were covered with sassafras and chinkapin. Wild fruit trees flourished in profusion; among them, many wild plums and cherries ("the most delicious cherry in the world," wrote Robert Beverley); and persimmons which could be made into "an agreeable kind of beer." The open fields were choked with currants, raspberries, and delicate wild strawberries "so plentiful that few persons take care to transplant them, but can find enough to fill their baskets."

To its first English colonists, the Chesapeake country appeared another Eden, demi-paradise. Captain John Smith thought that "heaven and earth never agreed better to frame a place for man's habitation." It would have been so, were it not for one terrible defect. To colonists from northern Europe, the Chesapeake proved to be desperately unhealthy. The best lands on the water's edge became death traps in the summer and fall.

The climate of the Chesapeake in the seventeenth century was nearly as warm as in the twentieth. Such was the pattern of circulation in the "little ice age" that temperatures were about the same as today throughout the southern colonies while New England was colder. "The natural temperature of the inhabited part of the country, is hot and moist," observed Robert Beverley of Virginia. "The summer is as hot as Spain; the winter cold as in France or England," wrote Captain John Smith. The scientific traveler Johann Schoepf observed in the eighteenth century that "the Fahrenheit thermometer often stands at 80-90-95 degrees."

This warm climate gave tidewater Virginia an asset in the length of its growing season, which was 210 days between heavy frosts—two months longer than in New England. But it also brought a liability in the relation between climate and disease. As the temperature rose, so did the death rate.

One part of the problem rose from the Bay itself. Fecal pollutants washed into swamps and stagnant pools. The estuary itself became an ideal breeding ground for typhoid fever and amoebic dysentery, trapping deadly organisms which ravaged the
sickly population in the summer months. The "dying time" came mostly in the summer and early fall, when "fevers" took a heavy toll of young life. Every year this mortal season lasted much longer in Virginia than in New England.

Another part of the problem was malaria. The tidewater was a perfect nursery for mosquitos. In the hot summers Robert Beverley wrote that "musketaes are a sort of vermin, of less danger [than others] but much more troublesome, because more frequent." Malaria parasites were introduced at an early date by immigrants from Europe and Africa-first the comparatively mild *Plasmodium vivax* from southern England; then the more dangerous *Plasmodium falciparum* by which Africa had its revenge for the slave trade. *P. vivax* was a great debilitator; *P. falciparum* was a killer. Particularly at risk were pregnant women, infants, small children, new immigrants and the chronically ill.

Malaria, typhoid, dysentery, enteritis and other diseases took a terrific toll in that part of tidewater Virginia where the soil was richest, and where gentlemen liked to build their seats. A French visitor observed that the sallow faces of people in tidewater Gloucester County, "looked so sickly that I judged the neighborhood to be unhealthy." On higher ground in Rappahannock and Stafford counties, he remarked that complexions were "clear and lively."

The heat and humidity of the tidewater, and its endemic summer diseases had other social consequences. Travelers and natives both remarked on the "idleness," "indolence" and "sluggishness" of the Virginians, as well as their irritability and quick tempers. Geographer Carville Earle has pointed out the similarity between this behavior and the symptoms of endemic diseases in the tidewater.

The environment of the Chesapeake combined with the culture of Sir William Berkeley's Royalist elite to create the folkways of Virginia. The rich resources of the region supported a strong agricultural regime. But heavy mortality among European colonists disrupted nuclear households and discouraged immigration from Europe. Virginia's unique folkways emerged from the interplay of English culture and an American environment.

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*An elegant essay on this subject is Carville Earle, "Environment, Disease and Mortality in Early Virginia," in Tate and Ammerman, eds., *The Chesapeake in the Seventeenth Century*, 96-121. Earle believes that the problem was most severe in the freshwater-saltwater transition zones, particularly on the left banks of rivers, because of the complex hydraulics of the estuary. A point at exceptionally high danger was unusually the site of Jamestown, where health problems were compounded by salt poisoning.


The Quaker Canaan: The Delaware Valley

European colonists in the Delaware Valley described the dimensions of their new world with a sense of awe. Even today, the great river startles the most jaded modern traveler by its breadth and majesty. In the seventeenth century it was thought to be a wonder of the world. Francis Daniel Pastorius wrote in 1700, "... the Delaware River is so grand that it has no equal in Europe." Inside its twin capes, the river opens to form a bay forty miles wide. One hundred miles upstream at Newcastle it is still nearly two miles across. The largest ships in the seventeenth century could sail inland as far as Trenton, 165 miles from the sea.

The ecology of the Delaware Valley was exceptionally well suited to the cultural purposes of its Quaker colonists. Of all the environments of the Atlantic coast it was uniquely favorable to commercial and industrial development. The river and bay became a great common, lined with flourishing settlements. The Welsh Quaker Gabriel Thomas wrote that "between these towns, the watermen constantly Ply their Wherries, likewise all these towns have fairs in them."

Both banks of the Delaware River were laced with small rivers and creeks "in number hardly credible," wrote Penn. On the western shore, the fall line lay only a few miles inland. Streams such as Brandywine Creek and Chester Creek offered many fine mill sites within easy reach of the sea. Close to Philadelphia were large deposits of building stone, coal, copper, iron ore, dense stands of oak, and walnut and chestnut. The soil was rich and fertile, a "good and fruitful land," Penn called it, "in some places a fast fat earth, like to our best vales in England."

Another feature of the Delaware Valley was specially important to the Quakers. The natives were friendly, and very different from the more militant tribes of the lower Chesapeake and upper New England. The Delaware Indians as the English called them, or Lenni Lenape as they called themselves, were as distinct from the bellicose Abnaki, the ferocious Pequots and the warlike Powhatan Confederacy as the Quakers were unlike Puritans and cavaliers. William Penn's Indian policy would have been a disastrous failure in Massachusetts or Virginia, just as it later failed in western Pennsylvania. In the valley of the Delaware, it succeeded splendidly, not only because of the Quakers themselves, but also because of the Indians.

A third environmental factor was the temperate climate, which tended to be favorable to European settlement. Levels of mortality were high by modern standards, and also highly unstable, but the first generation found the Delaware Valley to be healthier than England or Virginia, and not much inferior to Massachusetts. This pattern changed for the worse during the eighteenth century when malaria infested the lower Delaware Valley, and yellow fever became a great killer in Philadelphia. Death rates rose generally throughout the region, but the higher ground of Pennsylvania remained exceptionally healthy. Throughout most of the Delaware Valley, moderate levels of mortality supported stable family life—a material fact of high importance for the Quakers.

The settlement of the Delaware Valley by members of the Society of Friends did not happen merely by historical accident. The Quakers had long looked with interest upon this region. As early as the year 1660, George Fox and a consortium of English Friends dispatched an agent named Josiah Coale to buy land from the Indians in what is now southeastern Pennsylvania. His mission failed, but he later informed William Penn about the region. George Fox himself also made a personal reconnaissance of the Delaware Valley in 1672 and found the Indians "very loving." He urged Penn to plant his colony there.

In this environment, English Quakers deliberately acquired no fewer than three American colonies—West Jersey, Pennsylvania, and Delaware. For a time they also owned East Jersey, and parts of Carolina. The colonists of East Jersey were people of many faiths—including many Dutch settlers from New Netherlands, and a large number of New Englanders whose major settlement was named New Ark (now Newark). Largely as a consequence of incessant complaints by Puritan settlers against Quaker proprietors, imperial authorities in 1702 took over both provinces and combined them in a single royal colony called New Jersey.
In 1681, the Duke of York was instrumental in the creation of Pennsylvania, the largest and most important of the Quaker colonies. This great province was granted to William Penn in nominal payment of a debt which the Crown had owed his father. But that was not the leading motive. The founding of Pennsylvania was a serious effort to settle the "Quaker problem," by a monarch who sympathized with their plight. The original grant was larger than the present state of Pennsylvania. Altogether, Penn's province covered about 600,000 square miles, stretching from sea to sea between the 40th and the 43rd parallels, an area six times the size of Great Britain. It later grew a little larger when William Penn was allowed to buy the colony of Delaware from the Duke of York. For many years Delaware was governed as a separate part of Pennsylvania.

From the start, the Delaware colonies were generally perceived as parts of a single region. Quakers throughout the Delaware Valley organized themselves into a single yearly meeting which met alternately on each bank of the river. When the Anglicans attempted to rescue the inhabitants from "Quakerism or heathenism" in the eighteenth century, they organized the valley into a "single missionary field." The valley also became an economic unit which sent its produce to Philadelphia. Historian Frederick Tolles writes:

The colonial Pennsylvanian knew without being told that he lived in the valley of the Delaware. He first saw his new home from the deck of a ship sailing up the great river.... The Delaware united West Jersey, Pennsylvania and the Lower Counties (which eventually became the state of Delaware) into a single economic province, and linked it with the rest of the Atlantic community. It also unified the valley into a single "culture area."