

Spring 1999

The ship in the forest: New England maritime industries and coastal environment, 1630-1850

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**THE SHIP IN THE FOREST:
NEW ENGLAND MARITIME INDUSTRIES AND COASTAL ENVIRONMENT,
1630-1850**

BY

**WILLIAM BURGESS LEAVENWORTH
A. B., Hamilton College, 1966
M. A., University of New Hampshire, 1990**

DISSERTATION

**Submitted to the University of New Hampshire
in Partial Fulfillment of
the Requirements for the Degree of**

**Doctor of Philosophy
in
History**

May, 1999

UMI Number: 9926025

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DOCTORAL DISSERTATION

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DEDICATION

During the Revolutionary War, two of my fifth-great grandparents, Crims and Leavenworths, were driven from their homes which were burned by Indian raiders. In the early 1860s, a young teacher closed his Vermont classroom and marched off with his students to fight in Lincoln's War. That was my great-great grandfather. In 1942, a new Biology Instructor at Wabash College put aside his dissertation and resigned from his teaching position to enlist in the Army Air Force. Less than two years later, he was killed in action. That was my father. This is for those generations whose sacrifices made my life possible. It is also for those in my Grandfather's generation of Wabash faculty--Clarence Eldridge Leavenworth, Theodore Gronert, and Robert Harvey, who taught me about history and much else. It is for those in my father's generation who taught me at Hamilton--Landon G. Rockwell, Dave Hawley, and Jim Penney. And it is for those who stepped into my father's place to look out for me--Richard O. Ristine, again Landon Rockwell, and Charlie MacKenzie. They are the lares and penates of my house.

ACKNOWLEDGMENTS

This work involved seemingly endless rummaging in primary sources, mostly in print, but some in the original quaint scribbles and scripts of the seventeenth and eighteenth centuries. Many times I felt like Pooh chasing the Woozle, but when I was ready to give up, Dr. Charles Clark always gave me a word of encouragement, and pointed where the woozle was last seen. Dr. Jeff Bolster repeatedly offered the use of a writer's compass, which I finally accepted. Without them I would never have finished. I thank them both, and also Jane Porter and the staff of the Portsmouth Athenaeum, Will LeMoy and the staff of the Essex Institute, Tom Hardiman and the York Institute, John Arrison and the Penobscot Marine Museum, and the staffs at the Wilfred Blunt Library of Mystic Seaport, the American Antiquarian Society, the Massachusetts Archives, the Massachusetts, New Hampshire and Maine Historical Societies, and the Maine Maritime Museum. I thank also my friend and colleague Karen Alexander, without whose help this would never have made the leap from hard drive to paper. Thanks also to my true friend Joan Weferling, who has kept my things in order, occasionally paid my bills, and maintained my base while I worked at this project.

Circuitous though this work be, it does lead from one point to another, and shed some light along the way. The credit, where I have succeeded, goes to these people, while the errors, and they are many, are mine alone.

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ABSTRACT

THE SHIP IN THE FOREST:
NEW ENGLAND MARITIME INDUSTRIES AND THE COASTAL
ENVIRONMENT, 1630-1850

by

William Burgess Leavenworth

University of New Hampshire, May, 1999

This work examines the relationship between New England's maritime industries and the coastal ecotone, from Massachusetts Bay to Penobscot Bay and occasionally beyond, between 1630 and 1850. It begins with the early English use of the littoral ecosystem, and describes the effects of expanding maritime development and related industries--shipbuilding, fishing, farming and forestry--on that ecosystem until the late ante-bellum era. It also investigates the role of the coastal ecosystem in the development of New England's colonial and early Federal political structure and economies, and describes in some detail the role of strategic coastal resources in the wars of the 17th and 18th centuries, as well as the effects of those wars on the ecosystem.

The principal conclusions are these: First, that the ecosystem played a crucial role in the development of New England. Second, that the topography was instrumental in determining the nature of regional economy and social

structure for two centuries. Third, that a century of intermittent pre-industrial warfare was actually beneficial for the natural resources, allowing them time to recover from early depredations. Fourth, that the topography and technology led to the formation of a communitarian capitalism that was peculiar to the New England coast, that lasted into the 19th century, and that contributed, consciously or not, to the maintenance of a sustainable relationship between harvest and regeneration of the natural resources until it was overcome by the corporate capitalism of the burgeoning industrial revolution. In the second quarter of the 19th century, this communitarian capitalism was overwhelmed by a larger and more sophisticated corporate capitalism, and its disappearance led to unbalanced depletion of the near-coastal resources, and perhaps irreversible changes in the landscape.

INTRODUCTION

It is wiser, I believe, to arrive at a theory by way of the evidence rather than the other way around...It is more rewarding, in any case, to assemble the facts first and, in the process of arranging them in narrative form, to discover a theory or a historical generalization emerging of its own accord.¹

In the Spring of 1977, a neighbor and I bought a woodlot in Maine. At that time I was sailing on large traditional sailing vessels, the schooners which continue a commercial existence carrying passengers along the Penobscot coast. From time to time an enterprising skipper would purchase an old working vessel and rebuild it for the passenger trade, or a very ambitious captain might build a vessel from scratch, following traditional designs. These projects required a great amount of wood, mostly oak. Here the material needs of the shipbuilders intersected with the financial demands of our woodlot. We hypothesized that if we could supply oak to the shipyards, the income would pay our mortgage and taxes. We began harvesting selectively for oak in 1979, and by the winter of 1983 there was not a mature oak left in the woodlot, straight or spreading. It then became necessary to harvest the mature pine to pay taxes.

Having seen trees progress from their stumps to dimensional timbers in large vessels, and knowing the effect of that process on the makeup and economic viability of our woodlot, I became interested in the historic impact of maritime industries on the ecology of their hinterland. A century had passed since the last large generation of wooden ships slipped down the ways. If modern resources would not support maritime industrial consumption at less

¹ Barbara Tuchman, *Practicing History*, (New York: Alfred A. Knopf, 1981), p. 34.

than nineteenth-century levels, how was it that the resources of the early nineteenth century were able, after two centuries of constant harvest, to support the enormous output of the maritime industries between 1800 and 1850? The umbrella question that came to mind was: what relationship evolved between the maritime industries and New England's coastal ecosystem in the first two centuries of European settlement? Subordinate questions were:

1) How might a relationship between maritime industries and the coastal ecosystem have affected human ecology near the coast, and the natural ecosystem of the littoral?

2) If this relationship did affect the human ecology and natural ecosystem of the littoral, what components of that ecology and ecosystem were affected, and how did they change?

Intrigued by these questions, I undertook a study of the New England maritime industries--shipbuilding, fishing, and near-coastal forest harvest--from the point of view of the coastal environment and the seaboard community. It was necessary for comparative purposes to cover a sufficient geographic area to incorporate topographical differences and movement into the study. The principal topographic parameter on the north of the study is the Kennebec River of Maine, where the earliest recorded vessel was built under an economic paradigm that was experimental but already atavistic at the turn of the seventeenth century, and where communitarian capitalism in the form of wooden shipbuilding later made a last stand against the paradigm of modern capitalism. The principal topographic parameter to the the southward is Massachusetts Bay, where the true maritime industries began in the second quarter of the seventeenth century, and where they ended with the Gloucester fishermen of the nineteen-forties. At times research led me beyond each of those boundaries, for the term "New England" embraced much of Nova Scotia in the

colonial period, and Newfoundland then played an integral part in the New England economy. Throughout this area the maritime industries were powerful tools through which technological, economic and political events in the North Atlantic community both changed and preserved the coastal environment of New England. My work became this doctoral dissertation.

Originally I had assumed that I would be able to show how the rise of maritime industries had played an important role in the destruction of the coastal forest, as they had around the Mediterranean and along the western European littoral. The contrary proved true. It appeared that in New England, far from depleting coastal resources, maritime industries had played a vital role in preserving them for over a century. More surprisingly, it appeared that intermittent war benefited the environment in that pre-industrial era, contributing to the sustainable balance between harvest and regeneration. Along the New England littoral, maritime industries, the coastal ecosystem, limited technology and warfare had combined to create a sustainable balance of harvest and regeneration between 1675 and 1830. This sustainable relationship between settler and ecosystem, at first an accident of war, population and technology, became the linchpin of a communitarian capitalism that defined the New England character well into the nineteenth century.

This was in stark contrast to the pattern of resource management in Europe, where a self-indulgent nobility had sold its natural forest resources so recklessly to maritime and early industrial interests (iron forges and pottery kilns) that smelters and shipbuilders were soon fighting over the last available twigs, hyperbolically speaking. In New England on the other hand, shipbuilding by consuming the very best seedstock in the forests and by taking for compass timbers and shaped wood the great spreading trees of the edges and hedgerows, indeed affected the top of the gene pool for relevant species such as oak and pine.

However, the economic and social relationships that developed along the coast among farmers, shipbuilders, fishermen and merchants created a communitarian capitalist interdependency which ensured that some care was taken to maintain something close to balance between harvest and regeneration before the ecosystem approached a crisis of European proportions.

In the end, therefore, this dissertation described the maritime industries as partners in a long sustainable relationship with their ecosystem. This sustainable relationship lasted in places almost until the Civil War, and was finally brought into decline by changes in the use of its own surplus capital--human, natural and financial.

To prepare the dissertation I undertook a detailed review of published primary material, seeking page by page for any mention of the maritime industries and related activities such as mast harvesting, sawmills, stave rieving, and shoreline alterations. Generally, I looked for patterns reflecting changes in maritime industries or the ecosystem which might have occurred in response to changing demands of trade, politics or technology, and evidence of their causal relationships to each other. My method was to create an extensive database from primary data, including as much relevant material as possible on the ecosystem, maritime industries and the coastal community. Files were then sorted and arranged by combinations of subject, date, person, species, geographical area and other related criteria. By collating those files in various combinations of parameters, I occasionally exposed patterns that would have been difficult to detect using older methods. I used that information to re-examine some of the received truths about New England maritime history, and found that at times those truths warranted adjustment. I then attempted in my text to join the patterns more clearly, using specific examples and relating them to the relevant scholarship already published. In the end, I came up with a story that

complements or elucidates those stories already told by the Bailyns, Albion, Hutchins, Cronon, Malone, Carroll, and others.

I had hoped that there would be published scientific work with the genomes of the White Pine (*Pinus Strobus*) and White Oak (*Quercus Alba*), that might provide a scientific evaluation of genetic declension within heavily harvested species in the coastal forest, for the evidence suggests such a decline. It would be useful to this discipline of Environmental History if geneticists would do a chronological comparative genome study of some of the economically dominant species, by doing genome maps of samples from the seventeenth, eighteenth and nineteenth centuries in the same general area, but such work has yet to be done. Personal communication with researchers at the Harvard Forest in Petersham, Massachusetts, and with a doctoral student beginning a related study at the University of Massachusetts in Boston indicates that nothing is yet published on this subject.

The exhaustion and degradation of New England's coastal resources is today a great concern to its people, although they have little information beyond the anecdotal about the courses of events that brought their natural environment to its present state. I believe that modern environmental issues have a long pedigree. Here and there in their evolution appear systems which once showed some promise as alternatives to what became the dominant paradigm. None of these issues can be properly understood or (in the case of problems) be successfully addressed until that evolution has been carefully examined and objectively described. This work sheds some light on the issues by presenting an environmental history of the New England littoral before the Civil War.

Important themes in this study are the following. The coastal ecosystem is that natural environment that comprises the area from several miles offshore to

several miles inshore. Ecology, for the purposes of this work, is the study of that ecosystem, and human ecology is the study of the economic, social and technological aspects of the human community within that ecosystem. The littoral is the general coastal area, for the forests, farms, and fishing grounds are as important here as the village and city with their harbors and shipyards. Sustainability implies a balance, regional when not local, between the consumption and regeneration of natural resources along the littoral.

Although the overall work follows the chronological development of the subject, the chapters within it are set up topically. The study begins with the early environment along the New England coast, and shows why its resources were valuable to the first settlers and their successors. It demonstrates that those settlers quickly began to incorporate the resources into a maritime-centered economy which became peculiar to New England. It explains why the unique value of those coastal resources made them a prize over which many European newcomers to New England struggled, both with the indigenous owners and with each other. It demonstrates that for some time the struggles over ownership of those resources ultimately benefitted the resources. It shows how the value of the resources contributed to some conscious preservation of them as long as they could play an important role in a regional economy based on communitarian capitalism, widespread resource ownership and the creation of added value through skilled manual labor. Finally it shows how the resources and the way of life that protected them were submerged in a new form of corporate capitalism that appeared with the second industrial revolution, and made obsolete much of the old coastal ecosystem, both human and natural. The new capitalism was in fact a product of surplus capital produced by those maritime industries and the resources, natural and human, of the New England littoral.

While time never stands still, its progress is not necessarily forward. We may learn some ways to improve the state of our coastal resources by examining the patterns of consumption that were least harmful in the past, and incorporating them into our present lifestyle. We may also learn which practices were most destructive in the past and avoid repeating them. There are two mistakes that we must avoid in studying environmental history. The first is the assumption that because “they” are dead and “we” are not, we consequently know more than they did, and our knowledge is closer to truth--such thinking risks reinventing the wheel that runs over us. The second is the proposition that we should eschew research which could lead to politically unpopular conclusions, however true they might be--such thinking may place us repeatedly in the way of that wheel.

CHAPTER ONE

IN THE BEGINNING: BEFORE 1650

New England's Prospect

All along this coast there is much cleared land sown with Indian Corn. The country is very pleasant and agreeable, with no lack also of many fine wood.¹

Of woods, seeing there is such plenty of all sorts, if those that build ships and boats, buy wood at so great price, as it is in England, Spaine, France and Holland, and all other provisions for the nourishment of a man's life, live well by their trade; when labour is all required to take thses necessaries without any other tax, what hazard will there be here but to doe much better, and what commodity in Europe doth more decay than wood?²

The timber of the country grows straight and tall, some trees being twenty, some thirty feet high, before they spread forth their branches; generally the trees be not very thick, though there be many that will serve for mill-posts, some being three foot and a half over..³

Before the Beginning

The first settlers in New England intended to make it a center for maritime industries. Early explorers and settlers all remarked about the potential of the forests and fisheries, and John Smith stated specifically that the New England coast was especially suited to shipbuilding. This chapter begins with a description of New England's environment as the English first found it.

¹ Samuel de Champlain, Voyages du Sieur De Champlain, (Toronto: Champlain Society reprint of 1613 ed., 1922), p. 338.

² John Smith, History of New England, 1624. Reprint ed. in Forerunners and Competitors of the Pilgrims and Puritans, vol. II, (Brooklyn, NY: New England Society of Brooklyn, 1912), p. 671.

³ William Wood, New England's Prospect, (Amherst: U Mass reprint of 1634 ed., 1977), p. 38.

It then discusses how, from the very first settlement, they (along with their Dutch neighbors) appropriated the resources of that environment to initiate their own maritime industries. The following chapter describes how these industries grew to rival those of the motherland.

In order to understand the relationship between the maritime industries and northern New England's environment during the first two hundred years of European occupation, it will be necessary to establish a baseline, giving some idea of the state of the environment on the eve of English settlement. It is incorrect to consider the environment as being in stasis under Indian occupation in the sixteenth century. Russell and Cronon have shown that Indian cultures had already altered some of the "forest primeval,"⁴ but recent scholarship would argue that there was never a static forest ecology. Within the parameters of climatic zones, microsystems were in constant, if very slow flux, and the concepts of "climax forest" or "virgin forest" are really artificial and perhaps romantic labels evoking an Eden-like quality that defies time and natural life-cycles.⁵

In the earliest years of settlement in New England, the English found themselves in an environment which had both evolved and been tailored by another culture for its own benefit. That indigenously-tailored environment was, however, quite suitable to the purposes of the settlers. It provided them with even-aged old-growth forests containing a large proportion of nut trees, and

⁴ Howard S. Russell, Indian New England Before The Mayflower (Hanover: University Press of New England, 1980) and William Cronon, Changes In The Land: Indians, Colonists, and the Ecology of New England, (New York: Hill and Wang, 1983).

⁵ Philip W. Conkling, Old-Growth White Pine Stands in Maine, (Augusta, ME: Maine State Planning Office, 1978), p. 3. See also the discussion of forest succession in Michael Williams'

therefore ideal for hunting or grazing pigs, goats and fowl. There were also abandoned fields overgrown with browse and saplings from the forest, and cleared areas which had been repeatedly burned off or cultivated. More importantly for our study, nature when left unhindered practices eugenics. The forest overstory, or canopy, was composed of trees which descended from many successive generations of dominant individuals from each species—very tall, and very large. At the forest edges were cleared areas where grew thick-trunked wide-spreading hardwood trees, many of them white oaks and chestnuts. The seed stock for hardwood and evergreen alike was itself the product of several thousand years of natural competition, as was the breeding-stock for animals. Pines containing more than ten thousand board feet of lumber were not uncommon, and individual hardwood trees in the old forest sometimes contained two or three thousand board feet of lumber.

If sections of the southern New England forests seemed like parks to the first European beholders, it was because the Indians had consciously weeded and pruned them with annual fires for several centuries. If some sections of northern New England forests seemed vast and impenetrable, it was because there hadn't been any recent large forest fires or infestations of a new disease or parasite. Michael Williams' Americans & Their Forests, an encyclopaedic work published in 1989, begins by analyzing recent data on pre-Columbian demography and Indian integration into the North American ecosystems. He believes that the indigenous population of North America "*might ...have been*

Americans & Their Forests (Cambridge, England: Cambridge University Press, 1989), p. 30.

between 9.8 and 12.25 million."⁶ Of these, perhaps 144,000 were in New England south of the Saco River⁷, and Champlain and others noted evidence of a few thousand more between the Saco and the Bay of Fundy.

New England Indians practiced both farming and hunting. William Cronon divided the area in this study roughly along the Kennebec, between those who were predominantly hunters northeast of the river and those who were predominantly farmers to the southwest.⁸ Nonetheless, Indians from the Kennebec northeastward maintained some cornfields,⁹ and Indians southwest of the Kennebec kept the forest in a state which facilitated the natural propagation of game animals, particularly deer. Because firewood became exhausted with continual harvesting, Indians seem to have moved their villages about every 15-20 years, choosing a new site for its proximity to firewood and water.¹⁰ Nearly every early explorer commented on the extensive agricultural land of the Indians, and in some places it amounted to thousands of acres in various stages of cultivation or regeneration, usually along rivers where anadromous fish ran or on the southern faces of hills near such rivers. The perimeters of fields established an extensive "edge effect," a habitat not only for game, but also for spreading trees; along the edge of a field trees tend to grow outward, while trees of the deeper forest grow upward, competing with their neighbors for sunlight.

⁶ Williams, Americans & Their Forests, p. 33.

⁷ James Axtell, The Invasion Within, (NY: Oxford University Press, 1985), p. 219.

⁸ William Cronon, Changes In The Land, (New York: Hill and Wang, Division of Farrar, Straus & Giroux, 1983), p. 38.

⁹ See below, p. 5, fn. 14.

¹⁰ Williams, Americans and Their Forests, p. 38.

Fire was a principal agricultural tool for New England Indians, as it was for tribes further south and west. Williams believes that the combination of fire and crops enabled the Indians to change the composition of the standing forest, for better or for worse. In 1634 William Wood observed:

for it being the custom of the Indians to burn the wood in November when the grass is withered and leaves dried, it consumes all the underwood and rubbish which otherwise would overgrow the country, making it unpassable, and spoil their much affected hunting; so that by this means in those places where the Indians inhabit there is scarce a bush or bramble or any cumbersome underwood to be seen in the more champion ground. Small wood, growing in these places where the fire could not come, is preserved. In some places, where the Indians died of the plague some fourteen years ago, is much underwood, as in midway betwixt Wessaguscus and Plymouth, because it hath not been burned.¹¹

Fire had the immediate benefit of destroying any vermin in the vicinity, and perhaps some insect predators that might have become concentrated around the crops. Repeated fires destroyed all seedlings, and eliminated all species which were not fire-resistant, leaving only a forest of uniform age and selected species. This would sometimes be replaced by grassland as the trees died of old age, and in other places the forest would regenerate itself when left undisturbed. Carl Sauer believed, based on material from the Champlain Society, that the New England Indians in the reliable agricultural zone south of the Kennebec had been fairly sedentary in their farming villages, depending for cooking on the great hollowed stumps in which they placed hot stones, until European kettles gave them much greater mobility.¹²

¹¹ William Wood, New England's Prospect, p. 38.

¹² Nicolas Denys, Description and Natural History of Acadia, vol. II, (Toronto: Champlain Society, 1908 reprint of 1672 original, which was entitled Geographical and Historical Description of the Coasts of North America), pp. 401-2, 406. Carl O. Sauer, Seventeenth Century North America, (Berkeley: Turtle Island, 1980), p. 94.

They were able to remain sedentary by fertilizing their fields with anadromous fish. In spite of recent contrary theories denying the use of fish for fertilizer, northeastern agricultural Indians did fertilize their fields with fish or shellfish. There are several arguments for this: Bradford's account of Squanto's teaching is corroborated independently by Marc Lescarbot who, more than a decade before Pilgrim settlement in Plymouth, wrote from Port Royal (in what is now Nova Scotia) about Abenaki use of shellfish as fertilizer, noting that "in that country one grain will yield four, five and six ears, and every ear one with another above two hundred grains" whereas in Paris the same grain would yield "but one starved ear or two"¹³; moreover, only with at least occasional fertilization could they have used fields as long as nineteen years before clearing new ground, which we know they did from contemporary observation in other parts of the Northeast;¹⁴ additionally, at least one deed, from Sagamore Rowles to Humphrey Chadbourne in 1646, conveying Rowles' interest in his weir at the falls of Newichewannock (South Berwick, Maine) reserved rights to take fish for fertilizer at planting time:

Mr Roles (Rowles) Indian sold to Humphrey Chadbourne "my right of the ware at the fales of the great River of Newichewanucke known by the name of Little John's Fales...only I the said Roles do except for myself my heirs & Ex...so much small Alewives to fish Ground as I my H...or Execrs shall have occasion to make use of for Planting from time to time & likeways Fish for to eat & also Half the great Alewives that shall be taken at that ware from Time to Time for ever." ¹⁵

¹³ Marc Lescarbot History of New France, vol. III (Toronto: Champlain Society, 1914 reprint of 1609 original), pp. 248-9.

¹⁴ See note 11 above. The Iroquois moved their capital a few miles about every 19 years, but kept it in the same general area.

¹⁵ York Deeds, (Portland: John T. Hull, 1887) vol. I, Part I, fol. 06 (1646).

Three or four packbaskets full of smelt or alewives would fertilize several hundred hills of corn, the whole planting process taking less than two days.¹⁶ Thus when fields were abandoned through pestilence or for lack of firewood, residual fertility from manuring may have accelerated biological rotation, producing fast early growth in the hardwood succession. This is suggested by a number of contemporary references to growth of young trees in recently abandoned Indian fields.¹⁷ Certainly the landscape which the Indians had created was varied but pleasing to the European eye. For instance, an engineer residing in New England wrote in 1629:

I never came in a more goodly country in all my life, all things considered: If it hath not at any time been manured and husbanded, yet it is very beautiful in open lands, mixed with goodly woods, and again open plaines, in some places five hundred acres, some places more, some lesse, not much troublesome for to cleere for the plough to goe in, no place barren, but on the tops of the hills; the grasse and weeds grow up to a man's face, in the lowlands and by fresh rivers abundance of grasse and large meddowes without any tree or shrubbe to hinder the sith. I never saw, except in Hungaria, unto which I always parallel this country...¹⁸

Another description comes from the Reverend Francis Higginson of Salem, in the same year, 1629:

Though all of the countrey bee as it were a thicke wood for the generall, yet in diverse places there is much ground cleared by the Indians, and especially about the plantation: And I am told that about three miles from us a man may stand on a little

¹⁶ Other eyewitness accounts include those of Capt. John Smith, 1630; Thomas Morton, 1632; and William Wood, 1634. The subject is amply addressed by Russell in Indian New England Before the Mayflower, pp. 166-7, in which he includes etymological evidence.

¹⁷ New Hampshire State Papers, vol. XXIV, Town Charters, vol. 1, p. 859, concerning the "plump of trees in an old field" during survey of Squamscot Patent, 1652. See also the passage from Wood, New England's Prospect, above.

¹⁸ MAHS Collections, series 1, volume I, (Boston: 1792. Reprinted by Munroe & Francis, 1806), p. 124. See also Essex Collections, Vol. IV, pp. 226-7: In the southeast part of Ipswich, now Middletown, was an Indian plantation containing a Hill, called Will Hill in 1661. John Smith had described it as containing "many rising hills, and on their tops and descents are many corn-fields and delightful groves."

hilly place and see divers thousands of acres of ground as good as need to be, and not a tree in the same.¹⁹

If there were miles of edge along abandoned fields, hardwood species useful to Indians as forage either for themselves or for game animals must then have made up most of the edge effect. These were chestnut, white oak, walnut, hickory, beech and perhaps some elm, appearing initially in a thin rank of spreading individuals, but surrounded in fifty years by a younger even-aged forest of straight progeny in the fields wherever disease had eliminated the original Indian proprietors from the neighborhood. Fields burned and abandoned downwind from white pine would have come up quickly in pine. The same agricultural practices that provided the Indians with regular crops and reliable hunting, and the English settlers with cleared champion land, brought at least one penalty when plague eliminated the Indians from the ecosystem. Left untended, such fertile land and productive forests provided increased browse which brought unusual fertility to the deer herd. Let a contemporary describe it:

Here is good store of deer; were it not for the wolves here would be abound, for the does have most two fawns at once, and some have three, but the wolves destroy them, and they kill our goats and pigs.²⁰

A surplus of deer soon created a surplus of their natural predators, wolves. When the English introduced their cattle into the system, they unwittingly disturbed the natural processes by which the deer and wolf population would have reached equilibrium. They marveled at the number of wolves even as they helped feed them.

¹⁹ Ibid., p. 117.

²⁰ Letters From New England: The Massachusetts Bay Colony, 1629-1638. (Amherst: University of

Additionally, there were the beaver flowages. Until European entrepreneurs made a market in beaver skins, Indians had had no incentive to take more beaver than they might want for occasional food and blankets. Since beavers, like other rodents, are not notoriously celibate, and beaver kits are thrown out of the lodge in their second year to make a home elsewhere, it follows that nearly every steady watercourse had several flowed lands with fine thick bottoms of decayed vegetation, fish, beaver carcasses, and wildlife excreta. The wholesale extermination of the beaver in a widening ring around the Indian-European trading centers left these thousands of ponds with no resident engineers to maintain the dam, and in a few years, the dam going out with a spring freshet, the drained, exposed pond bottom was prime soil. Colonists were quick to make use of old pond bottoms for hay and other crops, but further away from civilization, abandoned ponds were excellent nurseries for new forest.²¹ A pond trapped out in 1640 but not approached by settlement until 1740 would have had very large trees growing in it when settlers first saw it—oaks of perhaps 20 inches in diameter at breast height (dbh).²² That there was very early pressure

Massachusetts Press, 1976), p. 110. William Hamond to Sir Simonds D'Ewes, Sept. 26, 1633.

²¹ Jeremy Belknap, The History of New Hampshire, (Dover NH: Crosby & Varney, 1784-1812. NY: Arno Press, 1970 reprint), vol. III, pp. 160-1: "the hunter...is also made subservient to the great design of Providence, which is, by opening the dam, and destroying the beaver, so that it is not repaired. Of consequence, the water is drained off, and the whole tract, which before was the bottom of a pond, is covered with grass, which grows as high as a man's shoulders, and very thick. These meadows...are of still greater use to new settlers, who find a mowing field already cleared to their hands..."

²² For the sake of consistency, this has now been defined as 1.35 meters.

on the beaver population is suggested by Lescarbot in his account of the inflation in Canadian beaver prices between 1599 and 1607.²³

In Partes Tres: Topography (see Maps 1 and 2)

Into this sometimes parklike country came the Europeans, wholly dependent on maritime commerce for everything but the products of local agriculture. Each species of tree they found had some specific purposes in a wood-based economy, but white oaks and pines were the species of choice for shipbuilders and sparmakers²⁴ and, coincidentally, stave and clapboard reivers.

The region began with three different colonial substructures, each consigned by chance to its particular topography. On the south was the growing Puritan colony of Massachusetts Bay, with its satellite separatist predecessor Plymouth. The preponderance of its settlers were from southeastern England, and already familiar with the proto-capitalistic economic environment straddling the English Channel. The leaders of these settlements were Puritans, or men of Puritan sympathies. Although Massachusetts Bay might be distinguished by its (relatively) common religious denominator, it was also a geographic area distinguished by short salt rivers and mid-sized salt marshes, a narrow riparian borderland already developed by Indian agriculture and silviculture. It contained a bay-within-a-bay which comprised Broad Sound and

²³ Marc Lescarbot, History of New France, vol. III, p. 3. "Eight years ago, for two biscuits or two knives, one had a beaver, while today one must give fifteen or twenty..."

²⁴ Already at this time European shipbuilders were experimenting with alternate species, for lack of oaks of sufficient size for great timbers and planking. Dutch shipbuilders built a ship of fir in Denmark, and as the practice became more widespread, such ships became known as "firred" ships.

its adjacent harbors, Boston and Salem among them. The dominant feature of this topography was the larger Massachusetts Bay--the southern shore of which had relatively few geographic assets between Cape Cod and Braintree, with comparatively little salt marsh, very short rivers, and shallow soil. The Bay itself, though, contained rich fishing grounds--a legacy of the broad salt marshes on its northern and southern boundaries.

North of this demographic and political center was Cape Ann, and north of Cape Ann the topography changed dramatically. Beyond Cape Ann the seacoast was dominated by barrier islands, separated from the mainland by vast stretches of salt marsh. The mainland itself was penetrated by several short, shallow but partially navigable or boatable rivers such as the Ipswich, Parker, York and Kennebunk. It was pierced as well by several shorter rivers--the various Little Rivers, the Cape Neddick, Josias, Webhannet, Mousam, and Scarborough, all of which provided at their mouths small harbors suitable for inshore fishing shallops, and some of which were navigable for a short distance by shallow-draft vessels. This area also contained near its center a navigable indentation, the Great Bay, itself bordered by salt marsh, into which flowed three medium-length rivers: the Lamprey, the Salmon Falls, and the Cocheco, and several shorter ones, including the Oyster, Bellamy, and Squamscott.²⁵ This was the signature topography from Cape Ann to the Fore River at Portland, divided in the south by the Merrimac River, which is navigable for many miles, and in

"Mariner's Mirror," vol. XVII, no. 3. (1931), p. 282.

²⁵ See NOAA charts 13282, 13285, 13286.

the north by the Saco River, which reaches deep into the hinterland and is boatable for miles above the fall line. The dominant feature of this region was the abundance of fertile salt marshes; the secondary features were the two long rivers and the Great Bay with their surrounding forests, and a third distinction was the great number of tributary rivers which provided ample damsites for mills.²⁶

The northernmost part of the region was dominated by a very irregular coastline, occasionally deeply embayed with many islands but no barrier islands. Here the rocky mainland had a thin soil except where it was penetrated by long rivers with occasional narrow fertile floodplains, and there were occasional alluvial deposits of glacial lakes. The dominant geographic features of this part were the prolific coastal marine environment and the long navigable or boatable rivers, the Presumpscot, Androscoggin, Kennebec and Penobscot, which offered access to the heavily forested interior. The Indians in this area, however, had not been so affected by the pre-settlement epidemic which had depopulated the lower two parts of the region. They already had a comfortable trading relationship with the French, who also claimed the area and had fortified trading posts east of Penobscot Bay. Thus, in this northernmost part there was a dominant *geopolitical* feature which was less intrusive in the regions further south: that was the potential to become a theater in any European war involving France and England, as well as in the frequent conflicts between English and Indian. Although there were, on the Kennebec and Penobscot rivers, fur trading

²⁶ See NOAA charts 13278, 13283, 13285, 13286, etc.

posts that belonged to the Plymouth and Bay Area colonies, most of this area was held under various royal grants to aristocratic entrepreneurs. They in turn had settled the area with west country fishermen and farmers, ostensibly either in their employ or in a feudal relationship to them, holding land in a tenure payable in rent and service.

Settlers

The three areas had been colonized by several sorts of people. First, and of no lasting significance, were the free-lancers. These were true frontiersmen with no political or religious agenda, who had settled between the Saco and the Charles Rivers to pursue their own purposes. They were soon either incorporated into the Puritan scheme, or driven away like Blackstone, or like Morton of Merrymount, deported back to England.²⁷

Second were the Puritans, mostly from southeast England, who came to settle the Massachusetts shore not only with their own religious agenda but also as agents for a proto-capitalist corporation of backers in England, and (for some, at least) with the intention of staying and founding a new society on a permanent basis. Some of them may even have entertained dreams of a Geneva-like Calvinist republic. Starting in Salem, they spread to the Shawmut peninsula, which they renamed Boston, and rapidly metastasized, ranging as far

²⁷ Thomas Lechford, Plain Dealing, or News from New England, first published in London, 1642, in MAHS Collections, series 3, vol. III pp. 97. Blackstone, an Anglican minister whom the Puritans found peacefully farming on the Shawmut peninsula, was forced to move to Rhode Island "because he would not join the church." For a description of Morton's odyssey, see Charles M. Andrews, The Colonial Period of American History (New Haven: Yale University Press, 1934) vol. I, pp. 332-3, 362-3, 406-9.

as Ipswich, just north of Cape Ann, and Braintree to the South. By 1638 they had also sent a colony of semi-exiles to Exeter, on the Squamscot River at the point of the Great Bay nearest the Merrimac.²⁸

Third were the holders of royal proprietary grants in New Hampshire and Maine. These men were aristocratic adventurers with their own capital. Their intent was primarily to make a profit based on an atavistic economic and social system. The grantholders drew their employees primarily from the west of England, often around Bristol, and religion was less important to them than the financial success of their fishing and timbering enterprises. If they had long-term plans for their grants, they were couched in feudal terms. Most of their early subdivisions were hampered by legal vestiges of vassalage, and involved not a change of ownership, but a lease of tenure with enumerated annual rents and services due, sometimes for centuries into the future.

Fourth were the aspiring farmers and ambitious fishermen who came either with the Puritan migration or as employees of the Royal grantholders. They held various religious loyalties, and some had little religion at all. They came to try their luck, and it varied with the topography of their destination. Those farmers who arrived early in the Bay area found themselves in a particularly advantageous position within a decade. From Salem to Dorchester, farmers who were in on the first land distribution were set up for several generations of wealth, if they remained healthy and were willing to work. As Boston grew in importance as an entrepôt, the market grew for their farm

²⁸ Charles E. Clark, The Eastern Frontier, (New York: Alfred A. Knopf, 1970), pp. 37-9.

surplus, for every vessel that left Boston had to stock up on food, and their farms coincidentally happened to be within a day's round trip of the Boston or Salem wharves either by oxcart or small boat. Fishermen who settled along the Boston-Salem axis initially benefitted from their proximity to those mercantile centers with potential merchant partners and international connections, and from the rich Bay fisheries, that could initially be exploited from shore-based stations. However, fishermen who settled along the coast north of Cape Ann found themselves at the edge of a seemingly inexhaustible fishery, fed from the bottom by the vast salt marshes which were the single dominant topographical feature of that more northerly coast.

On the easternmost edge of the frontier, in what is now Eastern Maine, New Brunswick and Nova Scotia, were a handful of French fishermen, fur traders and farmers. They occupied lands under Royal French grants to a few aristocrats, who were themselves divided by their religion into Catholic and Huguenot camps. Those divisions would play a larger part in the geopolitical component of western Atlantic seaboard as the century wore on. Furthermore, their lands were also claimed by the English Crown, on grounds equally valid, and both claims were denied by the local indigenous peoples.²⁹

²⁹ See Andrews, Colonial Period, vol. I, pp. 300-19. See also J. S. McLennan, Louisbourg From Its Foundation To Its Fall, 1713-1758 (London: MacMillan and Company, 1918) and Alfred G. Bailey, The Conflict of European and Eastern Algonkian Cultures, 1506-1700, second edition, (Toronto: University of Toronto Press, 1969).

Early Shipbuilding: Small Craft (see Figure 1)

No doubt Basque, French and Bristol fishermen and whalers had built small boats in Newfoundland in the 16th century, as had the French and Spanish South of the Virginia Capes. Seasonal fishermen tended to leave their shallops hauled ashore in New England at the end of each season, and some of those shallops were probably New England-built. The first European vessel recorded as built in the future New England was *Virginia*, a pinnace built at the Popham colony on Pemaquid in 1607. She was about fifty feet long, decked, of shallow draft, propelled by sail and oars, and capable of making open ocean passages with a cargo. Being a vessel of not more than 30 tons, she didn't have very large scantlings, and was probably built with wood readily available within sight of the shore. The largest piece of wood involved, the keel, probably didn't exceed eight inches by ten inches by thirty-eight feet, and building her wouldn't have put any strain on the forest. Her component trees would have been the right size for firewood. Tools used would have been an axe for felling the tree, a broadaxe, adze, slick (large broad chisel) and possibly a drawknife to shape the keel, frames, stem and sternpost, and a pit saw or a froe and plane for the planking. She must have been well built, because she subsequently made at least two Atlantic crossings. However, her keel, presumably of white oak which was plentiful nearby, must have weighed nearly a ton and a half in the log. Without draft animals, such a log must have been a chore for the builders to move, and it seems likely they hewed it into rough shape before moving it, reducing the

weight by three-fifths or so. All told, building the pinnace might have necessitated harvesting one hundred and fifty or more trees of medium size, most of them contributing curved stock for the frames, stem and deck beams. W. A. Baker points out that a close reading of contemporary texts suggests other boatbuilding at Popham preceding the *Virginia*, certainly one and perhaps as many as three shallops of up to seven tons each.³⁰ Because these shallops were only a quarter of the tonnage of the *Virginia*, their construction couldn't have made a noticeable dent in the forest, although each shallop must have consumed from twenty to thirty trees of medium growth, probably oak between sixty and eighty years old.³¹

We have no idea when or where the next vessel was built in New England. From the great number of ship-carpenter's tools listed in inventories, and the number of boats and shallops mentioned there and in other manuscript sources, it is clear that the *boat* building industry had flourished along the coast virtually from the time of the first settlements. Although the *Virginia* had been built perhaps for trade as well as fishing, subsequent boatbuilding coincided with the fishing industry. Indeed, Baker's Popham colony shallops were no doubt built for fishing; the shallop had been the preferred vessel of the inshore fisheries since the sixteenth century or earlier. In 1624, the Plymouth Colony's ship-carpenter built two shallops, and had hewn timber for two ketches before he

³⁰ W. A. Baker, *A Maritime History of Bath, Maine*, (Bath: Marine Research Society of Bath, 1973), vol. I, pp. 8-9.

³¹ Readers interested in more detailed discussions of colonial vessels are urged to read W. A. Baker, *Colonial Vessels: Some Seventeenth-Century Ship Designs* (Barre, MA: Barre Publishing Co., 1962) and by the same author and publisher, *Sloops and Shallops*, 1966.

died.³² Both vessel types would persist through the eighteenth century, and the shallop would continue into the nineteenth century in modified versions such as the seine boat, Isles of Shoals boat, Chebacco boat and Block Island boat.³³

Before 1634 some form of boatbuilding had been carried on at Trelawney's fishing station on Richmond Island, Maine. A letter in that year from the station chief, Winter, to Trelawney refers to three boats on the blocks. Boatbuilding was also underway at Strawberry Banke and other foci of the fishing industry. These early vessels were for the most part skiffs and shallops, used in the inshore fisheries. We can extrapolate roughly one shallop for every four or five fishermen, because we know that fishing crews were so arranged. Thus, given the population on, for instance, the Isles of Shoals between 1625 and 1650, (60 individuals, according to Dr. Faith Harrington's research in an unpublished study) we can assume for the Isles of Shoals fishing community in that period about 12 to 15 shallops, probably built between Strawberry Banke and York. W. A. Baker considered shallops to have been upwards of 27 feet long, and shallops over ten tons appear in records of the time, corroborating his theory.³⁴ Building these vessels would not have required dominant old trees such as went into a ship, pinnace or bark of forty tons and up. They would nonetheless collectively

³² William Bradford, History of Plymouth Plantation, (Boston: Wright and Potter, State Printers, 1901. Bowie, Maryland: Heritage Press reprint, 1990), pp. 202-3.

³³ E. P. Morris, The Fore-and-Aft Rig in America (New Haven: Yale University Press, 1927). This work contains much useful information about working vessels of the inshore fisheries, although he did not use all the 17th century sources available. The illustrations of hull and rig are valuable.

³⁴ William A. Baker, Sloops and Shallops (Barre, Massachusetts: Barre Publishing Company, 1966), pp. 1-24. NH Provincial Papers, vol. 2, 1686-1722, part 1, (Manchester: NHHS, 1868), p. 78 mentions a 15-ton shallop in 1692.

have used many oaks of eighty years' growth or more, and must have put pressure on oak resources within local generational strata. Over the long term, however, constructing vessels of this size would not have depleted the oak component of the forest noticeably. On the contrary, they might have contributed to the proliferation of oaks, as the next section explains.

To build any kind of craft at all, wood was essential. To build vessels of over a few tons burthen, several ingredients were essential. These were oak for timbers, oxen to move the timbers, sawmills or sawpits to reduce the oak logs to timber and plank, and iron to fasten the heaviest parts of the hull and naval stores such as cordage, blocks, caulking materials, ground tackle and sail canvas to "fit it out," or turn it from a hull to a completed vessel.

Ingredients: Oak

Although small boats might be made of lighter wood, even soft wood, oak was preferred for the keel and frames of vessels larger than small rowboats, and was used throughout for the hulls of vessels over ten or twelve tons, except in keels and keelsons, where elm was occasionally used. Decks might be oak or clear pine. Oaks begin producing acorns in substantial numbers when they have grown to around 16 inches dbh. Trees over two feet in diameter, in good locations, produce well over a thousand acorns in good years. Oaks also seem to be prolific in proportion to their crown size, so spreading trees, the ones essential for the curved timbers of a vessel's frames and knees, have more progeny.³⁵

³⁵ U.S. Dept. of Agriculture Handbook # 271, Silvics of Forest Trees of the United States,

Cutting generational strata of these trees would have drastically curtailed seeded reproduction on local sites. However, up to the age of 80 or so they also stump-sprout "prolifically and vigorously when cut or damaged by fire."³⁶ Thus cutting younger productive, or wide-crowned, oaks between 8 and 16 inches dbh may initially actually have stimulated regeneration by stump-sprouting, while at the same time it opened the overstory (canopy) allowing sunlight to reach the stump sprouts. In theory, at least, if only boats and shallops had been built, timber cutting might actually have facilitated a sustainable harvest in the forest by promoting stump sprouts from trees of the appropriate size and age.

White oak is heavy wood. It weighs 46.35 pounds per cubic foot dry,³⁷ and green wood weighs up to 50% more, or nearly 70 pounds per cubic foot. Oak timbers for skiffs and shallops could be man-handled using rollers and the mechanical advantage of blocks and tackles. For larger vessels, because of the exponentially greater weight of timbers, the third necessary component for a shipbuilding industry, after trees and men, was draft animals for moving the timber. In the seventeenth century, that meant oxen.

Ingredients: Oxen

Oxen, rare outside of county fairs today, were the standard beast of burden through the 19th century. Oxen are steers of three years and more, trained to

(Washington: Government Printing Office, 1965), pp. 633-5.

³⁶ *Ibid.*, p. 634.

³⁷ 10th Census of the United States, vol. 9. Forest Trees of North America (Washington: Government Printing Office, 1883), p. 313.

labor. An ox of the 17th century was not the monster we see now in pulling contests at the county fair. The oxen that dragged trees and plows for a 17th century farmer were rather smaller. They weighed in the neighborhood of fourteen hundred pounds apiece, and required at least two acres of hay each through the year, in addition to some grain. So a team of oxen meant five acres more or less of dedicated cropland, beyond what the family and other livestock required. Proximity of salt marsh facilitated the use of oxen, because salt marsh, being self-fertilizing, provided nourishing hay for no other investment of energy beyond the harvesting of it. Oxen also required shoeing, or their feet would soon wear out. Thus oxen necessitated a working blacksmith and at least a moderate supply of iron. The blacksmith, in turn, required a regular supply of charcoal or coal, usually the former, which was produced locally from hardwoods. A team of well-shod oxen could pull almost twice its weight for short distances, and on dry ground pull a third of its weight all day at about two miles an hour. On an iced skid road, teams of oxen hitched in a line and shod with ice-gripping shoes could haul logs several times their weight, according to contemporary evidence and modern-day teamsters.

It is likely that no one recorded the first importation of cattle to the New England colonies. Bradford records the cattle brought to Plymouth by Winslow in 1624 as "the first beginning of any cattle of that kind in the land," but he may have referred only to Plymouth's patent.³⁸ Irish, English and some Dutch cattle were brought after 1630 into Plymouth and Massachusetts Bay. By the mid

³⁸ William Bradford, Of Plimoth Plantation, p. 189.

sixteen-twenties there were settlements and farms on many of the islands in Massachusetts Bay and all along the coast beyond the Kennebec to Pemaquid, and some of those may have had a plow and oxen. In 1622 the Plymouth colony sent their shallop to Monhegan to buy assets of a fishing station then breaking up (probably the plantation of Abraham Jennings' predecessor), and they returned with goats, so at that time there may have been other farm animals in the area, particularly on the mainland.

Certainly by 1630 there were 84 families *plus* fishermen resident at Pemaquid,³⁹ which was then the largest English settlement on the northeast coast. That would suggest a farming community with at least one plow and its requisite oxen. Pemaquid was sufficiently well-farmed to send supplies to the Massachusetts Bay people in 1640, so they must have had oxen by then, in order to plow enough land to grow a surplus crop. Further to the westward, at the dissolution of Mason's Odiorne Point, Piscattaway and Newichewannock settlements after his death in 1635, Mason's overseer Captain Francis Norton appropriated the cattle, and reportedly drove over one hundred of them (although the probate inventory listed far fewer) to Boston, where he sold them and pocketed the profits, abandoning Piscattaway for the amenities of Charlestown.⁴⁰ By the latter part of the decade, draft animals were common enough to be used in the timber industry in several places along the coast, although they were still rare enough to command a high price from a farmer or

³⁹ MEHS Collections, vol. 5, p. 197.

⁴⁰ NHHS Provincial Papers vol. 1, pp. 45-7. For a thorough and very readable discussion of the political and religious evolution of the area in question, see Charles E. Clark's Eastern Frontier.

sawmill owner. Toward the end of October, 1639, Thomas Dexter of Linn mortgaged his 600 acre farm to Simon Bradstreet for 2 oxen and 2 bulls valued at £90.⁴¹ Six years later his farm would be sold for the unpaid portion of that debt. What did oxen cost per day? An itemized lease price survives: in 20 days' plowing and carting, 4 oxen earned £11.0.0, or 2s 4d per ox per day. A man to go with the oxen cost 2s per day, and a boy 8d. For the oxen to transport 27 loads of wood and timber (an unknown distance, unfortunately) took 16 days, and cost £4.1.0.⁴² (A load was 50 cubic feet, or 600 American board feet). Robert G. Albion states that "the average oak of timber size contained about a load of timber and made nearly a ton of shipping."⁴³ According to those figures, a twenty-seven ton boat consumed, in theory, a little over twenty-seven trees, and used the labor of four oxen, one man and one boy, plus the woodcutters, for sixteen days. Even allowing for a good percentage of each tree being left as waste, however, Albion's figures may not hold true for all sizes of vessel. My data suggest that lighter vessels used proportionately more trees per displacement ton (see p. 20-21 below), and large vessels with heavier scantlings used much larger trees, of a thousand board feet and up. These trees made up at least two loads of timber each, were correspondingly heavier because of their greater volume, and therefore probably required more and slower trips to transport to the shipyard than Albion originally calculated. Oxen drew hewn timbers and sawlogs to the shipyard or the sawmill.

⁴¹ Suffolk Deeds, Vol. I, Lib. 69.

⁴² Thomas Lechford, Notebook, 1638-1641 (Cambridge: John Wilson & Son, 1885), p. 371.

Ingredients: sawmills

Shortly after 1630 there were sawmills on waterfalls in one or two places north of the Piscataqua, which would have facilitated sawing the planking, keel, and keelson of large vessels. The first sawmill may have appeared in the 1620s in Agamenticus, on what is now the York river, under the auspices of Ferdinando Gorges.⁴⁴ There seem to be no further records of it, but it may have been a tide mill. A second sawmill was built around 1631 on the Salmon Falls River at Newichewannock, now South Berwick, Maine. Because sawmills were then foreign to the English,⁴⁵ Capt. Mason, proprietor of the plantation, imported Danes to build and operate his mill, along with twenty-two women, who, we optimistically theorize, came as dairymaids.⁴⁶ He had anticipated the necessity for oxen, because his goods, inventoried after his death in 1635, included 24 cows, 2 bulls, 22 steers & heifers, and 10 calves.⁴⁷ By comparison, the inventory of a mid-century manager and owner of the Newichewannock sawmills, Humphrey Chadbourne, included in 1667:⁴⁸

10 oxen at £8 per ox & 8 cows.....	£118
4 steers & 1 heifer.....	£023
2 steers 2 yrs old, 2 yearlings, 4 calves.....	£014

⁴³ Robert G. Albion, Forests and Sea Power (Cambridge: Harvard University Press, 1926), p. 9.

⁴⁴ James Elliot Defebaugh, History of the Lumber Industry in America, (Chicago: The American Lumberman, 1907), vol. 2, p. 6, purportedly quoting Sir Ferdinando Gorges.

⁴⁵ *Ibid.*, p. 9. Apparently popular prejudice against machinery prevented sawmills from being built in England until 1663, and as late as 1767 a mob tore one down, although they were common on the continent from early times, according to Defebaugh.

⁴⁶ NHHS collections, Provincial Papers vol. I, pp. 45, 114.

⁴⁷ *Ibid.*, p. 116.

⁴⁸ York Deeds, vol. 2, Part I, fol. 30-1.

Clearly, several teams of oxen were essential to the profitable operation of a sawmill, and Chadbourne's operation was profitable. Though the value of oxen had fallen with their increase in numbers, his estate was appraised at £1,713 14s 0d, a sizeable fortune for the time and place.

Early sawmills such as the one Mason established, and the ones that made Chadbourne's fortune, used reciprocating saws, called sash saws, capable of sawing 2,000 to 3,000 feet of lumber a day.⁴⁹ In terms more easily visualized, they could saw per day about 3 twenty-five foot logs, each with a two-foot diameter. Such prodigious work was possible only for softwoods such as pine, however. In hardwood, which is denser, the saw goes more slowly. It generates more heat as it becomes dull, and the blade may lose its temper, creating a long work stoppage while the blade is removed, retempered, and the teeth reset and resharpened. By the standards of the early seventeenth century, a sawmill was an expensive, high-tech proposition requiring the constant presence of a skilled millwright. Thus the seventeenth-century shipbuilding industry relied heavily on the pit saw, common in English shipyards right into this century, and evident in various seventeenth-century New England inventories. (See Figure 2) In a pit saw operation, the log was first rolled onto a scaffolding or over a pit, and dubbed flat to a chalk line on one or two sides, using an adze or a broadaxe. The log was rolled so that one flat side was vertical. One man (the "tiller man") stood on the log, and another (the "box man") stood in the pit or below the scaffolding, and together they operated a frame pit saw, the box man equipped

⁴⁹ Defebaugh, History of the Lumber Industry of America, vol. 1, pp. 9-10.

with a wide-brimmed hat to keep sawdust out of his eyes. The seventeenth-century pit saw blade was held taut at the center of a rectangular wooden frame; not until the days of cast steel, toward the end of the 18th century, would unframed long-bladed saws be manufactured. Pit saws cut only on the down stroke, the box man being thus aided by gravity through his weight.⁵⁰ Moving the log across the pit, or walking the length of the log, they sawed off "timber" thicker than 8 inches; or "plank" from 2 to 8 inches thick, (heavier plank from 4 to 8 inches thick being called "thick stuff,") or "deals," which were boards thinner than 2 inches.⁵¹ Sawing timber and plank was a tedious and labor-intensive operation, but necessary for building vessels much larger than a shallop. Getting out wood for small craft, however, required the labor of only one man using a felling axe, thwart saw, froe, wedges and mallet, with a broadaxe for the keel, stem and stern timbers. To build a vessel above fifteen or twenty tons burthen required exponentially greater capital and effort than were necessary to build small craft, and this would quickly define the limits of feasibility for shipbuilding.

Ingredients: Naval Stores

Suffice it that in the mid 1630s, most of the components--timber, oxen, blacksmiths, sawyers and shipwrights--were in place for the colonial

⁵⁰ For more detailed and informative descriptions of colonial sawing operations, the reader is urged to see Alex W. Bealer, Old Ways of Working Wood, (Barre: Barre Publishing Company, Inc., 1972) and Eric Sloane, Museum of Early American Tools, (New York: Funk & Wagonalls, 1964).

⁵¹ Albion, Forests and Sea Power, pp. 9-10.

boatbuilding industry to escalate to building larger vessels. Only naval stores were still lacking, and through the decade before 1640 we find frequent evidence of a maritime industry which had outstripped the capacity of the local chandleries to supply its builders. Bills of lading often contained lists of naval stores and sails or sailcloth outbound from England for the colonies,⁵² but evidence from this side indicates that demand here greatly exceeded supply. This was in part because more vessels were appearing on the ways, but also because their size was increasing. As competition for timber drove up prices and reduced supplies in England, cheap and accessible timber gave New England an edge on the shipbuilding market in spite of higher wages and scarce labor, at least in the construction of hulls and spars. A hull and spars, however, are not a ship. To be finished, they need standing and running rigging, ground tackle (anchors and rodes), sails, compass, tar, pitch, caulking, pumps, and hundreds of smaller items, which together are termed "furniture" and are normally found in a ship's chandlery. The chandleries were in England.

The evolution of a shipbuilding industry therefore took longer, not for want of market and timber, but because there was no logistical organisation for New England chandleries, and rising demand for naval stores outstripped the supplies accessible to builders. Hulls were easier to build and spar than to fit out for sea, because cordage, tackle, sails and furniture were not locally manufactured. In 1636 John Winthrop, Jr. wrote his father that he would like to

⁵² *Winthrop Papers*, vol. 3, (Boston: MAHS, 1943) p. 310. London Port Book Entry for the *George*: A bill of lading includes 600 ells of Normandy canvas, 610 yards of Darnix with thread. Another entry (*Ibid.*, p. 205) lists in a bill of lading for the *Bachler* Two small cables and other cordage,

sell the *Blessing*, but that she had been plundered of much of her gear on her last trip to Salem.⁵³ *Blessing's* rigging and sails had been imported from England, and were, at this early date, valuable commodities.⁵⁴ Apparently any rigging left unguarded, even on the Governor's bark, in a shipbuilding town like Salem where there were several active shipbuilders, was likely to be expropriated for anyone else's new ship then fitting out nearby. Certainly the colonists were using stone-age anchors for their new vessels; we read of one shallop which was blown offshore when the stone slipped from its killick.⁵⁵ By 1631, the date of this entry, killicks (crude anchors of wood and stone) had been supplanted by forged iron whenever it was available. Most later 17th century bills of sale or inventories for shallops included an anchor or grapnel rather than a killick.

Masonian inventories list a quantity of ship- and boat-building materials and naval stores among goods left by Mason's governor, Capt. Walter Neale, who had appeared in the Bay in his own Piscataqua-built pinnace in 1632.⁵⁶ Apparently he had built himself a vessel and had set up a chandlery and a

three bbls pitch, two bbls tar, for shallops.

⁵³ Ibid., p. 260. "The *Blessing* I would sell if any will buy her at 160 or 150 li. she Cost 145 besides some new saile, and rigging and a new cable at above 20 li. the Cable is speciall good.....They pillaged her the tyme they had her to Salem pittifully that she hath niether blockes nor braces nor running ropes, which the Bolt(Theobald?) Will sayth that mr. Holgrave cutt them of he saw him.

⁵⁴ Ibid., p. 49. In 1631 a sailmaker, William Cottwen, billed John Winthrop Jr. for ketch sails: £14 for 139 yards of Royalls (French Canvas) and 2 bolts & 2 yards of warp Ipswich cloth, plus labor in making: main sail & 2 bonnetts, fore sail & bonnett, top sail, meson (mizzen) & sprit sail.

⁵⁵ NHHS Col. vol. 4, p. 239. Governor Dudley to the Countess of Lincoln.

⁵⁶ John Winthrop, *Winthrop's Journal*, vol. I, p. 92. Oct. 18, 1632: "Capt. Camock and one Mr. Godfrey, a merchant, came from Piscataquack in Capt. Neal his pinnace, and brought 16 hogsheds of com to the mill..."

shipbuilding depot at Mason's expense,⁵⁷ for when he returned to England in 1638, Neale petitioned the King to be appointed Governor of New England, arguing that he had lived three years there (as governor of Mason's plantations at Piscataqua and Newichewannock), made discoveries, and was able to "settle staple trade there, especially for building ships."⁵⁸ His magazine of naval stores lends credibility to his assertion that he could provide ships in short order. Without such a chandlery, new ships had to borrow. In 1636, a bill written up for the English bark *Warwick* by Wm. Pierce, and endorsed by Governor Winthrop, states that builders of the ship *Desire*, 120 tons, Marblehead, owe the *Warwick* or her owners for an anchor & stock, various pieces of armament, a lantern, etc. totalling £24.19.0.⁵⁹ We will examine this transaction more closely in the next chapter.

Impediments to Growth: capital & labor

But naval stores were only part of the problem. Just a day's sail eastward down the coast, at Richmond Island, Maine, was Robert Trelawney's fishing station. Fortunately, we have an exchange of letters between Trelawney, who

⁵⁷ NHPP vol. 1, pp. 115-16. The 1635 inventory included: 375 yds. sail cloth; 5 barrels nails; 1 barrel spikes; 14 bars of iron; 28 bars of steel, quantities of all sorts of smith's, cooper's, carpenter's, mason's tools; 19 barrels pitch; 16 barrels tar; 8 coils of rope of 2.5 inches; 3 coils of rope of 3.5 inches, 10 cable of 4 inches; 1500 boards, 1151 pine planks...6 great shallops; 5 fishing boats, with sails; anchors and cables; 13 skiffs. Prior inventories listed include: *Ibid.*, p. 63, 1631: "shipped in Pied Cow: 4 pieces of polaines for sailes for shallops...£5:0:0; 1 quoile of cordage £1:16:0; ...carpenters tools, clinch nayles, etc., for the Pinace we reckon not." *Ibid.*, pp. 77-80, 1633: "2 boults of canvis; ruff and clinch in 3 barrels; some nayles and sparables; thwart saws 3; 7 aule blades; plane irons small 16; plane irons great 4; calkin irons 4; augurs 15; small files 41; bigger files 3; rasps 5; 3 augurs; 1 sea compasse; 1 whip saw; 1 thwart saw; 1 quoile of roapes, inch 2 1/2; 1 barr. and 1/2 of pitch; 1/2 a barr. of tarr; 1 pitch kettle; planke pine 151; 1 great anker; 1 thwart saw."

⁵⁸ *Ibid.*, p. 285.

⁵⁹ Winthrop Papers, vol. III, p. 290.

was an absentee patent-holder in England, John Winter, his factor at Richmond Island, and Arthur Gill, their hired ship-carpenter at the island. Their correspondence suggests other difficulties in bringing a shipbuilding industry up to speed in the peripheral settlements of the eastern frontier. It describes in some detail the problems involved in building larger vessels on Richmond Island, including the eventual loss of their key shipwright, apparently to higher bidders in the Bay. They were in constant need of naval stores and tackle for their existing fishing boats,⁶⁰ and it took them months to finish building new vessels after the keels had been laid. When in 1636 Winter wrote Trelawney proposing to build a new ship, he had to request shipment from the home company of everything but the hull and spars:

I do propose to build our barke about 25 or 30 tonnes; therefore you may please to send Cables, and camnas for sailes & ropes for Rigging of her, accordinge for a vessell of that burden, & pich & tarr, spukes & nailes & Chaine boltes, Rudder Workes, & som boulttes drawn out for knees, & other busines which wilbe needfull, which I know the Carpenters at home Can direct you best what wilbe nedefull for a barke of that burden: here is none to be gotten...neather is ther any heare to be bought, & for bootes Roods & sailes & moorings, halliers, sheats & boulinges, & all these things will last but for next fishing season;...⁶¹

⁶⁰ Trelawney Papers, (Portland: MEHS Documentary History, second series, 1884) pp. 35-6. In 1634, an invoice of goods sent to Richmond Island contained a whip saw, two thwart saws, "vile & wrest," "all rigging for 3 boats at blocks, (that is, for boats then being built) ffor oakum for his boats, 1 barrill of tarr, 1 barrill of pitch." In connection with maritime colonies, the whip saws and thwart saws are indicators of boatbuilding, because they were used in conjunction with a sawpit to saw out planking from a squared log. A year later, an Inventory of goods at Richmond Island included: "3 Newe Roades, and in carpenter's tool chest: 4 adzes (one new); 3 augers (one new); 1 "bonny" (bonnet for a sail) staple and iron work, old, for a boat; 3 whip saws, 3 thwart saws. Att Spurrwinke house: 1 adze, 1 auger, 2 thwart saws, 1 wrest, 2 new viles & 1 old, 6 boats Maine sayles, 6 boats foresayles, 2 old boats sayles, worn out; 8 boats Roades, worn; 2 stage sayles & 1 olde fore topp sayle of the *James*; 7 boats compasses; 8 fishing shallops with 6 Rudders; a Coasting boate with a Rudder; A skiffe to Richmon Island, another att Spurrwinke; 3 Boate Moorings; 745 foote of inch 1/2 & inch 3/4 Oken planke att Spurwinke; a frappe for the skiffe." *Ibid.*, pp. 67-70. The inventories at Mason's and Trelawney's stations are similar.

⁶¹ *Ibid.*, pp. 85, 89.

In 1637 Winter wrote to Trelawney

Our new barke was launched the 10th of June, but as yett no masts or yards made for her, nor her deck Caulked; for since she was launched our Carpenter hath wrought upon the ship (a different vessel, due to sail with a cargo of fish & pipestaves) for the despatching of her away. Shee (the new bark) will not be less than 30 tonnes. I do proportion her to be about that burden.⁶²

Thus the crew at Richmond Island had turned out a 30-ton vessel in about a year. Two months after the launching of their new bark, he wrote "I shall now lacke on to go maister in our new barke, & I doubt she will ly still for want of a maister to go in her."⁶³ There was a shortage of skilled mariners, but the new bark did not "ly still:" she was soon at work, and in 1639 the *Bark Richmon*, 30 tons, was sent to England laden with 6,000 pipestaves, with a value in Boston of £8--8s per thousand. Winter had a one-tenth interest in the voyage, amounting to a bit over £5.

Impediments to Growth: communications & design

Encouraged by the success of the *Richmond*, Winter and Trelawney decided in 1638 to build a full-sized ship. This was to prove a strenuous undertaking, not only for want of skilled labor, but for differences in architectural theory. That year the shipcarpenter, Gill, wrote to Trelawney :

...& in Case thereof I doe not knowe your mind as much as I do desier. Concering ye building of your shipe, & for ye drafft you sent me & sead I should not deffer a inch from it, it is imposseabell, for ther is noe scakell upon it wherby to knowe ye proporshons of any thinge, nor no shepe of ye mould, which is ye greatest pinnt of all; & for ye vpper worke, it is not proporshonabell nore ship shapenn. This is true: I will make it apure soe, if acation shall [be had], before ye best artis in England. Ye draft I haue sent you againe by ye Master of ye *Samell*, for I can make noe vse of it, & I will desier you to keepe it before such tyme as it sh[all] plesse God yt I shall Come home to

⁶² Ibid., p. 109.

⁶³ Ibid., p. 114.

make it apear[e] true. Mr Wynter doth knowe your mind what manor & what proporshon you will haue your shipe bilt, & I pray dout not but you shall haue as good Condishonabell shipe, & as good stoufe put in her & according to your mind, as you will desier; for if you will trust me with bilding of her, you may for better trust me with draing of ye draft...⁶⁴

There are a couple of explanations for this. About the same time the shipbuilding business was starting in New England, the Scientific Revolution took a turn into shipbuilding theory. In the post-classical world, the concept of ship design as a scientific discipline began in the Mediterranean during the Renaissance.⁶⁵ From the Mediterranean the science had spread along the routes of the Flanders galleys, via Spain and Portugal, to merge with the unwritten shipbuilding traditions of northern Europe.⁶⁶ Although in the sixteenth century Henry the Eighth had upgraded his navy with vessels from the relatively sophisticated fleets of Italy and the Hanseatic League,⁶⁷ heretofore the various commercial vessels built along the colonial coast, England or in northern Europe had probably been built by eye, according to traditional designs current in the yards where the latest generation of ships' carpenters had apprenticed.⁶⁸ In the

⁶⁴ Ibid., Arthur Gill to Trelawney, July 17, 1638, pp. 133-4.

⁶⁵ Frederick C. Lane, Venetian Ships and Shipbuilders of the Renaissance, (Baltimore: Johns Hopkins Press, 1934).

⁶⁶ See Cogs, Caravels and Galleons, (London: Conway Maritime Press, 1994) p. 96, in the series "Conway's History of the Ship," Robert Gardiner, ed.

⁶⁷ J. J. Scarisbrick, Henry The Eighth, (Berkeley: University of California Press, 1968) pp. 499-500. "Henry had inherited seven ships from his father, had added twenty-four more by 1514, and, by the early '40s, by purchase of Italian and Hanseatic vessels as well as by increased home production, had built up the nucleus of a powerful naval force...The naval revolution, learned from Italian shipwrights and German gunfounders, was underway."

⁶⁸ Nicholas Witsen's Architectura Navalis et Regimen Nauticum (Amsterdam: Pieter and Joan Blaeu, 1671, 1690 reprint, modern facsimile, no publisher or date given) lists many local contemporary designs for fishing, trading and pleasure vessels. Pauline Gregg, in Black Death to Industrial Revolution, (London: George G. Harrap & Co. Ltd, 1976), p. 186, says of the early 17th century, "Boats of many kinds were being made in increasing numbers in every little haven round the coast in response to local trade and fishing demands, while a substantial shipbuilding industry for

second quarter of the seventeenth century, however, two new influences appeared in the trade: first, English shipbuilders began to write about sophisticated theories of shipbuilding, very likely drawing inspiration from earlier treatises in Portuguese, Spanish or Dutch;⁶⁹ and second, the Dutch *fluyt*, which sacrificed defensive power for cargo capacity and efficiency, began to dominate commercial shipping. We will discuss *fluyts* further in the next chapter. Certainly Gill's letter indicates that he was acquainted with current theories of naval architecture (or mysteries of the guild, as they would have been known), and was indignant that an amateur, even his aristocratic employer, should meddle in his work.

In any event, this next vessel, barely more than three times the size of the bark *Richmond*, was twelve times as long in the building. Just thirteen days after Gill wrote about the blueprints, Winter wrote about naval stores:

All the old rope you sent for bootes mourings will serve to moure but 2 bootes, & I know not how I shall gett moorings for them. Every boote doth use 2 or 3 & 20 fathem of rope for a mouring at home, besides his Roode. I Receaved but 2 old topsaile sheates & on old shroud for mourings, & it is a good mouring that will last a yeare...Receaved a pece of hauser out of the *Fortune* which doth waigh 1 C weigh, which is not so good as the rope you sent for mourings. I desire you will be pleased to pay the owner for yt.⁷⁰

the Navy and for long-distance trade was developing round the Kentish coasts at Chatham, Deptford, Woolwich and Sheerness, as well as in Bristol, Newcastle and other bigger ports." See also Warren Reiss's The Ronson Ship, unpublished doctoral dissertation (Durham: UNH 1987), pp. 83-9, in which he describes the "rack of eye" method of ship design used in seventeenth and early eighteenth-century shipyards. Apparently no English treatise on shipbuilding was published until the late seventeenth century [R. C. Anderson, "Early Books on Shipbuilding and Rigging," Mariner's Mirror, X, no. 1 (1924)]. One might thus assume that early colonial ship design was transmitted by observation and emulation, but Gill's letter to Trelawney, referring to other authorities, suggests that there is more to be discovered in this respect.

⁶⁹ Although none of these were published in full before the latter part of the century, their contents may have circulated in manuscript form, along with "Rutters" and hand-drawn charts.

⁷⁰ Trelawney Papers, Winter to Trelawney, July 30, 1638, p. 124.

Winter and Gill were clearly not only having problems with the design of the next large vessel; they could scarcely keep their small boats equipped. There is no further record of the naval stores and gear listed in the Neale inventory a few miles to the westward, but they would have been worth a great deal to any of the shipbuilders along the coast at that time, and could not have waited long for a purchaser, or "borrowers" such as the men who stripped the *Blessing* in Salem.

Adolescence: From Shallops to Barks & Pinnaces

As we have seen at Popham and the fishing centers, smaller pinnaces, barks and shallops could be built with relatively small trees, but though they occasionally made ocean crossings, they were generally relegated to fishing or the coastal trade. Larger vessels were needed to transport fish and forest products to foreign markets, and vessels soon appeared which were larger than shallops or "barks." These vessels, predominantly ketches, sloops and pinnaces, were more complicated to build than their predecessors. Their construction required the supervision of someone instructed in the mysteries of shipbuilding, as well as a substantial concentration of material and capital. Back in 1624, the same year the cattle arrived at New Plymouth, had come a ship carpenter, who, as mentioned before, had built two shallops and a lighter and hewn wood for two ketches before he died. None of his vessels can have been terribly large, because it would be at least three years before any male progeny of those first three Pilgrim heifers could be made into oxen and put to use hauling logs. The projected ketches could, however, have displaced 20-30 tons, or as much as a small pinnace, and

the short-lived carpenter could thus have used mature trees for their principal timbers. Following his death, a mere house-carpenter cut one of the larger shallops in half, stretched her out "5 or 6 feet" and decked her, making her a serviceable open water vessel for the next seven years.⁷¹ Apparently, construction of small craft did not require the supervision of a shipbuilder steeped in the mysteries of the guild.

In 1631, as we have seen, Walter Neale took delivery of boatbuilding materials and some material intended for a pinnace which was then under construction at Strawberry Bank, and was probably the same in which he visited Boston the following year.⁷² How big might such a pinnace have been? In 1641 John Moses, shipwright, contracted with Thomas Keyser and John Guy of Cape Ann, to build a pinnace with a keel of 32' and depth in hold of 5' 6", decked and sealed, for £45 13s.⁷³ We might take the contract dimensions as typical of a small pinnace of the period, and it is roughly the size of the first "bark" built at Richmond Island in 1637. Winthrop's Journal and the Winthrop papers mention the thirty-ton ketch-rigged bark which he had built in 1631 in Mistick, called *Blessing of the Bay*.⁷⁴ The *Blessing*, the *Richmond*, and John Moses' pinnace were all of about the same tonnage. Using a ratio derived from a known modern reproduction of an early seventeenth-century vessel, the *Susan*

⁷¹ Bradford, William, History of Plymouth Plantation, Book II, p. 143.

⁷² NHPP, vol. 1, p. 63-65. 1631 bill of lading shipped in Pied Cow to Walter Neale at Piscataqua: lines for codde...£6:02:00; Ffish hookes...£2:00:00; 4 pieces of polaines ffor sailes ffor shallops...£5:0:0; 1 quoule of cordage ...£1:16:0; ...carpenters tools, clinch nayles, etc., for the Pinace we reckon not.

⁷³ "Old-time New England," vol. 27, #3, p. 117.

Constant, we can arrive at a ballpark figure of 37,500 board feet, or 3,125 cubic feet, or 62.5 loads of timber to build each of these vessels.⁷⁵ Each of these vessels was already a major undertaking, requiring some skill in planning and handling heavy materials. On the other hand, by comparing the values of the *Richmond's* first cargo of staves, and the cost of John Moses's pinnace, we may conclude that these vessels could pay for their construction on their first voyage.

It may be appropriate at this point to explain the terms "shallop," "bark," "ketch," "pinnace" and "ship." In the early seventeenth century, these terms did not always designate the rig of a vessel; sometimes they indicated her size-range and use. (See Figures 3, 4 and 5.) Thus a pinnace might displace from 20 to 60 tons. Somewhere between 50 and 60 tons such a vessel became a ship. Both were decked hulls with additional raised decks aft and perhaps forward, carried square sails on the fore and mainmasts, and a lateen sail on the mizzen, and both were used primarily for ocean voyaging with cargo, normally carrying various types of cannon for protection against marauders, and sufficient extra crew to man ship and guns simultaneously.⁷⁶

A ketch probably was two masted as it is today, with a single deck, perhaps a raised cabin aft, and displacing 12 to 30 or 40 tons. Ketches were often referred

⁷⁴ See Winthrop's Journal entries for July 4 & 31, 1631.

⁷⁵ Brian Lavery, *The Colonial Merchantman Susan Constant, 1605*, (London and Annapolis: Conway Maritime Press and Naval Institute Press, 1988).

⁷⁶ In the early 17th century the Atlantic was a dangerous place. In addition to hostile European pirates, privateers and navies, Barbary corsairs ranged occasionally as far as Iceland and the southern English and Irish coasts, plundering and carrying Christians off into slavery.

to as "barks," that being a term to designate any small ocean-going cargo vessel, though seldom used interchangeably with "pinnacle."

A shallop carried one or two masts, might displace from 5 to 10 or 12 tons, and the smaller ones were often undecked. Shallops were the pickup trucks of their day--utility transports for small cargoes in relatively sheltered waters.

Other vessel types which occasionally appear in early seventeenth-century New England records are frigate (frigot, friggot) and variations of galley and galiot. These were apparently mid-sized vessels, capable of being propelled by oars or sweeps, and, in the case of the frigates and most galleys, built or outfitted for military purposes.

Construction and Design

How can we appraise the construction of vessels built in an era when the practice of naval architecture was still predominantly an art shared among builders rather than a published science? Fortunately, in addition to the correspondence between Winter and Trelawney, we have the remains of the *Sparrowhawk*. *Sparrowhawk* was a small vessel, probably a ketch, which went aground on Cape Cod in 1626 with a cargo of settlers, and spent the ensuing two and one half centuries under a marsh, from which she was finally extricated in 1863. The *Sparrowhawk* of course was built in England, but as our only extant survivor of seventeenth-century English commercial shipbuilding, being about the same size as known New-England-built vessels, she may legitimately provide a construction model for those mid-sized vessels that the English-

trained shipbuilders of early New England launched in the first half of the seventeenth century. She is now in Pilgrim Hall, in Plymouth, Massachusetts.

Her dimensions and scantlings, taken by naval architect and shipbuilder D. J. Lawlor in the months following her excavation, are as follows.

Keel of English Elm, 28'6" long, 6" x 8". Floor timbers 7'1" long, 7" x 6" English oak. Keelson probably 14' long (it is incomplete) 10" x 8" English oak. The frames were probably composed of two futtocks; the remaining first futtocks are 6" x 6" English oak. In the way of her deadwood, she had seven grown forks resting on the keel, Y-shaped, each branch of the Y 6" square, with the longest stem of the Y 4' long. There were 3 strakes of ceiling, which along with her planking was 2" x 10" by (where possible) the length of the hull. She had 14 hanging knees, shown in the reconstruction, and perhaps 26 lodging knees, each no doubt naturally grown crooks roughly 6 inches square by 3-4 feet on each limb. There were only four iron bolts holding her keelson to her keel, and some iron in the stempost. The overwhelming majority of her fastenings were 1" oak trunnels.⁷⁷

A bit of trigonometry reveals that the keel log of this vessel must have had a diameter of 15 inches, a volume of 412 cubic feet, and an original weight of just under one ton. The keelson log had a diameter of nearly 18 inches. The seven forked timbers aft, a unique example of grown deadwood, must have come from trees which grew at the forest's edge (in the *Sparrowhawk's* case, probably a hedgerow) with evenly branched forks of at least 13.4 inches in diameter on a trunk correspondingly greater--perhaps as much as 28 or 30 inches in diameter. Planking must have come from deep forest trees of at least 15 inches in diameter at forty feet, and floors from curved branches or stems with a diameter of about 14 inches, growing at the forest's edge.

⁷⁷ H. H. Holly, *The Sparrow Hawk, A Seventeenth-Century Vessel in Twentieth Century America*. (Plymouth: Pilgrim Society, 1953).

If we grant a tree growth in oak of one-and-one-half to two inches in diameter in ten years⁷⁸, every piece of timber that went into the *Sparrowhawk*, or a vessel of her size, came from a tree at least one hundred and forty years old--most of them from trees much older. If we grant her 42 frames, each from a single tree grown at the forest's edge, and a minimum of 40 strakes, together with 20 knees, 16 floors, additional deck beams and ceiling, we may conclude that the vessel consumed upwards of 150 mature trees--all the prime mature oak on three acres of an old-growth oak stand, probably much more, considering that all of the shaped timber came from trees which grew at least partly in the open, on the edge of the woods. And this was a relatively small vessel--only about 40 feet between perpendiculars, a bit smaller than the Popham colony's pinnace, or the first Richmond Island vessel mentioned in the Trelawney correspondence.

In 1638 Archibald Henderson, an English merchant, stated that there were one hundred New England vessels trading to foreign countries in commodities required in England.⁷⁹ Though many of them may have been small, all must have been bigger than shallops, and those which were not privateering prizes must have been locally built. By 1640, vessels bigger than the *Sparrowhawk*, *Blessing* or the *Richmond* had been launched or were on the ways at Richmond Island, Salem, Marblehead, Mystick, Charlestown, Boston and Dorchester.

⁷⁸ U.S. Dept. of Agriculture Handbook # 271, Silvics of Forest Trees of the United States, (Washington: Government Printing Office, 1965) growth statistics for white oak, p. 634.

⁷⁹ CSP Col. Papers (London & Vaduz, Lichtenstein: Kraus Reprint of HM Stationer's Office, 1860-1964) vol. 1, p. 275.

Vessels were under construction at Pemaquid,⁸⁰ and doubtless at York, Kittery, Dover, and Strawberry Bank (Portsmouth) as well. Several of these places had built or were building vessels of one hundred tons or more. When vessels of this size appeared on the ways in these quantities, shipbuilding began to high-grade the forest, competing with local clapboard-rievers and stave-mills for mid-sized plank and timber stock, and taking the largest trees for compass timbers, great timbers,⁸¹ keels and frames. Larger vessels also required larger pine spars.

The shipbuilding industry did not confine its attention to the forests immediately in the Massachusetts Bay. Perhaps because of increasing restrictions on the harvest of Bay area trees, ships which brought goods to the Bay occasionally sailed to the eastward along the coasts of New Hampshire and Maine to load masts for the return trip to England. This practice started at least as early as 1634, as Winthrop recorded:

May 24. Mr. Fleming, master of a ship of Barnstable, "went hence to the eastward to cut masts there, and so return to England." July. "*Hercules*, of Dover, returned by St. George's to cut masts to carry to England."⁸²

The fact that both vessels were headed down east to cut masts, and the *Hercules* was going all the way to St George, in or beyond the Kennebec area, suggests that there were probably unrecorded masting expeditions along the Maine coast on Royal or New England Council grants east of the Bay, wherever fishing stations

⁸⁰ Publications of the Colonial Society of Massachusetts, vol. VI, (Boston: Colonial Society, 1904), p. 27, the deposition of Capt. Sylvanus Davis taken from Suffolk Court Files, No. 139, 532: 27. Davis recalled, going back 40 to 70 years from 1701, "...building ships and vessels, the inhabitants daily increasing..." until King Williams War destroyed English settlements in the area.

⁸¹ See Albion, Forests and Sea Power, pp. 7-8: Compass Timbers and Great Timbers were curved or straight pieces from trees much larger than the normal mature forest oak. They went into the stem and stern knees, keel, frames, and the sternpost--the entire frame of the ship.

reported suitable pines and forest reserves were unregulated. Fleming and the master of the *Hercules* seem to have been acting on the basis of common knowledge, and an entry for the next year states that "Mr. Witheridge and the Dartmouth ships cut all their masts at St. George."⁸³ Which outpost exactly this refers to is unclear, because there were at that time at least two St. Georges between the Kennebec and Penobscot Bay. The easternmost was a trading post at the bend of the St. George River, set up under the direction of the new patent holders Beauchamp and Leverett, and staffed by their agents Edward Ashley and William Pierce, with five others.⁸⁴ This area had been known to West Country sailors at least since Weymouth's voyage in 1605. There was, however, another "St. George" location which wandered around in the seventeenth century, being once a fort at Pemaquid, and another time a fort at the site of present-day Bath. Since Champlain had reported sparse forests along the Kennebec only a generation earlier, we may conclude that Winthrop's St. George was either around Pemaquid or near present-day Thomaston. The important thing about either of the two locations is that they were beyond the control of the Bay Colony, and under the jurisdiction of West Country proprietors. It was apparently galling to the Puritans when *anyone* not of their religious persuasion made a profit anywhere.

⁸² Winthrop's Journal, vol. I, pp. 125-7.

⁸³ *Ibid.*, pp. 156-7.

⁸⁴ Jasper Stahl, History of Old Broad Bay and Waldoboro (Portland: Bond Wheelwright Company, 1956), vol. 1, p. 41.

Toll on the Forest: Early Ordinances

It had taken very few years. As early as 1622, before Salem and Boston were settled, a proclamation had been issued in the Council for New England complaining that interlopers were injuring the woods and damaging the harbors.⁸⁵ When the Bay area was settled, the issue of forest resources quickly became a topic of public debate along the Boston-Salem axis. In 1632 The Governor's Council had issued regulations to conserve timber trees.

November 7th, 1632: For preservation of good timber for more necessary uses, it is ordered that no man shall fell any wood for paleing but such as shalbe viewed & allowed by the next Assistant, or some whom they shal depute to do the same; this order not to extend to ground that is or shall be assigned to particular persons.⁸⁶

Late in 1634 the Court took up the problem of the allocation of public lands in the Bay in response to growing differences between the poor, who wanted land, and the wealthy who wished to preserve lands to entice newcomers of their class, as Winthrop recorded in his journal.⁸⁷ Four months later the General Court passed new regulations governing the use of public forest resources, partly in the interest of the poor, who depended on those forests for their firewood:

23rd of 1st Moneth, 1635. Item; that whereas the wood upon the neck of land towards Roxburie hath this last winter been disorderly cutt up and wasted, whereby many opf the poore Inhabitants are disappointed of reliefe they might have had there in after and needfull tymes, it is generally agreed that (six officers)shall...sett down what restitution of wood unto the poore.

⁸⁵ CSP, Colonial Papers, vol. 1, p. 33.

⁸⁶ Massachusetts General Court, Records of the Governor & Company of the Massachusetts Bay in New England (Boston: Massachusetts Legislature, 1853), vol. I, p. 101.

⁸⁷ Winthrop's Journal, vol. 1, p 144. Dec. 11. Discussion at general meeting about distribution of land, the poorer sort fearing that the richer would keep all the land for themselves, and force them far afield for arable. Others argued that if land were all given away, it would distract people from the necessary trades, and that they needed to keep land nearby for future immigrants.

Item: It is generally agreed that noe Wood shalbe felled at any of the Islands , nor elsewhere , untill they be lotted out, but att Muddy River, Dorchester necke, or Noddles Island.

Item: That all the wood, as yet left upon the necke of land towards Roxburie, shall bee gathered up, and layd or heaped in piles from soyling of the ground before the 7th of the next 2nd moneth.⁸⁸

A year later, at the beginning of May, 1636, the Dorchester fathers limited the number of cattle on the neck, for fear of overgrazing. They were clearly aware that pasturage was finite, and felt that four acres were needed for grazing one cow.

For pventing of over burthening the same land it is mutually agreed that after October next six score coves shall be counted the full stock for the whole necke being in count 480 acres and so each man to have commons according to his Number of acres and no man to exceed, other cattle being allowed as followith, five goates to one cow, male and female counted alike, and goats of a yeere old all under that age: 10 kids to one cow; two yearlings to one Cow; 3 two-yearlings 2 coves, one workeing ox to a Cow, one mare and a Colt to Two Coves, 4 calves for one Cow, and yeereling Colt for a Cow, and a two yearling so likewise untill 3 yeere old.⁸⁹

On November 28th 1636, a General Court ruling opened Deer Island to the Boston public for wood harvesting:

Also it is agreed that the Inhabitants who want wood shall have liberty to gett for their use at Deare Island, soe as that they presently take and carry away what they doe gett, and whatsoever they leave felled there to be at liberty for others to take away.⁹⁰

That same year Salem passed extensive ordinances regulating the harvest of Salem trees. The previous year Salem had complained about timber waste left on cartways, and over a short time the Salem fathers put teeth in their ordinance. The first ordinance, proclaimed on December 15, 1635, forbade anyone to leave cut timber on the ground for any more than fifteen days,

⁸⁸ Boston Record Commissioners, 2nd Report, (Boston: 1882), p. 4.

⁸⁹ Boston Record Commissioners, Dorchester Town Records, (Boston, 1883), p. 23.

⁹⁰ *Ibid.*, pp. 13-14.

punishable by a 5s fine, half of the fine going to the informer.⁹¹ Nine months later, in September of 1636, the town extended the grace period to one month, but granted the wood as well as half the fine to the informer:

Its ordered that every pson that shall fell any tymber or wood trees wthin the liberties of Salem and take pte of yt, for their vse, and leave the tops and the rest of the body of the trees, soe felled, on moneth after vncutt out and sett vp together shall pay a fyne or penaltye of fiveshilings for every such trespas, soe left as aforesaid except such trees as grow pp lott or grownde, And if any fell any trees wthin the said limits and lett them lye vnoccupies for the space of one moneth, that yt shalbe lawfull for any other man observing the order aforesaid to take the said tree to his owne pp vse; The Informer to haue one halfe of the fyne..."⁹²

Just four months later, in January of 1636/37, the town prohibited the export of forest products from town lands, unless the town fathers had first refused them:

It is ordered that noe sawen boards, clapboards or other Timber or wood be sold or transported by any pson or psons wthin the liberties of Salem from or out of the sd. plantation or liberties therof, upon the paine or penalty of 5s for euery hundred foot of board, or hundred of clapboard, or other sawen timber, & 5s the load of any other wood or timber so transported, vnless the said boards clapboards or other (wood or) timber be first offered to sell to the thirteene men or ye greater part of ym that are intrusted for ye tyme being wth the affairs of the sd. towen & an answer wthin fiteene days returned by the towne whether the will bye or noe.

Item, it is further ordered that (though) the Towne should refuse to bye, & thervpon libertie be granted to part wth any boards, clapboards or other timber, etc. yet that who so shall sell or transport, any of the sd. boards, clapboards or other timber or wood shall pay vnto the Towen eighteene pence for euery hundred (foot) of boards or of sawen timber or hundred of clapboard. And for the further execucon of this order, it is agreed that noe master of any ship or other vessell shall take or transport any of(f) the premises but shall first giue notis vnto the Towen what quanteties they doe take to transport vpon the penalty of 5s for euery hundred so transported.

There was probably a close similarity in the early years between the forest products industries in New England and in the Caribbean on the logwood coast, with free-lance woodsmen building up a stock in trade between arrivals of free-lance vessels, as well as organized efforts to establish a regular trade among

⁹¹ Town Records of Salem Massachusetts (Salem: Essex Institute, 1913), vol. 1, p.14.

⁹² *Ibid.*, pp. 17-18.

merchant companies.⁹³ Town fathers repeatedly made efforts to control forest depredation by their own inhabitants and men from neighboring towns, and to ensure that the town derived some benefit from its forest resources. Judging from the number of ordinances they passed, they didn't have much success.

Dated the XVIth of the 11th moneth called January 1636:

Whereas we haue found by experience that the transporting of boards and clapboards from our plantacon hath not onely bared our woods verie much of the best tymber trees of all sorts but bereaued also our inhabitants of such boards and clapboards wherof they stand in need, We haue therefore ordered that (henceforward) noe sawyer clapboard cleauer or any other pson whatsoever shall cutt downe saw or cleaue any boards or tymber within our lymits & transport them to other places, vpon the payne or penaltie of fiue shillings for euery such hundred of board clapboard (or Tymber)⁹⁴

Eleven days later they reserved a section of the town for wood for the commons, along the shore from Darby's fort toward Marblehead, and 16 poles inland.⁹⁵ Clearly a wood shortage was looming in Salem less than a decade after its settlement. One imagines vessels coming to New England, unlading at Boston or Salem, and sending notice through the surrounding towns that they had cash and goods to exchange for clapboards or pipestaves. It must have kept many occupied who would not otherwise have become involved with forest products.

In Exeter a similar ordinance passed in 1640:

Aug. 1, 1640: It is ordered and agreed upon be the inhabitants of the towne of Exeter, that none shall fell any oke timber within half a mile of this part of the town, except

⁹³ Carl Bridenbaugh, No Peace Beyond the Line (NY: Oxford University Press, 1972) pp. 338-42. Bridenbaugh gives a good description of the logwood trade, and his footnotes are good references to primary sources on the topic. Logwood was reexported through Boston to European ports to avoid paying Royal customs. In 1678 Edward Randolph estimated that New England merchant sailors and adventurers harvested 1000 tons of logwood annually on the Spanish Main.

⁹⁴ Salem Town Records, vol. I, pp. 30-1.

⁹⁵ *Ibid.*, p. 34.

it be upon their planting lott, or for building or fencing, upon the penalty of each tree five shillings.⁹⁶

Apparently a collateral effect of pressure on the oak forest was a scarcity of charcoal for the blacksmiths in the Boston area, because in 1639 the General Court sent a shallop to the eastward to get "coales," (coal had earlier been discovered in Acadia, or Nova Scotia). If successful, the trip was to be at the blacksmiths' expense; if unsuccessful, at the country's expense.⁹⁷

Shipbuilders and clapboard-and-stave rievvers were eventually forced to look further afield for suitable trees, and soon some towns, recognizing that shipbuilding would in the long term be their most valuable industry, allotted shipbuilders precedence in harvesting trees. In 1640 Hugh Peter and Emmanuel Downing wrote to Governor Winthrop seeking his aid in protecting Salem's timber resources for local shipwrights, particularly against the predations of clapboard and pipestave rievvers, saying that

because we have 2 or 3 ships building. wee desire that within 2 or 3 miles neere any river they may not fell great tymber fit for shipping, for they may as well cut it further of it being so portable, and ship-timber being so heavy...These men cut downe but halfe of the tree for their use, and the rest lyes rotting and spoyles our Commons, with many more inconveniences than we name.⁹⁸

In 1640, John Endecott called a town meeting in Salem to prevent the spoiling of ship timbers.

And the towne agreed not to cut any great tymber which is fitt for shipping planckes or knees etc. nor for any clapboard within two miles of the towne every way, nor to fell any other timber but for their owne private use.⁹⁹

⁹⁶ NHHS Provincial Records, Vol. I pp. 138-43.

⁹⁷ Records of the Governor & Company of the Massachusetts Bay in New England, vol. I, p. 253.

⁹⁸ Winthrop Papers, vol. 4, pp. 304-5.

⁹⁹ Winthrop Papers, vol. 5, pp. 311-2. Letter from John Endecott to John Winthrop.

That year the town of Salem passed an ordinance giving shipbuilders first refusal of all timber cut on town property:

Ordered that such as have felled timber trees wthin twoe miles of the town of Salem, & any timber trees wthin one mile of Marblehead that are fitt for shippinge, That such as haue felled them shall be paid for their labor either for their felling wch is already done or for sawinge if they will bestoe that labor uppon them for plank for shippinge, to be paid by such Shipcarpenters as are willing to imploy them for that vse. And that none shall cleaue such trees vp to clapbo(ards) or pipestaves. And if the Shipcarpenters shall refuse the said plank so sawed at the rate of the Countrie, Then it shall be lawfull for them to sell to any other.¹⁰⁰

On May 13, 1640, the General Court repealed an earlier order restraining the transport of pipestaves, plank and other wrought timber,¹⁰¹ but clearly within the first two decades of settlement legislation and litigation intruded more and more between the maritime industries and the forest, and in some places maritime industrial interests were beginning to conflict with the interests of the common folk. As New England's infant shipbuilding industry took its first tentative steps into the world market, town fathers and Colony leaders took steps to forestall trouble ahead from competition for dwindling resources. That lawyers and politicians were becoming involved was, then as now, a clear sign that the object of their interest, the shipbuilding industry, had begun to show financial promise, and had therefore become serious business.

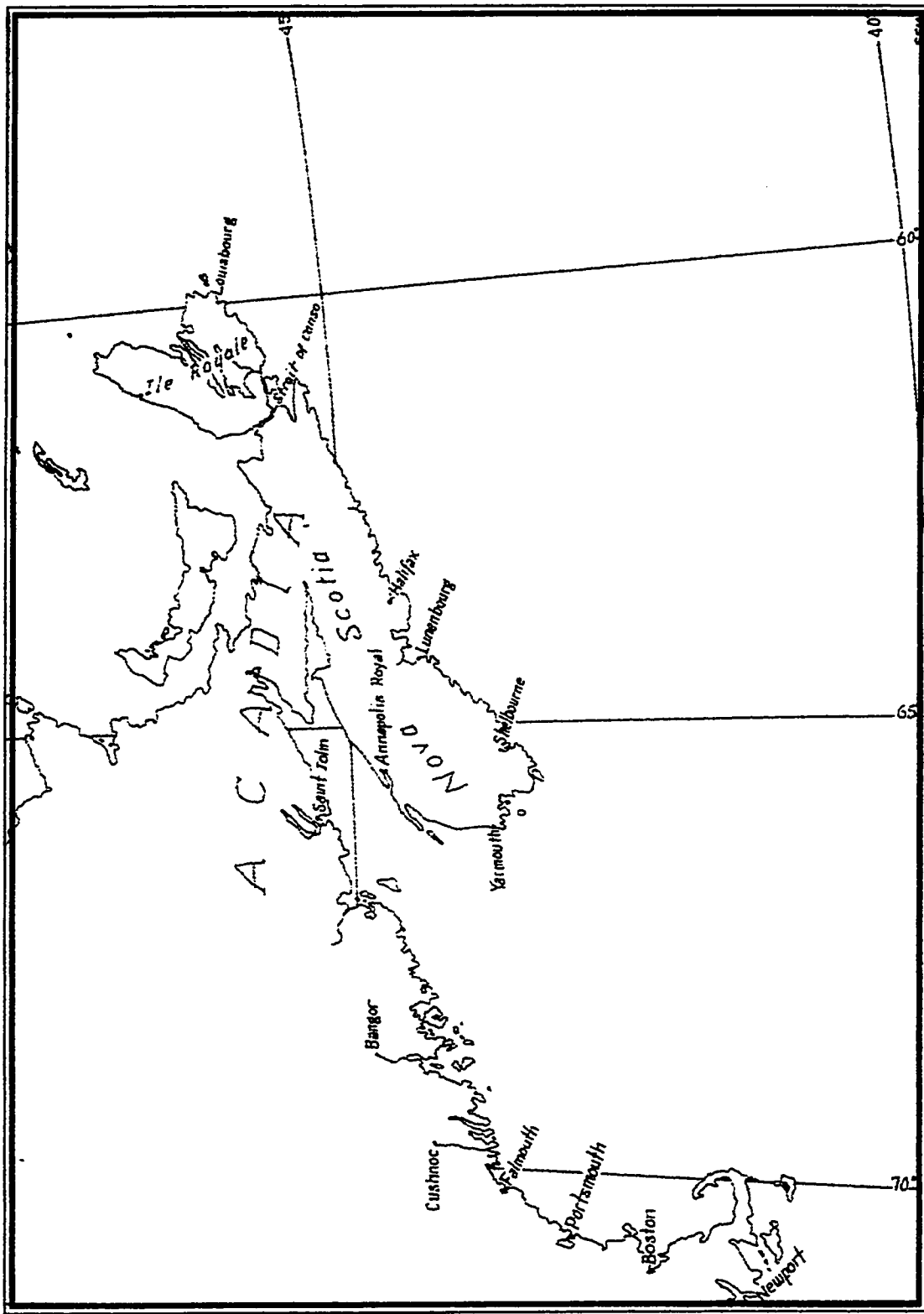
Soon the shipbuilding industry would gravitate to the better sources of capital in the Bay area, while the shipbuilders' precedence in harvesting large trees would push stave and clapboard reivers toward the periphery. Initially those in the clapboard and stave business began acquiring land and forest on the

¹⁰⁰ Salem Town Records vol. 1, p. 107.

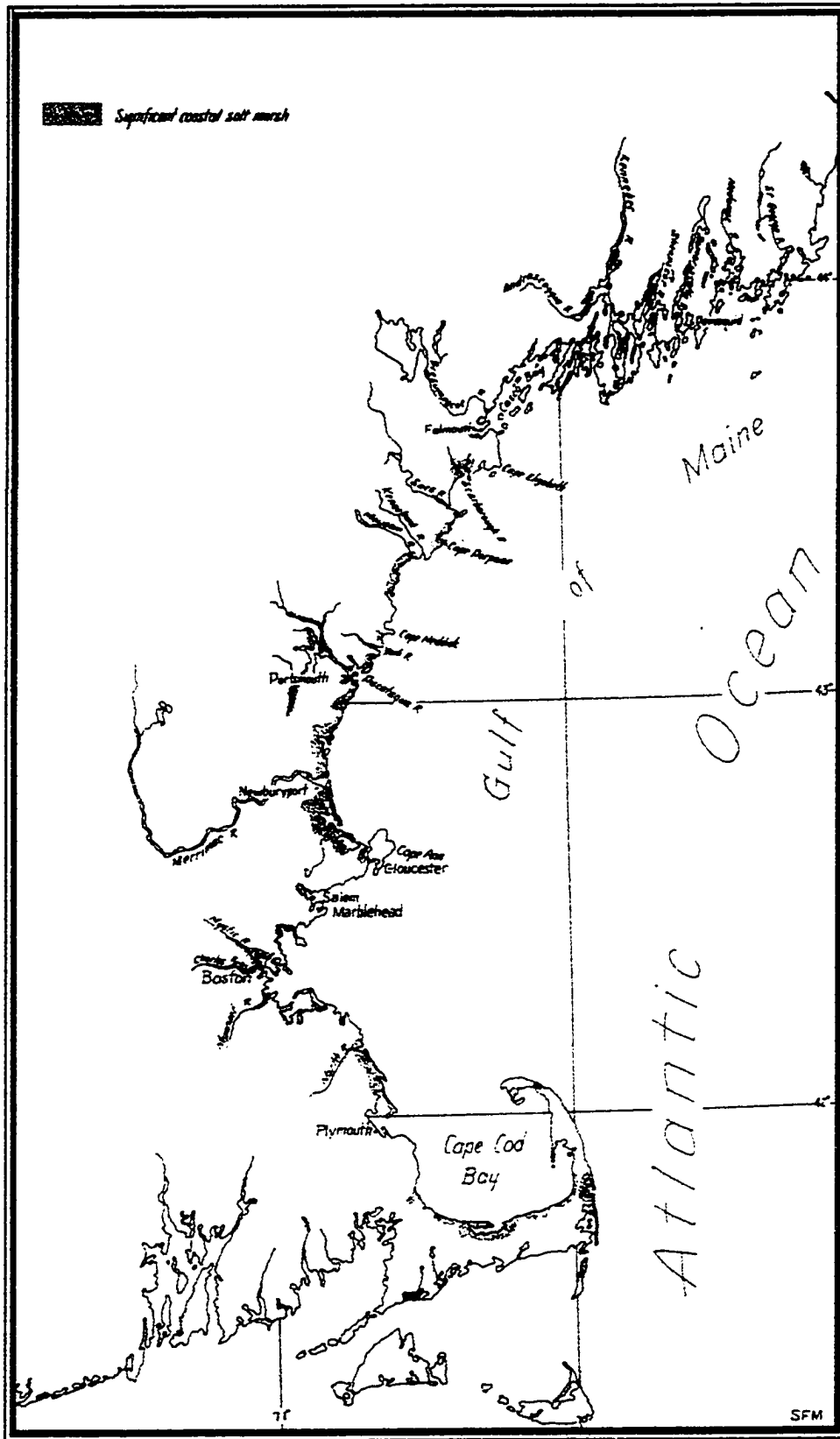
¹⁰¹ Records of the Governor & Company of the Massachusetts Bay in New England (Boston: Massachusetts Legislature, 1853), vol. I, p. 292.

frontier of the Merrimac, but they soon expanded to include the Great Bay area of New Hampshire, and worked from there north, where the trade was already established, the resources were plentiful, and the shipbuilding lobby didn't have such influence. Meanwhile, the concentration of shipping and shipbuilding in the Boston-Salem axis began to change the topography of that waterfront, which in turn had an impact on the local fisheries.

Thus, while the fishing industry gave the first impetus to the shipbuilding industry in the 1630s, the shipbuilding and shipping industries began to disrupt the forest and shoreline ecologies in the 1640s. This in turn had a lasting effect on the forest and fishing industries in subsequent decades, and forced the merchant capitalists of Massachusetts Bay constantly to enlarge their resource reserves through further acquisition of territory, as we shall see.



Map 1, North Atlantic coast of North America (drawn by Sam Manning).



Map 2, Salt Marshes from Cape Cod through the Gulf of Maine (© Sam Manning, 1973)

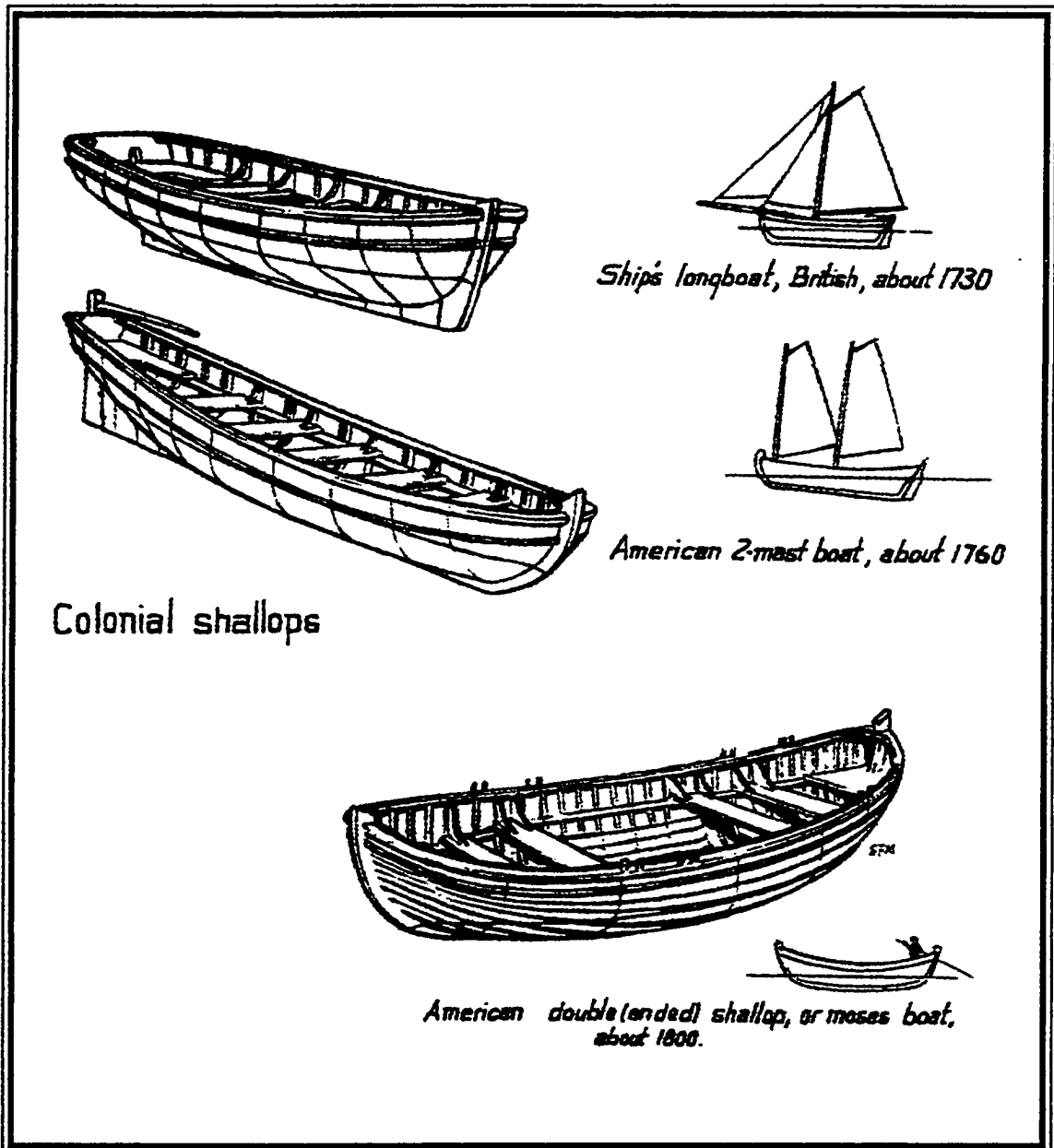


Figure 1, Colonial Shallops (© Sam Manning, 1973)

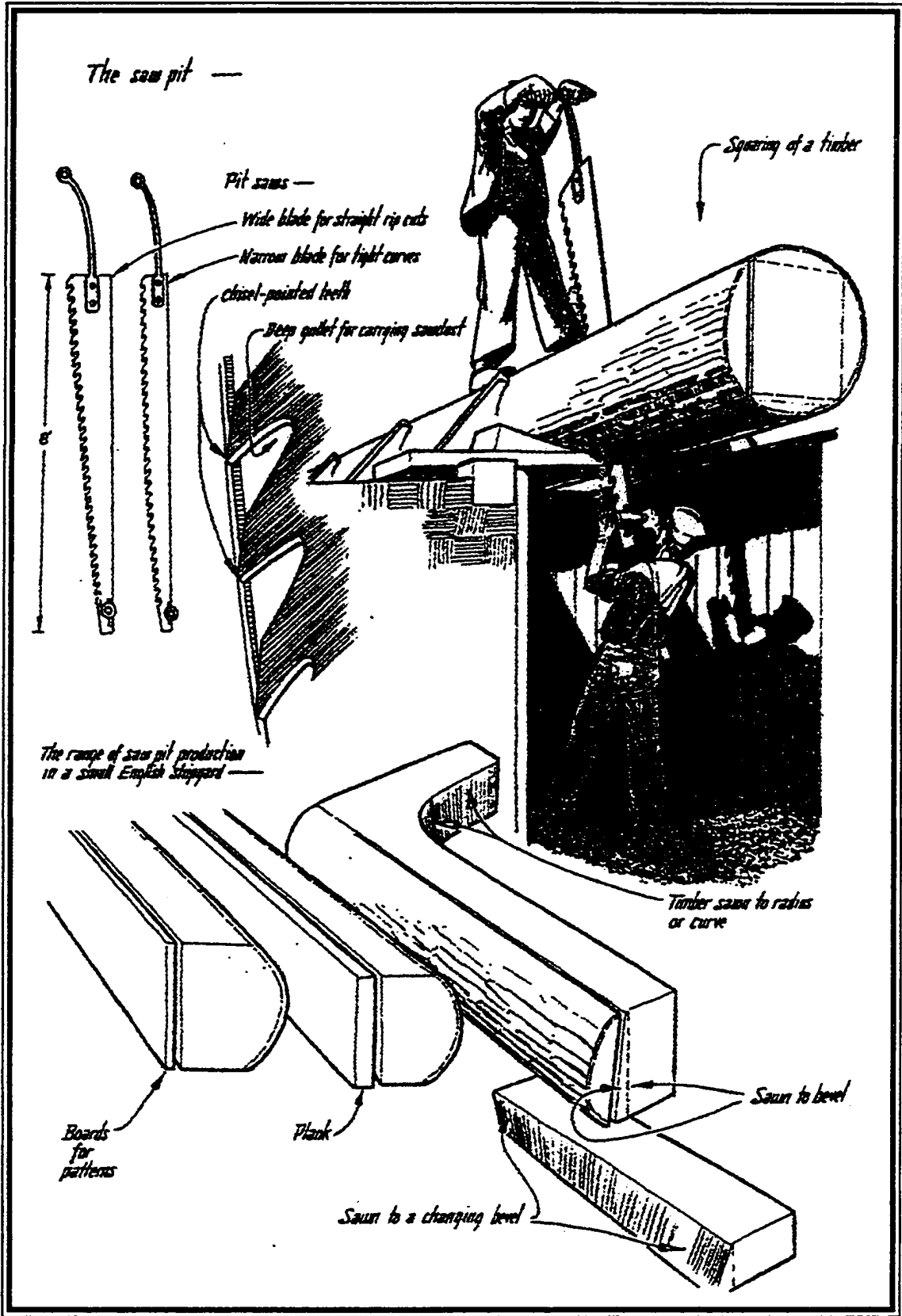


Figure 2, Pit Saw (© Sam Manning, 1973)

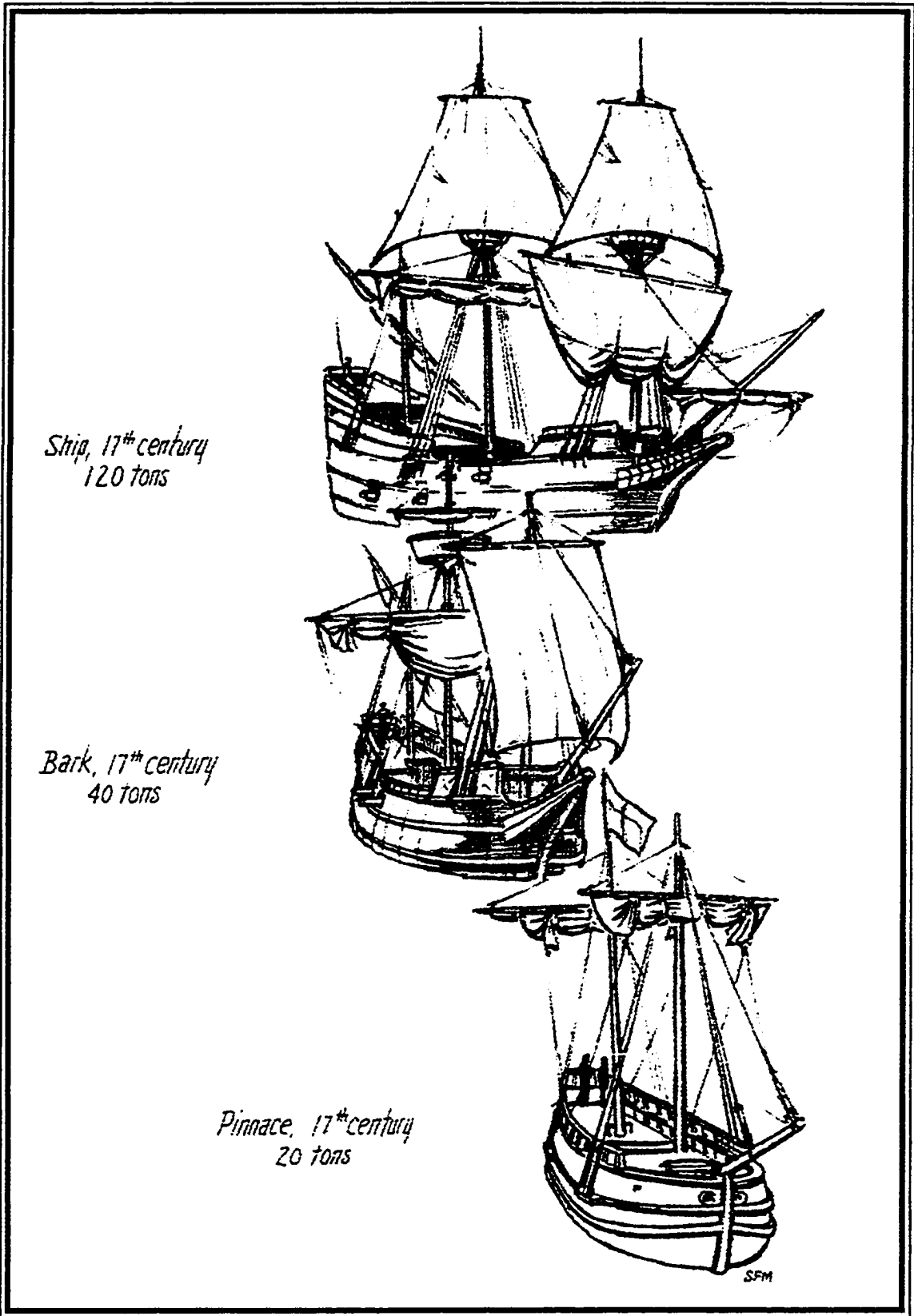


Figure 3, 17th Century pinnace, bark and ship (© Sam Manning, 1973)

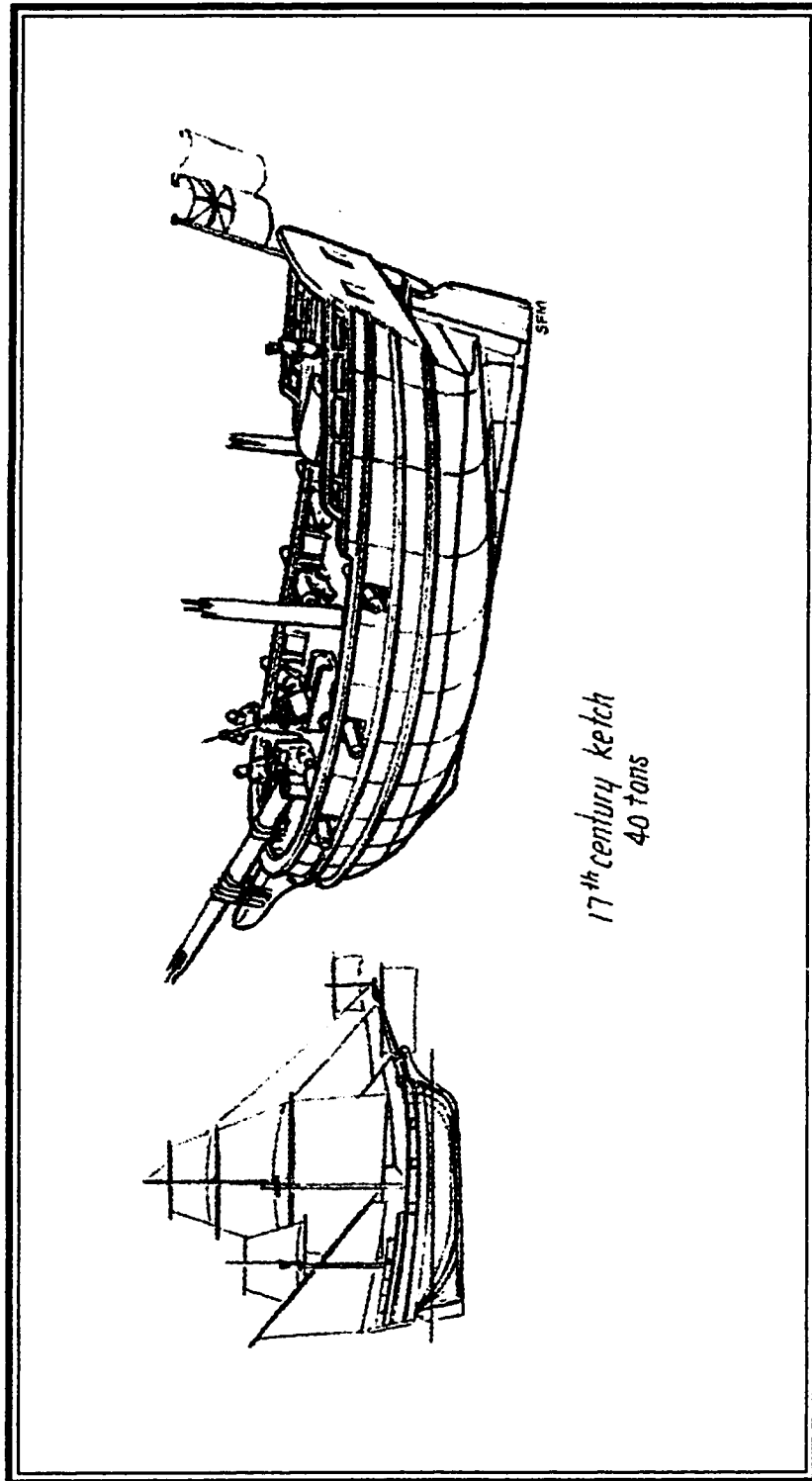


Figure 4, Seventeenth century ketch (© Sam Manning, 1973)

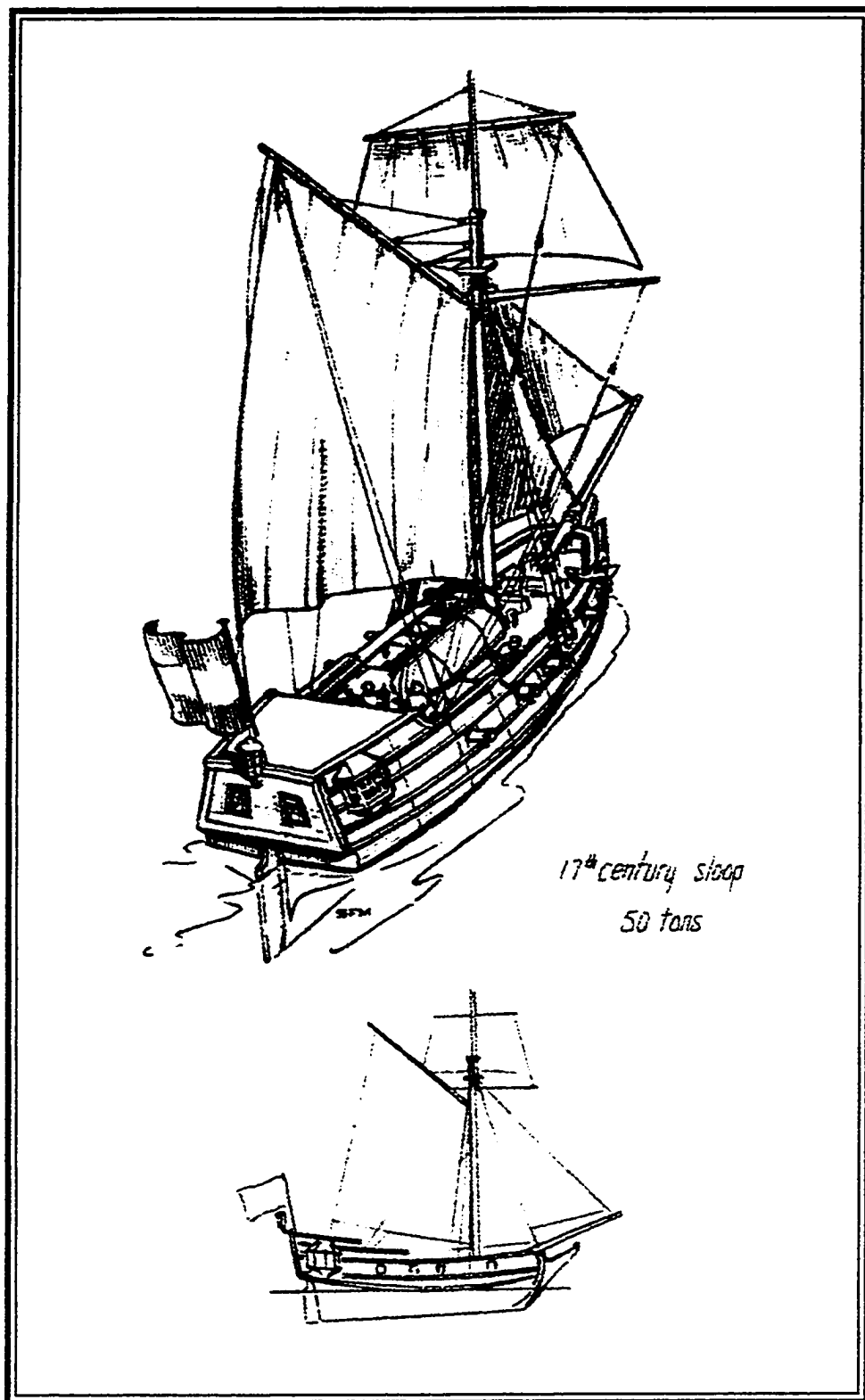


Figure 5, 17th Century Sloop. (© Sam Manning, 1973)

CHAPTER TWO

AN INDUSTRY TAKES SHAPE, AND SHAPES WHAT IT TAKES: THE EARLY SHIPBUILDING INDUSTRY, 1620-1650

The general fear of want of foreign commodities, now our money was gone, and that things were like to go well in England, set us on work to provide shipping of our own...¹

A methodical study of seventeenth-century New England shipbuilding has yet to be undertaken. A number of historians have already treated the beginnings of New England shipbuilding as part of a larger work. J. Leander Bishop in 1868, in his three volume work A History of American Manufactures; Henry Hall in his Report on the Shipbuilding Industry in the United States, commissioned by the Federal Census in 1880 and published by the Government in 1882; John G. B. Hutchins, in The American Maritime Industries and Public Policy, a doctoral dissertation published as part of the Harvard Economic Series in 1941, and more recently Joseph Goldenberg, in his Shipbuilding in Colonial America, all discussed the subject. Unfortunately, the first three of these relied heavily on secondary sources for their local history, and Goldenberg's scope prohibited him from going into local history in depth. Thus the received canon of New England shipbuilding in the 17th century is spotty, sometimes confused, and seldom based on primary evidence. I hope to shed a little more light on this subject in the course of this chapter.

¹ Winthrop's Journal, vol. II, p. 23. Dated February, 1641.

A closer perusal of primary sources suggests that shipbuilding in New England started early through economic necessity, grew quickly through Boston connections to the Puritan cause in England, became a crucial part of the economy when New England merchants and captains acquired positions at Trinity House and in the Admiralty Board, and soon had a noticeable impact on the coastal environment.

At its earliest stage of development, New England shipbuilding did not differ greatly from that of most other European colonies in the New World, and actually lagged behind the Spanish, whose Manila galleons were built on the west coast of Mexico. Shipwrights were at work on small craft at the same time in the Chesapeake area,² in the Caribbean,³ and as far south as Brazil, where Portuguese merchant-adventurers began early to build their fleets at home.⁴ Iberian shipbuilding came with the conquistadors to the New World. In fact, one of the 16th-century books printed in the new world was a Mexican treatise on shipbuilding.⁵ But somehow other colonial powers constrained shipbuilding in their New-World possessions, while the shipbuilding industry in the Bay area outgrew its colonial constraints and kicked over the traces binding it to bureaucracies and lobbyists from the mother country. When England dissolved in Civil War in 1642, New England's survival depended on its ability to deliver the products of its fisheries and forests in its own shipping. Developing within the purview of the General Court, it began by its second decade to achieve a

² Joseph A. Goldenberg, Shipbuilding in Colonial America, (Newport News: Mariners Museum, 1976).

³ Winthrop's Journal, vol. I, p. 185. Dated August 3, 1636. Samuel Maverick had brought back from Virginia a 40-ton pinnace built of cedar in Barbadoes.

⁴ C. R. Boxer, Salvador de Sá and the Struggle for Brazil and Angola, 1602-1686. (London: The Athlone Press, 1952).

⁵ Diego Garcia de Palacio, Instrucción Nautica Para El Buen Uso Y Regimiento de las Naos, (Mexico City: 1587). In bibliography to chapter XXV of Morison: European Discovery of America, the Southern Voyages, p. 613. This book describes how to design, build and rig a 400-ton vessel.

stature distinct from colonial shipbuilding enterprises elsewhere. It soon became an autonomous industry, with local shipbuilders building to order for local fishermen and merchants, outside the purview of the Crown, and regulated either by the General Court, or (probably, in New Hampshire and Maine) not at all. As colonial capital concentrated in shipping and shipbuilding, those industries and their adjuncts, the fisheries and forest products industries, became dominant players in the political and economic policies of the Massachusetts Bay government. How this happened, how it was interwoven with other maritime endeavors, and how they were inextricably bound to the ecology of the New England environment are the topics of this chapter.

From Barks and Pinnaces to an Industry: 1630-1650 (see Figures 3, 4 and 5)

Virtually everyone involved in the first scattered settlements recognized the shipbuilding potential of the New England coast, in the protected waterways flanked by a seemingly endless supply of old-growth forest, and swathes of young forest coming up in old Indian fields along tidal rivers. In the beginning, limiting factors were the supply of skilled shipwrights, the scarcity of labor-saving devices, whether low-tech (oxen) or high-tech (sawmills), and the supply of capital, naval stores and furniture, which had to be imported. Small boats and shallops were common along the coast from the very beginning, and probably any West Country fisherman could fabricate such hulls with minimal tools, given the supply of timber at hand.⁶ Even a housecarpenter had the skills to stretch a shallop into a serviceable decked bark, as happened in Plymouth.⁷

⁶ William Bradford, History of Plymouth Plantation, (Boston: Wright & Potter, 1901. Bowie, MD: Heritage reprint, 1990) pp. 228-9. Fishermen at Damariscove Island salvaged and rebuilt a Plymouth pinnace that had sunk there, for payment in beaver.

⁷ *Ibid.*, p. 253.

Vessels up to thirty tons, occasionally even larger, were initially built on an "as needed when affordable" basis, not for the international market.

Much of the evidence for the first decade of the shipbuilding industry is circumstantial, but correspondence from 1629 between the Massachusetts Bay Company and their Salem colony indicates that shipbuilding was part of the stockholders' plans from the beginning. In 1629 they sent over master shipbuilder Robert Moulton and five other shipbuilders, with naval stores and a specific breakdown of how they should divide their work between the needs of the colony and the private speculation of absentee stockholder Matthew Craddock and his associates. These orders included the option of preempting the labor of others in the colony when necessary.⁸ William Wood referred to two vessels built in Mystic on Matthew Craddock's property before Wood returned to England in 1633 or 34:

⁸ Suffolk Deeds, Vol. I, pp. xvi-xvii. William Burgis, from the Governor & Deputy of the New England Company for a Plantation in Massachusetts Bay to the Governor & Council for London's Plantation in the Massachusetts Bay in New England: "Wee have sent six shipwrights of whom Robert Molton is cheif these Mens entertainmt is very chargeable to us, and by agreement it is to bee borne two thirds at the Charge of the genall Companie and the other third is to bee borne by Mr Cradock or Gounor and his associatts interested in a private stock. Wee hope you wilbe carefull to see them soe employed, as may countervaille the Charge, desiring you to agree with Mr Sharpe that their labor may bee employed 2/3 for the genall Companie, and 1/3 for Mr Cradock and his assotiates praying you to accomodate the sd Mr Cradocks people in all fitting mann as hee doth wel deserve....William Ryall and Thomas Brude Coop(er)s and Cleavors of Tymber ar entertained by us in halfes wth Mr Cradock o(u)r Govnr: pray joyne others that can assist them unto them, and lett them pvide some Staves and other Tymber of all sorts...The pvisions for building of shippes as Pitch, Tarr, Rozen, Okum old ropes for Okum, Cordage & Saylcloth in al these shippes wth 9 fferkins and 5 halfe barrells of Nayles in the Four Sisters, are 2/3 for the Company in genall, and 1/3 for the Govnor Mr Cradock & his ptners, as is the Charge of one Georg ffarr now sent over to the six shipwrights formerly sent, o(u)r desire is a storehouse may bee made apt for the pvisions of the shipwrights and their Tooles whereof Robert Moulton to have the cheif charge, and an Inventory to bee sent of all the tooles, the new by themselves and the old by themselves that are sent over for the use of the said shipwrights or any of them in these and the former shippes, In the like manner of all provisions any way concerning shipping to the end wee may heere examine & fynde that the Company may bee duly charged with their 2/3 parts of the Charge & noe more, and our desire is that these Men bee kept at worke together, adding to their helpe such of the Companyes servants as you shall find needfull & proportionably 1/2 as many of Mr Cradocks wch course wee hold most equall, and that accordingly as any vessels bee built, first that both parties may bee accomodated for the present occassion, but soe soone as 3 shallops shalbe finished, two of them to bee sett out for the Companie, by lott or as you shall agree there to make an equall division, and one for our Govnr & his ptners...

On the East side (of the Mystick River) is Master Craddock's plantation, where he hath impaled a park, where he keeps his cattle, till he can store it with deer. Here likewise he is a charges of building ships. the last year one was on the stocks of a hundred ton. That being finished, they are to build one twice her size.⁹

An historian earlier in this century listed three vessels built for Craddock, one in 1632, no doubt the one of 100 tons referred to by Wood, and two in 1633. Of these, one was a vessel of 60 tons named *Rebecca*, first mentioned by Winthrop in his journal, and the other was 200 tons.¹⁰ Apparently Craddock, a major investor and one-time governor of the New England Company, had quickly seen to it that Moulton and his men fulfilled their contract by building ships for him in Mystick. Craddock had good reason to want ships of his own; even before 1635, in addition to fishing interests, he had at least one very productive clapboard operation going on down east in Saco.¹¹ He wanted transportation for his products, and his own ships provided him with a vertical monopoly. Whether Moulton had anything to do with Craddock's Mystic shipyard is impossible to tell. Moulton did alright for himself; upon his death he was established as a property owner,¹² but he left little record of his life as a shipbuilder. John Winthrop's *Blessing* was likely built by the same men who worked in Craddock's shipyard, and correspondence of both John Winthrop, Jr., and William Pynchon refers to her carrying cargo between Boston and the

⁹ William Wood, New England's Prospect, p. 61.

¹⁰ Hall Gleason, Old ships and shipbuilding days of Medford, 1630-1873., (West Medford, MA: J. C. Miller, 1936).

¹¹ Maine Province and Court Records, vol. 1, pp. 97-9.

¹² Probate Records of Essex County, Massachusetts, vol. I. (Salem: Essex Institute, 1916) p. 396. Dated 25.7.1655. Inventory of Robert Moulton, sr., of Salem--head shipwright of those sent over by the company: no mention of vessels, total value £121 8s; debts £8; total £113 8s. Principal value in farm with all the housing on it: £35; plus houses and ground in town: £10; and 8 cows: £28; 5 young cattle over two years old: £11 10s.

Connecticut River settlements, trading around New England and to England, possibly as late as 1674.¹³ She must have been well-built to endure so long.

There were other shipwrights in the area. In 1633 Emmanuel Downing wrote to Secretary Coke about ship carpenters then with Winthrop in New England. He did not mention Moulton, but named Will Stephens, "able as any in the kingdom, & two or three others," and asserted the plantation would next year build ships of any burden.¹⁴ The predicted ships were built within a couple of years, but Stephens, like Moulton, left no record of his shipbuilding endeavors.

Further down east, mid-seventeenth-century deeds in Dover, New Hampshire, refer to a frigate built and launched near Dover Point some years before.¹⁵ Winter Harbor and Agamenticus probably also had ship- or boat-builders before 1640,¹⁶ and the Piscataqua district certainly did. Walter Neal sailed into Massachusetts Bay in a Piscataqua-built pinnace in 1632, and on the 13th of July 1634, the *Pied Cow* had come up the Salmon Falls River to Newichewannock. On her departure she carried a letter from Ambrose Gibbins, the local overseer, to John Mason back in England, requesting "Nayles, spikes,

¹³ Pynchon Papers, Vol. I (Boston: Colonial Society of Massachusetts, 1982) pp. 105, 120. *Ibid.*, Vol. II, p. 39. The *Blessing* also traded to the Isles of Shoals, for in 1653 Hercules Hunkins of those isles shipped 18 "quintals of Refus fish, & on barrill of Mackrill" to Barbadoes on the *Blessing*, of Boston, Nathainell Robinsen, master. NHSP vol. 40, p. 116.

¹⁴ Calendar of State Papers, Colonial Series, Vol. 9, p. 76.

¹⁵ John Scales, History of Dover, NH, (Dover: 1923. MD: Heritage Books, 1977 reprint), pp. 66-7. Two grants, 1658 to Job Clement & 1661 to Isaac Stokes, describe land "near where the Old Friggot was built." At this time "Frigate" seems to have implied an armed vessel of less than 100 tons, propelled by sail or oar, and fitted to carry cargo or patrol against an enemy. See Winthrop's Journal, vol. II, p. 272; Suffolk Deeds, vol. I, Lib. 42, 45; Aspinwall Notarial Records (Boston: City Registry, 1903; Maine Province and Court Records, vol. I, pp. 158, 245. By the late 17th century, the term had come to mean a fast, well-armed patrol vessel.

¹⁶ Spencer, Wilbur D., Pioneers on Maine Rivers, (Portland: 1930. Bowie, MD: Heritage Books, 1990 reprint) pp. 177-8. States, without giving provenance, that Dorchester merchants sponsored the building of a ship at Winter Harbor, in 1636.

iron worke for boates and pinaces, twine, canvis, needles and cordage, pitch and tarre, graples, ankors and necessaries for that purpose."¹⁷

Further from the Bay geographically and politically was the shipbuilding endeavour at Richmond Island, where Winter and Gill were building vessels to carry the cargo generated at the island. Beyond that, there may have been shipbuilders active around Pemaquid, although there is no direct evidence.

By the end of the decade the Massachusetts Bay colony, with its greater trade, more populous hinterland, more organised political infrastructure, and consequently stronger economic circumstances, rapidly began to dominate the shipbuilding industry. We know that by the second decade of settlement several ships were on the ways in the Bay colony. This was a result of deliberate Puritan policy, as well as geography. The New England Company had originally intended to build ships, and the Boston-North Shore area offered: protected harbors easy of access; the greatest cash flow and the largest labor pool in New England; several trained shipbuilders; and a reliable supply of maritime necessities brought into the Bay on trading vessels that were attracted to the area by its population and ready stores of forest products and fish.

The advantages of New England shipbuilding had become more apparent to the New England Company as Sir Ferdinando Gorges got into financial difficulties with the English construction of his *Great Neptune*. He had originally intended her to trade and patrol along his coastline in Maine, but she cost so much to build in England that the Company was forced to sell her before she made a single cruise.¹⁸ Meanwhile, shipwrights in Boston, Salem, Marblehead, Dover, and Richmond Island, using virtually free timber from the

¹⁷ New Hampshire Provincial Records, Vol. I, pp. 90-2.

¹⁸ *Mariner's Mirror*, vol. 36, #4, P. 322. The *Great Neptune* was a "firred" ship. Even using cheaper wood, the Company ran into financial trouble building her.

local forest, were beginning to produce competitive merchant shipping. By 1640 several much larger vessels and a number of shipwrights had appeared in the records.¹⁹

The Dutch Connection (see Figure 6)

Perhaps influenced by the new Dutch *fluyt*, merchant vessel design diverged slowly from warship design as wages rose for seamen, and bulk cargoes played a more important rôle in maritime trade.²⁰ Were colonial shipwrights quicker than their English fellows to adopt the Dutch *fluyt* design, that had greater carrying capacity for its size, and was more economical to operate than the heavily-built English armed merchantman of the early 17th century? If this were the case, it would further explain the rapid growth in New England merchant shipbuilding which occurred after 1640. Certainly shipbuilding had been going on for several years in New Amsterdam. Already in 1632 John Mason had written to Sir Ferdinando Gorges that the Dutch in Manhattan: "have built ships there, whereof one was sent unto Holland of 600 tunnes or thereabouts."²¹ Winthrop's journal shows that New Amsterdam and Bay Colony ships traded back and forth from the second year of settlement,²² and Dutch merchant ships were regular visitors to Boston. Frequent visits by Dutch vessels from New Amsterdam, Holland and the Dutch Caribbean colonies,

¹⁹ See Appendix for a list of vessels built before 1650.

²⁰ Richard W. Unger, in Cogs, Caravels and Galleons: The Sailing Ship, 1100-1650, Robert Gardiner, editor, from *Conway's History of the Ship* series, (London: Conway Maritime Press, and Annapolis: Naval Institute Press, 1994), pp. 115-30. The *fluyt*, or flyboat, was a Dutch synthesis of many local fishing vessel designs, ship-rigged, with a length-to-beam ratio of 4:1 or greater, with a stern that presented in cross-section the outline of a type of drinking glass still called a "wine-flute." By contemporary standards it was undercanvassed and slow, but carried a large cargo with a small crew. See the illustration (copyright Samuel F. Manning, 1973) at the end of this chapter.

²¹ NHHS vol. 1, p. 50.

²² Winthrop's Journal, vol. I, pp. 76, 102, 152, etc.

coupled with freedom from the atavistic inertia of English Guilds, argue for the possibility of Dutch influence on the industry in New England. In 1636 Lion Gardiner wrote John Winthrop Jr. from Sea Brook fort:

Heare is 2 men and ther wifes come from the Dutch plantation, a tayler and a shipp write, and I sett them boath to worke, but I have neather money nor victualls to pay them. I doe intend to sett the Dutch man to worke to make a smacke sayle, which shall carry 30 or 40 tun of goods, and not draw 3 foote and a halfe of water, principally to transept goods and passengers up the river in safety.....²³

At the time, Sea Brook (Saybrook) and the Bay colony were closely connected. Certainly the topography of the Dutch coast had forced Dutch shipbuilders to create efficient shoal-draft vessels. Did Dutch New Amsterdam have a rôle in the evolution of English ship design via the New England colonies? The geographic and political proximity of New Amsterdam to the Puritan colonies along the Connecticut River argues that such a connection probably existed. Samuel Mavericke, one of the old Massachusetts settlers driven out by the Puritans, moved to New Amsterdam, as did a few other early Bay colonists. From there they continued to trade with the Bay in the capacity of Anglo-Dutch colonists until the English conquered New Amsterdam, when they became supporters of the royalist cause.

Three Shipbuilders: Models of Failure and Success

The best-documented examples of early New England shipbuilding are from Richmond Island, Salem, and Boston. They offer circumstantial evidence of the growth of shipbuilding around the Boston metropole at the expense of shipbuilding on the periphery. John Winters started building ships at Richmond Island about the same time Richard Hollingsworth started in Salem, around

²³ Winthrop Papers, in MAHS series 4, vol. 7, p. 54.

1636. The Richmond Island shipbuilding enterprise ended with the second vessel, however, while Hollingsworth surmounted many difficulties, built his business, and at his death in 1653 left a thriving shipyard to his sons. Following a tentative trial in Dorchester, the Bourne-Hawkins-Coytemore cartel started in Boston a few years after Hollingsworth's debut in Salem, but soon Boston was a leader in the shipbuilding industry. The fortunes of Boston's shipbuilders rose with the town's political and mercantile preeminence in New England.

1) The Richmond Island Model

It had been fairly easy to build a thirty-ton bark at Richmond Island, using one ship's carpenter at most, and the labor of the company fishermen and woodworkers. Why, when the bark had taken only a few months to build, had it taken four years to complete a single hundred-ton vessel at Richmond Island? This task, given the tools at their disposal, shouldn't have occupied more than a year if draught animals and workmen had been available. The answer is that building a ship was a different story; it required a skilled shipwright, oxen and trained ship-carpenters. The new yards around the colonial center, or the Boston-Salem axis, created a widespread demand for shipwrights, at the same time they offered a better market for capital and labor. The Winters-Trelawney correspondence about the two *Richmonds*, bark and ship, reveals that there was competition for shipbuilding labor between the settlements on the periphery and the budding metropole in the Bay, and sheds some light on the course of New England shipbuilding over this period. (See Appendix A).

The economic crisis which came with the Civil War at home had made it doubly difficult to attract workmen to the periphery in Maine, or to persuade the workmen already there to do more difficult kinds of work. We notice that Winter's men were willing to "put aboard a good store of wood," which was small

and light, but they refused to "cutt timber," which involved manhandling large pieces of heavy oak and strenuous work with an adze or in a sawpit. On the frontier beyond the Massachusetts Bay area not only was trade conducted in goods--there was little cash flow from which to pay shipwrights--but also the land was parcelled out in grants rooted in medieval law, which nearly precluded outright ownership. The best anyone could hope for in Maine was to hold land under a medieval tenure program which stipulated token quitrents or annual service for hundreds of years into the future.²⁴ We may extrapolate from oblique references to inhabitants otherwise unaccounted for that squatting was an extra-legal option wherever the nominal grantees lacked force on the ground, and the history of the frontier squatter deserves a study of its own.

As the Massachusetts Bay settlements were gearing up to produce ships to carry on their own commerce, and perhaps as items of foreign exchange, they created a more lucrative market for the best workmen. The Massachusetts market might pay at least partly in cash, and workmen could hope to purchase land of their own with their earnings, because Bay Colony land wasn't encumbered in atavistic forms of ownership like the Maine grants. In 1641 Maine was not yet under Massachusetts' jurisdiction, but it had already fallen under her economic shadow; the Bay Colony capital could control the Maine labor market. This would be increasingly true as the English Civil War went on, because Maine was held under patents belonging to members of the losing side in England, while Puritan Massachusetts was affiliated with the winners. Consequently, part of Winter's problem in keeping ship carpenters at Richmond Island may have been political. While the construction of the second *Richmond* may be the most detailed surviving description of New England shipbuilding up

²⁴ See the various deeds issued by George Cleeves under Rigby's Ligonias Patent, each of which provides for a quitrent to be paid annually into the infinite future. MEHS Collections, series II, vol. 6. Other deeds, less optimistic, were merely for several centuries.

to 1641, after that year shipbuilding in Maine was quickly overshadowed by the industry further to the westward.²⁵ Master shipwright Arthur Gill, as we see, after one or two visits to the Bay finally moved there and never returned to build boats or ships for Winter and Trelawney. Winter's books indicate that Trelawney had been paying him only 10s per week,²⁶ and working at Richmond Island offered him no opportunity to buy land or settle. We do not see hard records of shipbuilding north of the Piscataqua for another forty years, although there is ample evidence that local fishermen continued to build shallops, and there were active shipbuilders in Kittery. Maine did not rival Massachusetts in recorded shipbuilding again until the late eighteenth century, nor overtake it until the nineteenth. Of unrecorded shipbuilding we shall discuss more later.

One of the problems in the building of the second *Richmond* must have been getting the wood out of the forest. The keel, sternpost, stem and frames of a hundred-ton vessel of that time were substantial. Winter gives the dimensions of the new ship in a letter of July 10, 1639, one year after Gill had questioned the design.

Arthur Gill is gon from vs, & is going into the Bay as he tells me to dwell their... Planke I want, but sawinge still. George Dearinge...for the last yeare he promysed me to saw som planke for the ship...& he never came neare since... She is very well timberd for a ship of her burden. She is betwixt 49 & 50 foote by the keell, 18 1/2 foote to the beame, & I purpose to bringe her to 2 deckes with a fore Castell & a quarter decke, 9 foote in hold, & 4 1/2 foote betwixt the deckes... The tymber was all first moulded for to build her with on decke, which would not be good for these westerne Courses.²⁷

²⁵ At the further end of our geographical study, even little Plymouth Colony chose this particular year to re-enter the shipbuilding business, launching a 40-50 ton bark whose £200 cost was underwritten by 13 subscribers, 10 buying one-sixteenth shares, and 3 buying one-eighth each. MAHS Bulletin series 2, vol. IV, 1846 reprint, pp. 99-100.

²⁶ *Ibid.*, p. 187.

²⁷ *Ibid.*, Winter to Trelawney, July 10, 1639, p. 164-166.

This letter not only gives us an idea of the dimensions and scantlings of the vessel, but indirectly suggests one cause for the delay in her building: he also mentions that John Burrage is just going to start plowing for the first time with a young team of steers the next spring.²⁸ In other words, his crew had framed up and partially planked this ship with wood which they had felled and brought to the ways by hand, *without* the help of a team of oxen. A keel 50 feet long would be at least 10 by 12 inches²⁹--he emphasized that she was "very well timberd ffor a ship of her burden." The keel then came from a log of at least 20.5 inches in diameter at the small end, weighing at least 6,494 lbs., or over three tons. Such an oak must have been well over a hundred years old, and forest-grown. That is, in order for the keel tree to have grown straight long enough to develop a straight fifty-foot butt log, the forest from which such a keel tree came must have been at least as old as the tree. This implies at least a century of undisturbed forest growth on that site.

To move such a timber without oxen, using only manpower and tackles, was perhaps more work than Arthur Gill had anticipated. Getting out the stem and sternposts, floor timbers, frames, and deck beams was a time-consuming project when they had to be hewn with an adze or wrestled by hand out of the woods and sawn over the saw-pit. This may also be why George Dearinge reneged on his promise to saw out planking,³⁰ certainly the same time devoted to cleaving clapboards or shingles from logs 4 1/2 feet long or shorter must have been equally profitable and less taxing. Clearly this new ship, though only three times larger than the first *Richmond*, was an exponentially greater undertaking

²⁸ Ibid.

²⁹ Using Brian Lavery's figures from Harriot, for a ship of 100 tons, quoted in The Colonial Merchantman Susan Constant, 1605, (Naval Institute Press, Annapolis: 1988), p.15.

³⁰ See Appendix A, number 2, at the end of this chapter.

than the previous boats and the bark. The latter had been only about thirty tons, and therefore no more difficult than the *Virginia* of Popham Beach. This second *Richmond*, however, had two decks *and* a fo'c'sle and poop—that is, forward and aft she had three decks. She was a real ship, as opposed to the aforementioned pinnaces and barks, which were little more than large decked boats. An invoice of necessities Winter sent to Trelawney in 1639 suggests that all of her furniture came from England; since Richmond Island was a day's sail from Boston, it couldn't simply be put aboard any Boston-bound vessel; Trelawney had to arrange special transportation for it at least from Boston to Richmond Island.³¹

This vessel also made a greater demand on the forest, for her frames and planking had to come from substantial trees. She was about 70 feet on deck, assuming bow and stern rakes typical of the time. Thus her planking and her wale strakes had to come from substantial trees—oaks which could yield a plank 2 or 3 inches thick by perhaps 10 inches wide by more than 80 feet long, assuming that for the garboards (the lowest planks, next to the keel) they used single strakes in whole lengths, which was by far the strongest construction. Her keel required an oak with a 24 inch dbh, (allowing 4" for bark and sapwood, and 4" for taper to the small end) and a fairly clear 50-foot run, or a tree with a butt log of nearly 1,400 board feet, weighing over four tons green. It would take two pair of oxen one hour to move such a log two miles, although the logs may have been felled at the waterside on the mainland, and towed by boat to Richmond Island. Another such tree provided her keelson. For her stem and stern posts she took trees of nearly 900 board feet, each with a dbh of 22 inches or more. Such oaks were as large as most of the mature white oaks growing north of Boston today, and represented a growth of at least 110 years. Her frames might have used as

³¹ Invoice requests "Provision of boults, spukes, nailes, pitch, tar, white ocombe & black ocombe, & all other provisions for the new ship. Ther is no trustinge for any heare. The smyths will make no Iron worke heare vnder 8d. p' lb.": Trelawney Papers, p. 198.

many as six futtocks, or a probably a minimum of two trees each, and her floors another tree apiece. (See Figures 7 and 8.) Although it is impossible to determine how many trees she required, Albion's calculation of one tree per ton of shipping would postulate a minimum of 100 mature oaks.³² Additionally, larger hulls such as hers required iron bolts and spikes in her keel, keelson and great timbers, where smaller vessels made do with wooden dowels, or trunnels (treenails). (See Figure 8.) The iron came from Spain, England, or Sweden, and was scarce in early New England.

The shipbuilding at Richmond Island was planned and orchestrated in concert with England, using English patentees' capital. With the coming of the crisis between King and Parliament, however, shipbuilding seems to have faltered in New Hampshire and Maine, whose patentees sided with the Royalist cause. Comparable vessels were also on the ways further to the westward, however. Their builders were less dependent on capital from the mother country, and to discover more about the early development of shipbuilding in New England, we must turn to Massachusetts. The Bay Colony was to become the locus of major shipbuilding, and the Piscataqua-York region, which had possessed a young shipbuilding industry of its own, began to attract the attention not of Bay Colony shipbuilders, but of lumber merchants who were drawn by the vast forest reserves and the already-existing sawmill capacity. Certainly, in 1639 someone in the Bay had hired Arthur Gill away from Trelawney, and a number of sizeable ships are mentioned in the Bay in the decade before 1641.³³

³² Robert G. Albion, Forests and Sea Power: The Timber Problem of the Royal Navy, 1652-1862 (Cambridge: Harvard University Press, 1926), p. 9.

³³ CSP Col. Papers, vol. 1, p. 275. As early as 1638, English merchant Archibald Henderson presented an argument in council for "Reasons why customs should be imposed on the produce of New England, where 100 vessels are engaged in trading with foreign countries in commodities required in England." It seems likely that most of those vessels were New-England built, although some may have been prizes taken by privateers, and some may have been bought or chartered in England.

2) The Salem Model: Richard Hollingsworth

Shipbuilders in Salem started out with the capital of the New England Company behind them, and at least one of them apparently had the close support of John Winthrop, and possibly the General Court as well. Richard Hollingsworth first appears in Salem town and court records in 1636. That year the town granted him land, apparently on Salem Neck, where he established a shipyard. There in the same year he built a 120 ton ship--the *Desire*--and there in 1641 he launched a 300 ton ship. Hollingsworth's personality was to bring him a long acquaintance with the courts, where his profession seems to have brought him powerful allies. On his first appearance in the court record, the court asked John Horne & Samuell Archer at the behest of John Stone to view the trees Hollingsworth had felled.³⁴ These may well have been the remains of the trees harvested to build the *Desire*. Apparently John Horne and Sam Archer didn't bother to view them, because on the 27th of March, 1638,

John Stone complained Richr. Hollinworth had not satisfied verdict of 1636; (the court) ordered that the trees be viewed by John Horne and Samuell Archer within ten days, at the charge of Hollinworth.³⁵

The *Desire* must have attracted the attention of the entire Massachusetts Bay community. She was unusually fast for ships of that period; in 1640 she made a crossing to the Thames in England in 23 days, a good passage even for ships two centuries later.³⁶ Perhaps she incorporated some of the innovative qualities which were to distinguish American-built ships of that later time. She was also fitted out in part with gear from the bark *Warwick*, then lying in Salem.

³⁴ Records and Files of the Quarterly Courts of Essex County, vol. 1, p. 4.

³⁵ *Ibid.*, p. 7.

³⁶ Winthrop's Journal, vol. I, p. 331.

Ca August, 1636

The ship *Desire* or the owners thereof are debitted to the account of the bark *Warwick* or her owners for theis particulers following taken by order of the Governour Winthrope

	li.....s.....d
Per 3 falkons and one falkonet poy 38C 3 q. with the old Carriages at 10s 6d per Cwt	21....05...10
Per an old poupe lanthorne 5s and a small croe of Iron 2s 6d	00....07...06
Per 2 spindels for vanes 18d a pump bolt and a wooden brake	00....02...02
Per a small anker stock 4s a pistoll barrell 6d and 3 small takell hooks 12 d all is	00...05...06
Per a Copper funnell 6s 2 spung staves a rammer and a ladell all	00...11...00
Per 11 falkon shot 4s a small bell 3s	00...07...00
Per a small anker estemed at	<u>02...00...00</u>
	24...19...00

Per me

Will. Peirse

[Endorsed by Governor Winthrop:] Mr. Pierce for Barke *Warwick*.³⁷

This looks like a simple requisition, except that: the greater part of the debt is for armament, William Pierce was the designated captain of the *Desire*, and none other than Governor Winthrop was authorizing him to sieze the *Warwick's* gear by IOU. One *Warwick*, according to John Winthrop Senior, belonged to Sir Ferdinando Gorges and Captain John Mason, members of the New England Council and growing antagonists of the Puritan expansion. Another probably belonged to Robert Rich, second Earl of Warwick, and the man who, as president of the New England Council, arranged for the Puritans to obtain their patent and spirit it out of England unbeknownst to the non-Puritan members of the Company. Rich had an early career as a privateer, slaver (he was a promoter of the Guinea Company) and freebooter, according to Andrews.³⁸ In either case, Winthrop was exercising extraordinary authority, and must have felt

³⁷ Winthrop Papers, vol. 3, p. 290.

³⁸ C. M. Andrews, Colonial Period of American History, vol. 1, see index under Warwick for several attestations.

secure in his backing. *Desire* certainly had sponsors in high places, but whether she was a Massachusetts Bay government project or just the project of individuals within that government is not clear. What is clear is that Winthrop in his capacity as governor authorized the seizure of gear from the *Warwick* to fit out a newly-built vessel in Salem. *Desire* quickly began earning her owners a living; Winthrop noted on Feb. 26, 1638, one month after Stone filed his charges:

Feb. 26: Mr. Pierce, in the Salem ship, the *Desire*, returned from the West Indies after seven months. He had been at Providence, and brought some cotton, and tobacco, and negroes, etc., from thence, and salt from Tertugos. Dry fish and strong liquors are the only commodities for those parts. He met there two men-of-war, set forth by the lords, etc., of Providence with letters of mart, who had taken divers prizes from the Spaniard, and many negroes.³⁹

Desire's speed, armament, initial cruising grounds, and return cargo suggest that she was built to test not only the market for delivering New England fish, but also the possibilities for privateering. She may also have been armed with an eye to the developments in England, because Puritan vessels soon began to fight vessels of the King. However, she was apparently not very durable, because in 1641 John Cutten Sr. and John Cutten Jr., mariners of Newburyport and current masters of the *Desire*, bound themselves to pay Lawrence Hazzard (Hazard) of London, Shipwright, £30 14s 6d, presumably for work done on their vessel, then only five years old. Thirty pounds, being more than one-fifth of the new cost of the *Blessing*, would have bought a great deal of work, so *Desire* must already have been in rough shape.

Hollingsworth's initial shipbuilding success brought him unwanted attention--as we have seen, he was haled into court for violating the forest conservation ordinance of Salem, in 1636 and again in 1638. Furthermore, in the

³⁹ Winthrop's Journal, vol. 1, p. 260.

fall of 1638 he sued someone for trespassing,⁴⁰ and the following December, "for prophaning the Saboth in travelling, was censured to bee set in the stocks upon a lecture day, at Salem."⁴¹ In 1639 he was a defendant in a suit about a boat, which the court ordered both parties to decide by themselves within five weeks or it would intervene.⁴² But that was just the beginning of his problems. Perhaps spurred by the success of the *Desire*, in 1640 he began a second, larger vessel which got him into even more trouble, and for these reasons Hollingsworth's career left a most noticeable record through the decade. Sixteen-forty-one was an eventful year for Richard Hollingsworth. In March an accident occurred at his yard in which one of his workmen was killed--the workmen had been hoisting a heavy timber with a tackle, and the rope broke, dropping the timber on Robert Baker. The court found Hollingsworth negligent in providing unsafe gear, awarding the dead man's widow and children £10 in damages. Hollingsworth's second ship was thus destined to be a "blood ship," although to judge from the widow's compensation (which measured by Arthur Gill's pay demands was just over 13 weeks' pay for a shipwright) blood may have been cheaper than new tackle.⁴³

Hollingsworth was again haled into court this year for an altercation which occurred in a ship on his ways. It is difficult to determine from the court records exactly what the circumstances were, but one Edward Payne sued him for defamation following an argument about the construction of the vessel. According to witnesses, Hollingsworth had said that Payne made "more pittering than he needed to." Payne had picked up a mallet to "beat off[f] the knee," or

⁴⁰ Records and Files of the Quarterly Courts of Essex County, vol. 1, p. 10.

⁴¹ Records of the Governor & Company of the Massachusetts Bay in New England, vol. 1, 1628-1641, p. 248.

⁴² Records and Files of the Quarterly Courts of Essex County, vol. 1 p. 12.

⁴³ Records of the Governor & Company of the Massachusetts Bay in New England, vol. I, p. 314.

knock a knee out of the construction, and Hollingsworth picked up an adze which he held across his arm and against that knee. Whatever the words exchanged, witnesses for Hollingsworth testified that Payne struck him with a stick and then struck him in the face with his hand, saying "if thou beest a man come forth of the shipp & shew thyself like a man, for I had rather thou should cutt my flesh then give me such words."⁴⁴ Perhaps Edward Payne was an official inspector, and the crusty Hollingsworth was resentful of external quality controls, or Payne was inspecting a ship he had ordered, and his "pittering" got on Hollingsworth's nerves. Certainly on the same day Payne sued Hollingsworth for slander, Hollingsworth filed assault charges against Payne. The outcome of each suit was apparently not recorded.

In any event, Hollingsworth seems to have been involved in many controversies in this year. In April he was called to testify against a recalcitrant apprentice who had been sent over from England to another shipwright, Richard Chadwell. John Sampson, the apprentice, had done so poorly with Chadwell that Chadwell had sublet him out to Hollingsworth as a last ditch measure. Sampson had refused to go live with Hollingsworth, and had taken up with a house carpenter instead. Chadwell sued Sampson for damages in not helping to launch a bark, whether of Chadwell's or Hollingsworth's building is not known.⁴⁵

In 1642, Hollingsworth appeared in court with William Payne, a merchant of Ipswich with whom he apparently had a contract, and that day sued James Huberd about a boat.⁴⁶ In 1643 he agreed to submit to the judgment of a

⁴⁴ Records and Files of the Quarterly Courts of Essex County, vol. 1, p. 31.

⁴⁵ Lechford's Notebook, 1638-1641, p. 403.

⁴⁶ Records and Files of the Quarterly Courts of Essex County, vol. 1, p. 45.

committee a dispute with Charles Glover about a ship.⁴⁷ In 1644 judgement was granted against him in favor of William Lampson. In 1645 John Bartlett was presented for stealing iron bolts, ropes and blocks from Hollingsworth.⁴⁸ All this was taking its toll on the shipwright. In 1648 the court admonished him for much sleeping in time of public ordinances, and frequent absence therefrom on Lord's day afternoons. In defence, he pleaded illness and bodily infirmity.⁴⁹

Perhaps he was wearing out. It seems that the lives of shipbuilders, not unlike the lives of their fisherman neighbors, were fraught with discord in this era. They were also apparently part of the same economic structure, for just as fishermen kept revolving accounts with merchants who acted as their international brokers, Hollingsworth's employees ran up tabs with William Payne, the Ipswich merchant and fish broker who apparently contracted with Hollingsworth to build his boats.⁵⁰ The Hollingsworths, father and sons, also began to run a tab with prominent Salem merchant George Curwen shortly before Richard Senior's death: Curwen's books show that in 1653 Richard Hollingsworth & son bought tobacco and Indian corn several times; they (or their company--Richard Senior was then dead) bought liquor, hats, and 1000 feet of boards "at otuckhoope" in 1654, and in 1655 William Hollingsworth bought whalebone, and apparently bought other items for a joiner working in his shipyard. These transactions are the first clues we have to what became a family

⁴⁷ Ibid., pp. 59-60.

⁴⁸ Ibid., p. 81.

⁴⁹ Ibid., p. 159.

⁵⁰ Ibid., p. 37. "Mr Payne my love to you this to intreate you to deliver to John Maduxes & Robert Leeves the sum of thirtene pounds fortine shillings & sex pence for ther worke which is due to them from mee so I pray you faile not

Your freind

Richard (his mark) hollinworth"

feud. Hollingsworth's career is distinguished by the number of times he appeared in court, leaving a trail for the historian. He may be more unique, however, because for all his scrapes with the law, he seems to have come out unscathed. He apparently had friends in high places, connections which would serve his family even long after his death, as we shall see.

He died in 1653, leaving a substantial estate.⁵¹ (See Appendix B.) It appears that he had bought Will Stephens' water frontage, and had accumulated extensive properties. His yard was now large enough to accommodate three vessels on the stocks, and he had a great deal of oak plank and timber. At his death he also left timber cut and lying on the farm of Salem's deputy to the general Court, another hint that he was very well-connected. But he was also in debt; Thomas Ruck and George Curwen were among those filing against the estate for debt, and the two family names, particularly Curwen's, would appear frequently in the Hollingsworths' future.

After Richard senior's death, his sons William and Richard apparently took over his shipyard. William Hollingsworth continued to run a charge account with George Curwen, and Curwen paid William Hollingsworth's employees for awhile, balancing their accounts against work done by Hollingsworth on the *Content* and the *Trial*, in which Curwen apparently had an interest in 1656-57.⁵² The two sons expanded the shipbuilding business to become merchant shareholders in at least two ships or wharves, and by implication, partners with much larger merchants. We know this because the estate of Samuel Archer, who died in Salem in 1667, listed invoices for the use of his lighter to each of the brothers, once on the second of May (2:3) 1658 for one

⁵¹ Essex County Probate Records, vol. I, p. 172: Inventory of Richard Hollingsworth of Salem, taken 26.3.1654. See Appendices for this chapter.

⁵² Essex Institute MSS Col., Curwen Family Papers, vol. 2, 1656, p. 99 obverse, p. 100.

tide aboard (alongside of) William Hollingsworth, billed 2s 6d, and again in March of 1661 aboard Richard Hollingsworth for goods, 2s 6d as well.⁵³ One of the two ketches on the stocks at Richard senior's death may have gone to William. Two years after Richard's soul had slipped down the ways, William went to court to sue John Ruck for stealing his ketch. Ruck apparently took it after dark at night, having chartered three-quarters of it from a Salem Baker, but Hollingsworth came aboard and prevented him from taking it upriver to his home to load it, charging him with felony theft. Ruck's own associates must have doubted the legality of his intentions, because two of them testified that they had found ways to be busy on the night Ruck proposed to take the ketch. But Hollingsworth's case was not so clear that it resulted in a jury trial. Mediators were appointed, and Curwin was among those appointed to mediate the case.⁵⁴ Over the next few years, William Hollingsworth apparently got further into debt, went to Barbadoes to recoup his fortune as a merchant, and died there intestate about 1678, leaving his widow in debt for more than his estate could repay.⁵⁵

Richard Hollingsworth, Jr., however, continued as a successful shipbuilder with ties to powerful merchants. His daughter, Mary, married the Jerseyman Philip English, who had boarded with the Hollingsworths upon his arrival in Salem. The two of them came to own extensive properties in Salem, including a wharf and 14 buildings. Their mercantile operations led to an embarrassment with one of the Curwens, who were also powerful merchants of much longer standing in the Salem merchant community. When Sheriff Curwen died in 1692 owing a large debt on the books to Philip English, Philip siezed Curwen's

⁵³ Probate Records of Essex County, Vol. II, pp. 105-7.

⁵⁴ Records and Files of the Quarterly Courts of Essex County, vol. 1 p. 391.

⁵⁵ Probate Records of Essex County, Vol. III, pp. 191-2.

body already prepared for burial, and held it as collateral until the debt was repaid. Shortly thereafter, Mary and Philip English were jailed for witchcraft, but Boston ministers interceded for them and obtained their release. They fled the colony, and during their absence their estate was pillaged and destroyed.⁵⁶

It is not hard to hypothesize that Mary English had never forgiven the Curwens for their part in her uncle's misfortunes, and had influenced her husband to seize Curwen's corpse. The Curwens, enraged that a descendent of their former junior partner had not only threatened their mercantile power but had committed a ghoulish act against them, stirred up the populace against Mary and Philip English. But the Hollingsworths' long-standing ties to the Boston aristocracy, dating from when John Winthrop had authorized William Pierce to seize the *Warwick's* cannon and mount them on Hollingsworth's brand-new *Desire*, had saved them from the noose.

It is clear that in Salem, at least one early shipbuilder had a close working arrangement with Boston's theocracy, its rising merchant aristocracy, and the government they largely controlled. He obtained timber from the forest of a Salem Deputy to the General Court, built at least one ship for the Winthrop interests, and although he was cited for misdemeanor offences and criminal negligence, he never suffered serious retribution at the hands of the local law.

3) The Boston Model: Bourne, Hawkins, Coytemore

Boston was a little slow getting into the ship-building business. It seems that the principal men of the colony were already behind shipbuilding efforts in Salem, which was after all only an afternoon's sail away. But Boston had merchants of her own, and those merchants had capital of their own. Boston attracted both venture capital and shipbuilder-entrepreneurs, and though this

⁵⁶ MAHS series 1, vol. 6, p. 269: William Bentley, *Description of Salem*.

was the last model of shipbuilding enterprise to get underway, it proved the most durable. The best-known shipbuilder of early Boston, Nehemiah Bourne, was borne in England to a London shipbuilder, and given a pass to travel to America in April 1638. Bourne located first in Charlestown, then in Dorchester, where he formed an alliance with Thomas Hawkins. Hawkins had already visited New England before returning there in May of 1638 to build ships. In Dorchester, Bourne and Hawkins built the *Sparrow*, 50 tons. After the *Sparrow* venture, Bourne and Hawkins formed an alliance with Thomas Coytemore, a merchant and captain.

On the 25th of January, 1640, John Winthrop, William Tyng and Captain Gibbons, at the behest of Nehemiah Bourne, were appointed to view the waterfront land next to Bourne's house in Boston's North End, "for a place for building the shipp, the which he desires may be given him for the same use." A month later, the town alienated 60 acres of its land to Brother Wright, of Braintree, who agreed to pay 1s 2d an acre, or a sum of £3 10s, to Nehemiah Bourne toward the building of "the shipp."⁵⁷ It is hard to believe that the town got a great deal of ship for its initial investment of a waterfront lot and sixty acres of land, but there was a start. Bourne's new ship, the *Tryall*, was the first large ship launched from that town. Twice as large as the vessel Bourne and Hawkins had built in Dorchester two years earlier, she was finished by June, 1641, but had to wait a year (as did other ships then building) for her rigging to arrive from England. Hawkins and Thomas Coytemore were her captains on her first two voyages, and Thomas Graves, married to Catherine Gray, Thomas Coytemore's step-sister, had been Master of the *Tryall* since her second voyage. Graves was himself the son of a shipbuilder, and his older brother William worked with Peter Pett, of the famous English shipbuilding family, building ships for the

⁵⁷ Boston Record Commissioners, Boston Town Records, 1634-1660, and Book of Possessions, pp. 58-9.

British Navy.⁵⁸ When Hawkins left the *Tryall*, he then built the *Seaforth*, 400 tons.

At this point the Civil War interrupted their budding endeavour. Bourne must have been deeply committed to the Roundheads, because in 1643 he was on one of the five ships that sailed for England with volunteers for the Puritan cause. The following year, with Bourne off fighting for Parliament, Coytemore and Hawkins were on a voyage in Spanish waters in the *Seaforth*, when the ship was wrecked on the coast of Spain, December 12, and Coytemore perished.⁵⁹ By this time if not earlier, Boston merchants were engaged in an independent trade with Iberia. Many of the Boston merchant colony, with their London contacts, must have had previous experience with the wine trade between Europe and England. A rising demand for wine among the gentry, coupled with the plentiful supply of New England pipestaves, would have encouraged a direct trade with Portuguese and Spanish merchants, who, having extensive vineyards but exhausted forests, were long on wine and short on pipestaves.⁶⁰

Vessel ownership was at this time as fluid as the cargo, and apparently had the appeal of today's stock market--anyone with a bit of cash or credit could buy shares in a New England vessel on speculation. Major Gibbons had been among those appointed to survey land for Bourne's shipyard, and appeared as one of *Tryall*'s owners. He tried to pay off a third-party debt with a sixteenth of the *Tryall*,⁶¹ and by 1645 had sold one-sixteenth of her to a Boston feltmaker, Theodore Atkinson. Apparently the Major's share or shares in the *Tryall* were

⁵⁸ Publications of the Colonial Society of Massachusetts, vol. 42, Transactions, (Boston: The Society, 1964), pp. 47-8.

⁵⁹ NEHGS Register #27, p. 29, in footnote.

⁶⁰ A. D. Francis, The Wine Trade (New York: Barnes and Noble, a division of Harper & Row, 1973), p. 173.

⁶¹ Aspinwall Notarial Records, pp. 15-6.

not bringing him the returns he had anticipated, and he wanted out. A sixteenth of her must have been a real speculation for the feltmaker Atkinson, who consigned his share for sale upon arrival in London at the same time he bought it in Boston. It was a bit like exercising puts and calls, to buy a share of a vessel in Boston in the hope that it would sell at a profit on arrival in London.

While Major Gibbons was unloading a share of the *Tryall* on the artisan Atkinson (or the artisan Atkinson was attempting a leap into the merchant class), Thos. Hawkins made his way home from the débâcle which had cost Coytemore his life. Once back in Boston, Hawkins bought the waterfront land of one of Nehemiah Bourne's North End abutters, Edward Bendall, who had owned the principal lighter in Boston Harbor. Hawkins now had space for a shipyard of his own, next to the yard of his absentee former partner, Bourne. That same year, after serving with the Parliamentary army, Bourne returned to New England, where he eventually borrowed 3 drakes and 3 sakers⁶² from Boston and its neighbourhood, mounted them on a ship perhaps from his own yard, and sailed again for England on Dec. 1646.⁶³ After fighting against the Royalists on land and at sea, he commanded a frigate for Cromwell's navy in the first Dutch War. His old Boston colleague, Thomas Graves, former captain of the *Tryall*, was killed commanding a frigate in the same war, on July 31, 1653.⁶⁴

⁶² Drakes and Sakers were two types of contemporary cannon.

⁶³ New England Historical & Genealogical Register (Boston: NEHGS, January, 1873), vol. 23, pp. 27-36. A letter from Emmanuel Downing to John Winthrop, Jr., London, March 3, 1645-6: "Mr Weld and I were agreed soe soone as Mr. Graves shipp should be gone hence to cleare the Account with Major Bourne, but I am prevented by his suddaine and unexpected going away with Mr Graves. Mr Bourne told us that he would be ready to goe with us in Mr Andrewes shipp, soe that I much marveyled at his goeing with Mr Graves, he having putt in his name to be an undertaker in Mr Andrewes shipp."

Roger Williams to John Winthrop Jr. at Pequot, from Narragansett, June 22, 1645, wrote that "Major Bourne is come in" which must have been in the *Tryall*, which the genealogist states "returned about this time with a cargo of goods from London and Holland"--source not listed.

Bourne borrowed ordinance from Dorchester, Roxbury, Boston and the castle in October, 1646, and sailed with his ship for England, 19 Dec. 1646.

⁶⁴ Ibid.

Clearly Boston's first generation of shipbuilding merchant captains included ardent partisans of the Parliamentary cause. Under Cromwell, Nehemiah Bourne became first a member of the Admiralty Board and the Navy Committee, and then a brother of Trinity House. He remained in regular contact with his New England maritime colleagues after the restoration, making at least one long sojourn in New England between 1662 and 1669; in 1670 he was a timber importer in London, importing timbers that "would average seventyfive ft. lengths."⁶⁵ There may be further connections here between the two maritime industries of mother country and colony; Bourne, as a member of the Admiralty Board and a fellow of Trinity House was uniquely situated to import naval timbers and spars from Massachusetts, and he was not the only Massachusetts merchant captain to serve in the parliamentary Navy.

From peripheral information we might surmise that this group of shipbuilder-captains, Boston's first shipbuilding consortium of Graves, Hawkins and Bourne, was formed with privateering at least in the backs of their minds as an alternative to trade, for Bay Colony adventurers occasionally returned with more than sugar from beyond the line.⁶⁶ They must have been aware of Pierce's success in the *Desire*. Additionally, each of these three builders was a mariner in his own right, and a merchant as well. As with Craddock's ships a few years earlier, their shipbuilding ventures were a vertical extension of their profession

⁶⁵ Publications of the Colonial Society of Massachusetts, vol. 42, Transactions, pp. 137-8. (In a biography of Nehemiah Bourne, pp. 28-155.)

⁶⁶ Winthrop's Journal, vol. I, p. 309-10. August 27, 1639: Came a small bark from the West Indies, after a privateering voyage. Brought "much wealth in money, plate, indigo and sugar." After selling the indigo and sugar, he refurbished and left again for the W. Indies.

also *Ibid.*, p. 277. Sept 21, 1638. A small Spanish frigate arrived, taken prize with hides and tallow beyond the line by Capt. Newman, who had a letter of marque from the Lords of Providence Island. Capt. Newman then arrived in a small pinnace also with hides and tallow, which he sold in Boston before sailing for England.

as merchants, rather than a horizontal extension of a fishing profession, as was the case further east.

The Boston-Salem Axis: Cradle of Commercial shipbuilding

Thus, Richmond Island notwithstanding, the first *commercial* shipbuilding industry in New England originated along the bays and tidal rivers between Duxbury and Newburyport. Shipbuilding had increased steadily here almost since the first fishermen had landed at Salem. Its initial impetus in this region came from the fishing industry, just as it had at Richmond Island and the Piscataqua area.⁶⁷ By 1634, Matthew Craddock had a large crew of fishermen working eight shallops for him out of Marblehead, then part of Salem, and his shipyard in Mystic was going by 1633 or so. Although I cannot find any primary record of it, in 1859 local tradition held that George Curwen had built a ship in the creek at Salem in 1640, or one year prior to Hollingsworth's larger vessel.⁶⁸ Curwen was an active merchant at the time, with an interest in the fishing industry.⁶⁹ The fisheries and forest industries had from the beginning shown great potential for international trade. Dozens of ships had arrived each year with immigrants and supplies, and had left with fish, furs and forest products, bound for the Caribbean, Iberia, or Northern Europe en route to their final destination in England. A General Court ruling of May 22, 1639 provided that:

For further incuragement of men to set upon fishing, it is ordered, that such ships, & vessells, & other stock, as shalbe properly employed & adventured in takeing,

⁶⁷ Daniel Vickers has extensively treated the growth of the colonial fishing industry in Essex County, MA, in his book Farmers and Fishermen, (Chapel Hill: Institute of Early American History and Culture, 1994). His footnotes are a useful directory of primary sources, and some of his conclusions, particularly concerning the later 18th century, are consonant with the findings presented here.

⁶⁸ Essex Institute Collections, Vol. I, p. 72.

⁶⁹ See the mss. Curwen Account Books in the Essex Institute.

makeing, & transporting of fish, according to the course of fishing voyages, & the fish it self, shalbe exempt for 7 years from henceforth from all country charges, pvided that this order shall not extend to any other ships, vessels, or other stock, but only such as shalbe ordinarily implied in the usual and safe seasons for fishing through the year; provided also that this order shall not extend to such merchandise & commodities (not properly belonging to the fishing trade) as shalbe returned upon the sale of such fish.⁷⁰

By the same act, ship carpenters following their calling were exempted from militia training.⁷¹ Already shipbuilding, fishing and the forest harvest were connected as maritime industries.

Civil War and Depression: Shipbuilding Stock Rises

The beginning of the Civil War, by forcing Bay merchants to be more self-reliant, accelerated the shipbuilding industry around the Bay. At the urging of Hugh Peter, who arrived in Salem in 1635, about the same time as Richard Hollingsworth, the Bay Colony leaders responded to the shortage of imported specie by giving government stimulus to the fisheries and related industries.⁷² As we saw in the previous section, in these early years, fishermen were free from taxation on vessels, gear & fish, and the maritime professions were frequently accorded special privileges by the General Court through the 17th century.⁷³ At

⁷⁰ Records of the Governor & Company of the Massachusetts Bay in New England vol. 1, 1628-1641, pp. 258, 337.

⁷¹ Ibid. "All fishermen, while they are abroad during fishing seasons, shipcarpenters, which follow that calling, & millers shalbe exempted from training, yet they are to be furnished with arms."

⁷² For a balanced description of the origins of the fishing industry on the northern New England coast, see Faith Harrington's "Fishing Ships and First Settlements on the Coast of New England, 1600-1630," in American Beginnings: Exploration, Culture and Cartography in the Land of Norumbega, (Lincoln, Nebraska, and London: University of Nebraska Press, 1994).

For a brief synopsis of the colonial fisheries around Cape Ann, see Daniel Vickers' "Work and Life on the Fishing Periphery of Essex County, Massachusetts," in Seventeenth-Century New England, (Boston: Colonial Society of Massachusetts, 1984).

⁷³ MAHS 1st series vol. 1, p. 176. "An Abstract of the Laws of New England, as they were established in the last century": 1641 code: Chapter III, 2. "Because fishing is the chief staple commodity of the country, forwards the trade of fishing: and for that end a law to be made, that whosoever shall apply themselves to set forward the trade of fishing, as fishermen, mariners, and

the same time, the General Court prohibited all local sale for manuring cornfields of fish that had proven commercial export value.

And it is forbidden to all men, after the 20th of the next month, to employ any cod or bass fish for manuring of ground upon pain that every person, being a fisherman, that shall sell or employ any such fish for that purpose, shall forfeit for every hundred of such fish so employed for manuring of ground 20 shillings & so proportionally for a lesser or greater number, provided, that it shalbe lawful to use the heads or offal of such fish for corn, this order notwithstanding.⁷⁴

In the course of the parliamentary disturbances and ensuing civil war, the financial bases of trade with England were, quite naturally, disrupted. Between 1641 and 1646 the steady stream of immigrant dissenters which had brought a regular cash flow into New England first slowed to a trickle, and then reversed itself. With noticeable emigration of many of the "better sort," the reserve of specie dwindled, and necessities not manufactured in the American colonies (that is, nearly all manufactured goods from iron bolts and nails to wine and good cloth and thread) became difficult to obtain through traditional trade. The economic hardship resulting from the incipient unpleasantness in England, in turn stimulated local development of some of the industries ancillary to shipbuilding, for which New England had previously been dependent on European imports. Among these were cultivation of flax and smelting of iron.⁷⁵

shipwrights, shall be allowed, man for man, or some or other of the labourers of the country, to plant and reap for them in the season of the year, at the public charge of the commonwealth, for the space of the seven years next ensuing; and such labourers to be appointed and paid by the treasurer of the commonwealth."

⁷⁴ Records of the Governor & Company of the Massachusetts Bay in New England vol. 1, 1628-1641, pp. 258, 337.

⁷⁵ The beginning of the Saugus Ironworks has been well-described in many earlier studies. Records of the Governor & Company of the Massachusetts Bay in New England, vol. I, p. 292. For relaxation of restrictions on forest exports and the encouragement of linen manufactures, which were essential for clothing as well as for sails--13 May, 1640: "Order restraining transport of pipestaves, plank, & other wrought timber repealed. Order to encourage manufacture of linen cloth, train boys and girls to spin the yarn, locate the best a breaking, spinning and weaving in each town. (This was reiterated June 2, 1641 for making hemp flax from wild hemp, a clothing shortage being foreseen in the coming winter--Ibid., p. 322).

The Colonies divided along the same issues which rent the home country. Many in Maine and Virginia sympathized with the Royalists, Massachusetts Bay sympathized with Parliament, and Parliamentary and Royalist ships menaced each other in Boston Harbor as well as other colonial waters. The Puritan oligarchy, as we have seen, contributed to the Parliamentary effort, while attempting to keep Boston harbor neutral.

Dutch shipmasters, as non-belligerents with a harbor and entrepôt just around the corner in New York, naturally began to take up the slack where English shipping slowed, and a substantial portion of New England's currency began to go out of the English trade loop. Consequently, the colonists relaxed controls on the forest export industries, and accelerated the expansion of a locally-focused shipbuilding industry from a horizontal component of the fisheries to a vertical self-contained entity. This made shipbuilding equal to New England's first natural export industries--fisheries and forest products--but with much more value added in skilled labor. New England soon began to export forest products *and ships* to any European country which could pay for them in manufactured goods or currency, and augmented their cash flow with a bit of privateering on the side. This at least seems to be part of the explanation for the General Court's interest in shipbuilding, and for the proliferation of shipyards, for the local coastwise commerce of New England could not have necessitated building vessels in the quantity and of the size which now appeared.

Legislating Quality Control

Bay Colony ships soon appeared in quantity in foreign ports, and it was clear that it would be in the long-term financial interests of the Bay to ensure some sort of quality control over their new industry. There had been indications as early as 1637 that some such measures would have to be imposed. In that year

a long deposition before the court in Maine described what had happened when someone farmed out his servant, falsely representing him as a boatbuilder, and the boat which that servant had helped finish on the ways nearly sank after she was launched.⁷⁶ That had happened in another jurisdiction, and before the Bay government threw its full authority behind shipbuilding, but given the regular intercourse between the eastern colonies and the Bay, perhaps the lessons of that event had not been lost on the General Court. In 1641 the General Court, governing body of Massachusetts Bay Colony, passed a law, renewed in 1647, requiring the inspection of ships under construction anywhere in their jurisdiction. In this they stated:

Whereas the building of Ships is a business of great importance for the Common good, and therefore suitable care ought to be taken, that it be well performed, according to the commendable course of England and other places;

It is therefore Ordered by this Court and the Authority thereof; That when any ship is to be built within this Jurisdiction, or any Vessel above thirty tunns, the Owner, or Builder in his absence, shall before they begin to Plank, repair to the Governour or Deputy Governour, or any two Magistrates, upon the penalty of *ten pounds* who shall appoint some able man to survey the Work and Workmen from time to time, as is usual in *England*, and the same so appointed, shall have such liberty and power as belongs to his Office.

And if any Ship Carpenter shall not upon his Advice, reform and Amend any thing which he shall finde to be amiss, then upon complaint to the Governour, or Deputy Governour, or any two Magistrates, they shall appoint two of the most sufficient Ship-Carpenters of this Jurisdiction, and shall Authorize them from time to time, as need shall require, to take view of every such Ship and all works thereto belonging, and to see that it be performed and carried on according to the Rules of their Art.

And for this end and Oath shall be Administered to them, to be faithful and indifferent between the Owner and the Work Man, and their charges shall be born by such as shall be found in default: And those viewers shall have power to cause any bad Timbers, or other insufficient work or materials to be taken out and amended at the charge of them through whose default it grows.⁷⁷

The legislation of 1641--when the General Court also exempted fishermen, mariners and shipbuilders from other duties--in itself suggests that shipbuilding

⁷⁶ Maine Province and Court Records, vol. 1, pp. 6-7.

⁷⁷ Charters and General Laws of the Colony and Province of Massachusetts Bay (Boston: T. B. Wait and Company by order of the General Court, 1814) p. 189.

was already a significant segment of the Bay Colony's economy, and perhaps a point of rivalry with the Maine shipbuilders. Sixteen-forty-one is thus an arbitrary but convenient chronological marker for the transition of New England shipbuilding from the local endeavours of a nascent industry, which had little impact on the forest beyond sight of the shipyard, to a burgeoning competitive industry which had significant economic import beyond the colonies, and made increasing demands on the environment of the New England coast. It would to a great extent define the annual harvest of New England's biggest oaks and pines for the next two centuries, by which time shipbuilding would include the harvest of maple, beech, chestnut, elm, and other hardwoods. And it would in part be defined by the harvest of those resources.

Shipbuilding and Local Forest Resources

Although the General Court had acted to encourage maritime industries, shipbuilders still competed with other demands on the forest. If they continued building more and larger ships at a faster rate while many of the most suitable nearby trees were harvested by clapboard and stave rievvers, the Bay Colony ports would soon run out of local timber of the requisite dimensions. This led to a dichotomy between shipbuilding on the one hand and the harvest of forest resources for exportable clapboards and staves on the other. There developed, as a solution to this problem, a centripetal motion of capital, that is, commerce and industry, toward the Bay, where ships were built from limited natural resources, while clapboard and stave rievvers began a centrifugal motion toward the periphery, where the forest seemed boundless.

In the seventeenth century, Salem, Newburyport and Portsmouth would develop as centers of capital accumulation, joined by Portland in the eighteenth century. But from the middle of the eighteenth century to the third decade of the

nineteenth century, local forest resources became depleted around those smaller centers, starting at Salem and moving north. North of Cape Ann the onshore fisheries held a bit longer, (in Maine into the twentieth century). Over those years the greater mass of Boston would successively attract the capital of those lesser planets, through marriage and emigration, and they would become mere shells of their former glory. But that was still in the future.

Bay ships were by 1641 running two hundred tons and up. We have already described the size of oaks required to supply timbers for the frame of a 100-ton ship. A 200-ton ship would employ much larger timbers in her construction, and her frames would be doubled. By 17th century naval standards, she would be a sixth-rater, or the smallest of the navy's ship-rigged vessels, but Deane's scantling tables, for example, show a sixth rater to have a keel 68 feet long, by 13.5 inches deep at the middle, by 13 inches broad at the middle. Such a keel log must have come from a tree at least two feet in diameter at a height of 34 feet, probably closer to three feet at breast height, and the log from which such a keel was hewn contained over 2,500 board feet of oak, weighing over seven tons green.⁷⁸ Although it was possible to scarph (make a long splice) two or more timbers together to make a keel, trees still existed from which a one-piece keel could be fashioned for vessels approaching 200 tons, if ox teams were available to move them. We have seen that in 1670 Nehemiah Bourne imported timbers into England that averaged seventy-five feet long. Such timbers came from trees over 200 years old, that would have grown within the forest, rather than on its edge. These were the trees available to shipbuilders in 1641. If shipbuilders ran out of large local wood adequate for their purposes, they would either have to move the industry away from the metropole, or

⁷⁸ See Sir Anthony Deane, Doctrine of Naval Architecture, (London, 1670; reprint, London: Conway Maritime Press, 1981). Scantlings are individual timber dimensions prescribed for a given of vessel. Generally speaking, the larger the vessel, the larger the scantlings.

import very heavy timber at increased expense from those who owned forest land on the periphery. Wishing to avoid either of these eventualities, they began to take steps to preserve their local supplies of shipbuilding timber. In 1640, as we have seen, Hugh Peter and Emmanuel Downing sought Winthrop's assistance in suppressing predations on Naumkeag's (Salem's) shiptimber reserves by pipestave and clapboard reivers, and authorities publicly appealed for plank fit for shipping, and forbade any ship timber near Salem or Marblehead being made into clapboards or pipe-staves⁷⁹. Already, as shipbuilding increased, the value of great timber for shipbuilding and other large construction rose beyond that of mere firewood, clapboards or stave wood, and frequently it was separately denoted as timber whenever forest reserves were mentioned in legal documents.

While the Bay towns regulated the harvest of shiptimbers to exclude clapboard and stave reivers, merchants moved to assure themselves of a future supply of clapboards, staves and the array of smaller forest products which had a good export market. They first brought eastern forest workers into their trading networks. Then they began buying control of mills and forests from the Merrimac through the Piscataqua area as far to the eastward as the Saco. Finally, in a series of peaceful political coups between 1641 and 1658, Massachusetts annexed both New Hampshire and Maine to serve as its own colonies, much as they themselves served England. We shall examine this process in greater detail in the next two chapters.

⁷⁹ Alex W. Bealer, Old Ways of Working Wood, (Barre, MA: Barre Publishing Company, 1972). Clapboards (cloven boards) and pipestaves were split (riven) with a maul and froe off of a billet (section) which was split with wedges from a clear log two to six feet long bucked from a tree trunk at least 2' in diameter two feet off the ground. Thus reivers, shipbuilders and (where pine was concerned) sparmakers competed for the same trees.

Forest and Marine Reserves: A Decade of Ordinances

Small communities continued to grow slowly in Maine for another generation or more. Commerce and industry, however, gravitated to population centers in the Bay Colony. Although most of the Bay colony towns were younger than the Maine settlements, already a greater infrastructure existed and more trade flourished in Massachusetts, where workmen might hope to earn some upward mobility for their heirs. As yet, demands of the growing population on the forest had not yet exceeded forest reserves, even around the Bay towns. But the pressure was growing. The repetitive ordinances of Dorchester, Boston, Charlestown, and Salem show a growing shortage of timber supplies. In Dorchester, for instance, the first such ordinance had appeared on the 6th of January, 1633.

Item it is ordered that all trees that are now felled out of the lotts or shall be hereafter and not used within three moneths all men who have occasion to use them may take them Provided Mr. Israel Stoughton for the prsent is given 12 moneths time for such trees as he hath now felled for his house, and the mill which he is to build at Naponset.

Item, it is ordered that Mr Israel Stoughton shall have the privaladge of a weare at Naponset adjoyning to his mill and shall enjoy it from the sayd weare to the bridge where now it is over the sayde Naponset without interruption...and the said Mr Stoughton is to sell the alewives there taken to the plantation at 5s per thousand. And that all fish that is taken there the Plantation is to have at reasonable rates before any other plantation. And the sayd Mr Stoughton is to afford the sayd alewives at a lower rate than 5s per thousand if he cann.⁸⁰

Two issues are evident here. First, the Dorchester town fathers were getting apprehensive about wasting the forest, much as the men of Salem would be two years later. Second, in Dorchester, from the beginning, an important maritime resource--the alewife weir--had been allotted as a monopoly to one of the town's chief men, along with a prime water power. This issue of marine resource

⁸⁰ Dorchester Town Records. (Boston: Record Commissioners, 1883), p. 5.

allocation, like the access to forest reserves, would crop up again in other towns in the next decade when the depression arrived.

Almost from the very beginning of the colony there was tension between public welfare and private profit over natural resources. Dorchester's records are filled with regulations to preserve the common resources from individual exploitation. The early town records mention a ship just twice, both in this year, and then only to describe a piece of land: on May 2nd Christopher Gibson was granted a half acre of marsh "at the end of John Moore's lott by the shipp," and then resold it three months later to John Moore.⁸¹ This ship doesn't appear elsewhere in the records, and may have been the only product of the little shipyard on the marsh. Two years later Nehemiah Bourne and Thomas Hawkins built the *Sparrow*, 50 tons, in Dorchester, without incurring a single mention in the town records, although the records regularly contain references to timber harvesting. For instance on January 2nd, 1637, the town approved a regulation forbidding the harvest for private profit of any trees off the Common:

It is ordered that no p'son whatsoever shall fell any Trees within the Commons of Dorchester for any use to make sayles of without the Plantation one payne of losse of their labour and 5s to be levied by distresse for every tree so felled.⁸²

and less than three years later, on October 31st, 1639, the town reiterated their restrictions on cutting wood and in a more elaborate ordinance expanded the prohibition to include timber for home-building:

It is ordered that no p'son what soever shall fell any trees within Dorchester [that] is marked for the bounds of any land either in p'priety or Commons on penalty of 20 shillings for every tree so felled to be levied by distresse...
It is ordered that no man shall fell any trees in the Commons within Dorchester neither for Timber nor wood to make sales of without the plantation, nor any timber to

⁸¹ Ibid., pp. 18, 20.

⁸² Ibid., p. 26.

build houses on penalty of the losse of their labour and 10 shill: for every tree so felled to be levied by distresse.

It is ordered that no p'son that is not a Commoner within Dorchester shall fell any trees for Timber on pennalty of 5s for every tree so felled to be levied by distresse.⁸³

Apparently, in spite of the earlier ordinance the demand for forest products was already so great that poachers were taking boundary trees, and free-lance woodcutters from neighboring towns were rustling Dorchester trees. A little over a year later, on the 19th of the 11th month (January) 1640, the selectmen felt it necessary again to reiterate their restriction on cutting in Dorchester's common forest,

It is ordered that no person or persons that is not a Commoner within Dorchester shall Fell any tree or trees for Timber on penalty of 5s for every tree so felled to be levied by distresse.

It is ordered that hencefforth it shall not be Lawfull For any p'son or p'sons to Fell or take from the Comons in Dorchester as in their owne Comon Right or by waye of buying or purchase any Timber or Wood to sell or Carry out of Dorchester Plantation under the penalty for every Tree or Turn of Timber he shall take and Carry thence 10s to be levied by distresse.

Whereas there hath been and also is at this present much wood Fit for Fewel lyeinge and rotinge upon the Comons in Dorchester, to the Losse thereof and also to the prejudice of the Pasture there and notwithstandinge there is much Felling of Timber and wood for Fewell and Fyreinge, it is therefore ordered that hence Forth it shall not be Lawful ffor any p'son to Fell any manner of wood upon the Comons in Dorchester for Fewel or Fyreinge at any time within the space of 12 monthes From the date of these psents under the penalty of 5s for every tree they shall fell to be Levied by distresse for the use of the Town.⁸⁴

It is impossible to determine why they were husbanding their timber reserves, other than for their meeting-house, but it is at least possible that ship-building had put a premium on large timbers, just as it had in Salem at the same time. The conservation measures apparently paid off: in 1680 a Dorchester resident applied for and received permission to take pine from the town forest to

⁸³ Ibid., p. 41.

⁸⁴ Ibid., p. 44.

make masts and spars for a ship he was building.⁸⁵ What had been saved by the earlier ordinances was at least sufficient to build a ship.

Not all trees were reserved just for their timber content. Two months after restricting harvest on the Common forest, in March of 1641, the selectmen forbade cutting "any of those trees now standinge behinde Mr Minott House marked with a great S being preserved for shade trees for Cattell in Sommer Tyme."⁸⁶ In the midst of cold financial calculations about the town's forest resources, someone was thinking of the rôle trees played in the welfare of their cattle, another financial resource. Such pasture trees in maritime communities would draw the attention of shipbuilders nearly two centuries in the future. An anonymous contributor to the Massachusetts Historical Society wrote of Haverill in 1815 that "there are large quantities of fine ship timber of pasture oak in the vicinity, the average price of which for several years has been four dollars a ton."⁸⁷ Growing at 1.5 to 2 inches every 10 years, a pasture oak of twenty inches dbh (diameter at breast height) preserved for the cattle in 1641 would have had a 46-55 inch dbh in 1815, a good size for compass timbers in a vessel of several hundred tons. There are four ancient pasture oaks of these dimensions now standing in Vaughan Woods, South Berwick, Maine. They are surrounded by an eighty years' growth of straight pine forest, but their wide-sprawling limbs reveal their open pasture origins.

By 1644 the Dorchester selectmen had given up trying to manage the town's common forest. They revoked many of their former restrictions, saving only those against cutting specific trees and against cutting trees for export out of

⁸⁵ Ibid., p. 251.

⁸⁶ Ibid., p. 45.

⁸⁷ Massachusetts Historical Society Collections, Second Series, vol. IV, p. 124: "An Historical Sketch of Haverill, etc."

town, and for several years the relaxed ordinance stood unchanged. In the following decade forest predation forced the selectmen again to extend their control of the town reserves. The Dorchester sequence of forest ordinances was not unique; similar ordinances were passed in Boston, Salem, and even in Exeter, as we have seen. Salem's ordinances referred specifically to the need for preserving shiptimber, but we may attribute at least some of the pressure for these ordinances in other towns to the growing importance of shipbuilding in the economy. In June of 1641 Cambridge had taken the Boston men to court for tree poaching, and the court had responded from Boston, with some favoritism:

Agreed, wood and timber upon Cambridge ground belongs to Cambridge, but the Court desired the Cambridge men would allow their brethren of Boston to take the timber which they had already felled and prepared, giving them one year to retrieve it.⁸⁸

The court doesn't explain how the "brethren of Boston" had "prepared" the timber they had rustled from Cambridge, but the designation "timber" indicates that it was intended for post-and-beam construction or shipbuilding. Three years later men of Cambridge would launch a 260 ton ship built with Cambridge timber, lade her with pipestaves riven from Cambridge bolts, and send her to the Canary Islands to trade.⁸⁹ She had to fight her way out of the Canaries, as Winthrop noted in April, 1645:

One of the Boston ships coming back from the Canaries brought wine, sugar, salt and some tobacco, which she had bought in Barbadoes with slaves she picked up in Maio, Cape Verdes. She brought news that the Cambridge ship of 260 tons 14 cannon & 30 men, which had sailed from Boston at the same time had been in a fight with an Irish Man of War, belonging to the King. Another Boston ship of like force had nearly been taken by royalists near Madeira.⁹⁰

⁸⁸ Records of the Governor & Company of the Massachusetts Bay in New England, vol. I, p. 330.

⁸⁹ Winthrop's Journal, vol. II, p. 176.

⁹⁰ Ibid., p. 227.

Such scrapes must have provided extra work for the New England shipyards, provided the injured ships could limp home. After a real fight a ship might need a whole new complement of masts and spars, as well as some new planking and frames. Many injured ships would put a drain on forest reserves necessary for new shipbuilding.⁹¹ The Anglo-Dutch wars soon made the British Navy aware of what the merchant marine had known all along: New England had vast reserves of ship timber, cheaply obtained.

On The Waterfront

Forest reserves were not the only natural resources whose exploitation was gradually subjected to government intervention. The period from 1633 to 1640, marked by continually tighter restraints on the public forest in the port towns, also saw permanent changes in the waterfront, which increased after 1640. Shipbuilding communities came to realize the value of harborfront property and the limitations of public resources, and began to dedicate publicly-owned harborfront property to private interests for the encouragement of maritime industries. Shipbuilders needed waterfront lots for their yards, and merchants sought to make their own waterfront property accessible to their ships. Slowly at first, the towns granted liberties to build wharfs and excavate docks in the shallow creeks that meandered through the salt marshes along their riverfronts and coves, and actively sponsored shipbuilders by giving them waterfront land. In 1636 Salem had granted waterfront land to Will Stephens, provided that he use it for a shipyard:

⁹¹ Robert G. Albion, Forests and Sea Power, pp. 220-4. After some battles in the Anglo-Dutch wars, the English fleet was for weeks unable to keep the sea for want of timber to effect repairs.

It is granted to mrStephens to haue 18 poole of ground by ye waters side in length & 12 poole in bredth (in ye narrow of ye neck) for the building of ships, Provided it shalbe imployed for yt ende.⁹²

A pole (rod or perch) was 16.5 feet, so Stephens got something over an acre of waterfront property for his shipyard. The same year, Richard Hollingsworth also got a shipyard lot on Salem neck, possibly next to Stephens. In 1641 Nehemiah Bourne received a shipyard lot in Boston, paid for in part by the alienation of town property elsewhere. The development of the waterfront, and its possible effects on the fisheries, will be discussed in the next chapter.

Ships Built Before 1650

This chapter has been concerned chiefly with the early mechanisms of the shipbuilding industry, and with the impact of early maritime industries on environment other than the forest. (See Appendix C for a list of vessels known to have been built in the area of this study between 1630 and 1650).

This breaks down to at least 30 ships, 10 barks, 10 ketches, 4 pinnaces, 2 bark/pinnaces, one bark/frigate, one frigate, one ketch/pinnace, 3 undetermined vessels, and many, many shallops built or probably built and certainly registered in New England between 1640 and 1650.⁹³ It is an incomplete list, but the verifiable tonnage is impressive for the second decade of the maritime industries. Let us assume conservative minimal displacements of 20 tons for the ketches, 35 tons for the pinnaces, 30 tons for the barks, 40 tons for the hybrids, and an average of well over 150 tons for the ships. This would give us a figure of

⁹² Town Records of Salem Massachusetts, vol. 1, p. 54.

⁹³ The presence of at least ten ketches, ranging in size from 25 to 50 tons, in the Bay Colony by 1650 contrasts with Dr. Vickers' assertion in Farmers and Fishermen (pp. 145-7) that the ketch appeared in New England in the last quarter of the 16th century.

better than six thousand tons of home-built shipping in Massachusetts Bay by 1650, at about two substantial trees per ton, or more than twelve thousand white oaks, many of them among the largest growing there.

We may assume further two masts, three yards and a bowsprit at least for each ketch, three masts, five yards counting a lateen yard, and a bowsprit for each pinnace, two or three masts, three to five yards and a bowsprit for each bark, and three masts, two topmasts, and at least five yards counting the lateen yard, a bowsprit and a jibboom for each ship. This amounts to just less than 600 good pines for the initial rigging of these vessels, a mere drop in the bucket. But this does not include the harvest of masts to the eastward by ships returning to England, or transport of masts and spars to Newfoundland or the Caribbean, both of which places needed to respar their vessels after storms or (in the case of the Caribbean) naval engagements.

Masts and spars might be replaced several times in the lifetime of a vessel, and lower masts and bowsprits required a pine of very large dimensions. Structural timbers and planking were replaced as needed, but few vessels went over ten years without needing some replacement of rotten wood. Clearly, by 1650 many thousands of large oaks and a few thousand pines had already gone to shipyards, highgrading at the very least several hundred acres of prime forest. In the vicinity of the larger settlements, much of the acreage thus cleared was probably turned to pasture, with only a few shade trees left for cattle. In the outlying settlements, much cleared land was allowed to go back into forest, as a militia officer reported in the Indian Wars a few decades later. Both of those instances will appear in later chapters.

To Conclude The Midcentury

We have looked at the beginnings of New England shipbuilding by studying three examples: John Winter and Arthur Gill at Richmond Island; Richard Hollingsworth and his sons at Salem; and Nehemiah Bourne and Thomas Hawkins first at Dorchester and then in Boston with Thomas Coytemore and Thomas Graves. By midcentury the industry was centered on the Boston-Salem axis, with smaller shipyards in outlying towns. Already Boston and Salem were beginning to fill and dredge their waterfronts. Though the evidence is mostly circumstantial, it seems that by the end of their second decade, the maritime industries of the Massachusetts Bay Colony had begun to have a noticeable impact on the natural resources in the immediate vicinity of the settlements, whether in the surrounding woods or in the salt marshes and fisheries. Impending shortages led the Bay men to extend their reach for more remote areas with greater resources and less legislative restriction on their harvest. To facilitate that process they eventually siezed political control over the entire northern New England coast as far as the Penobscot, and over the hinterland of that coast beyond the fall line. These stories will comprise the next two chapters.

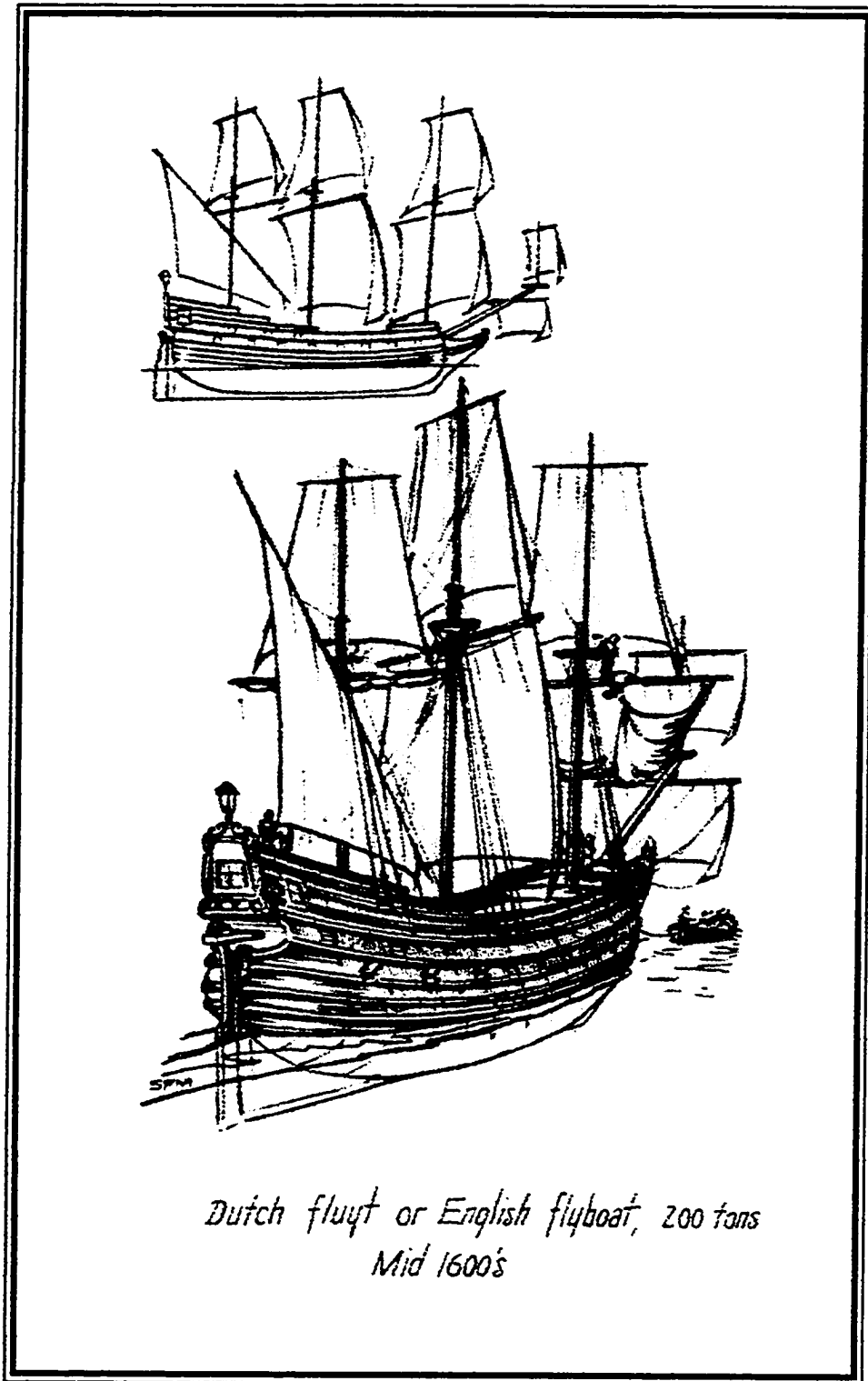


Figure 6, Dutch fluyt or English flyboat. (© Sam Manning, 1973)

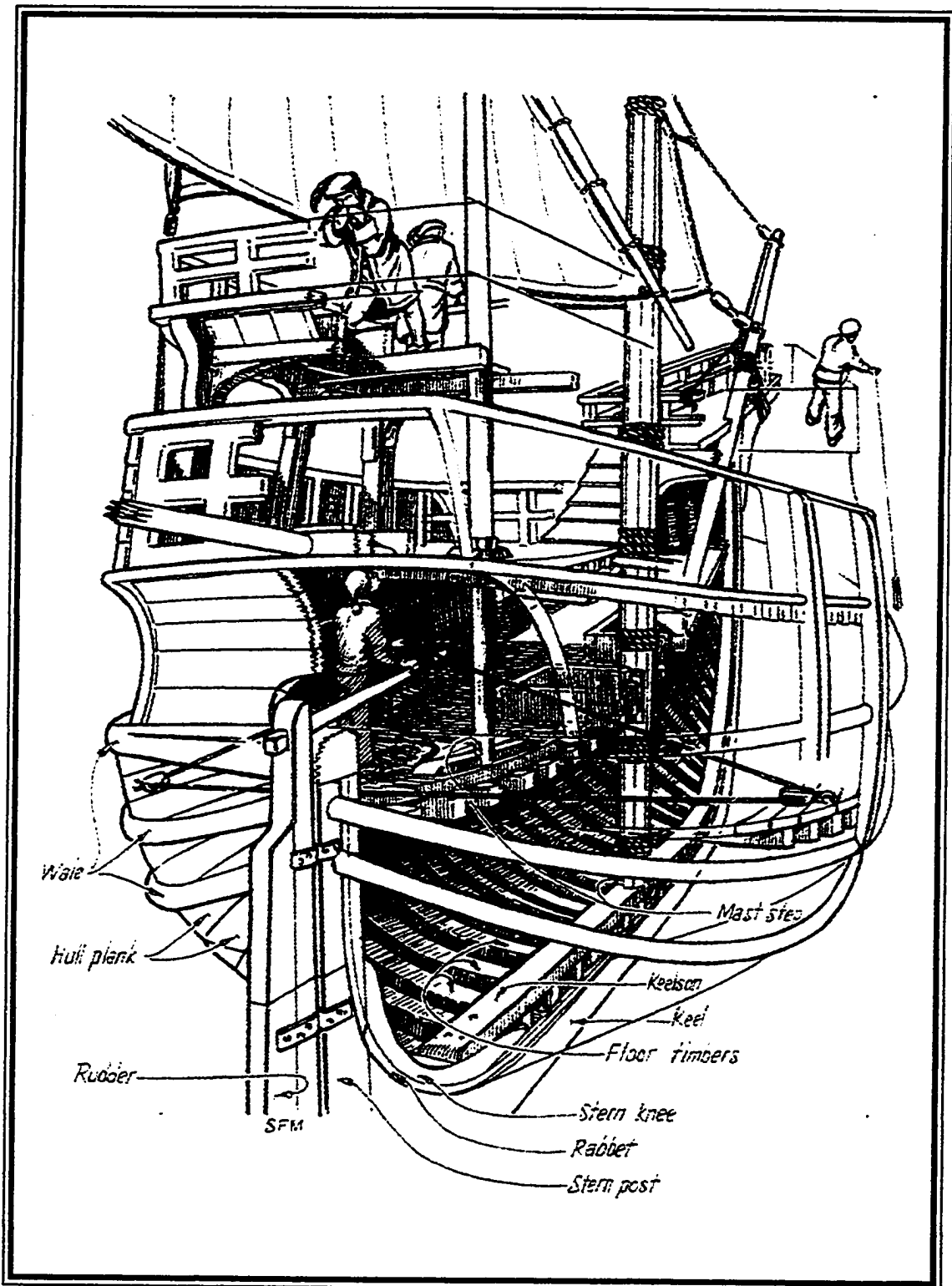


Figure 7, European Hull Structure at the Opening of the 17th Century
 (© Sam Manning, 1973)

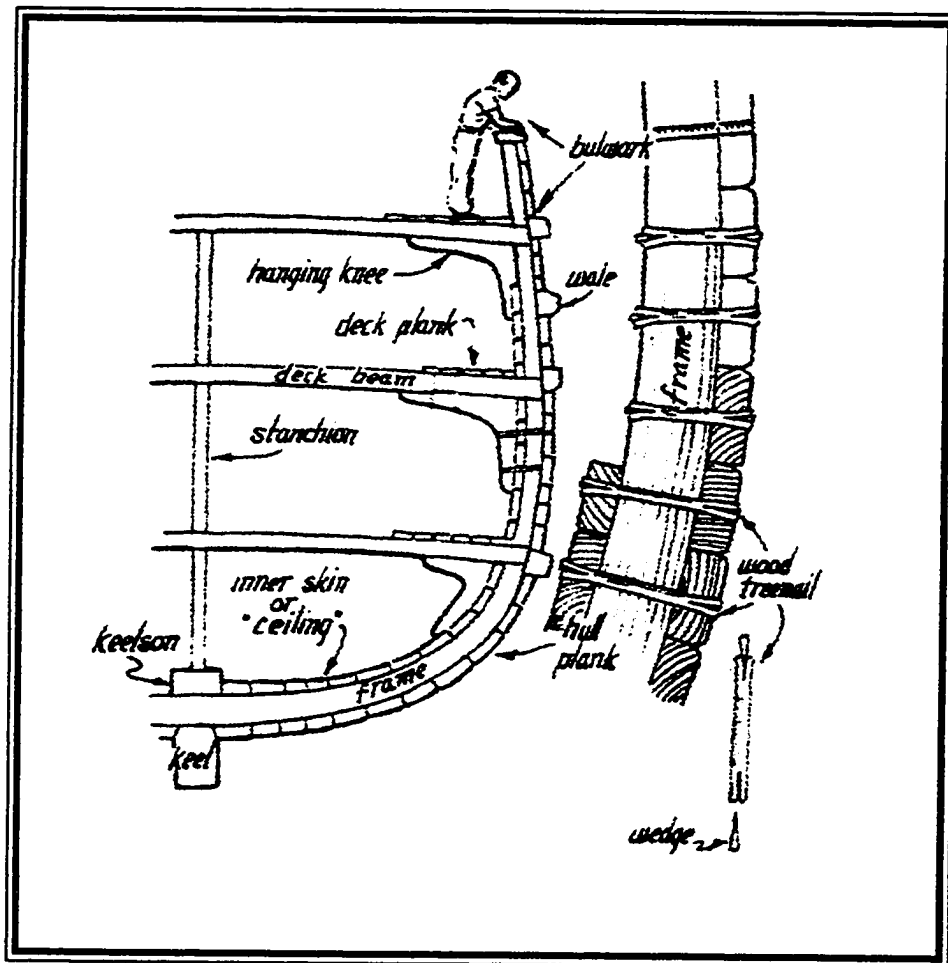


Figure 8, Hull cross-section showing timbers, frame (futtocks) and treenails.
 (© Sam Manning, 1973)

CHAPTER 3

COD, PAN, CERES AND LESSER DEITIES: FISHERMEN, FARMERS AND THE ENVIRONMENT, 1630-1660

...I am persuaded that in the moneths of March, April, and May, there is upon this coast, better fishing, and in as great plentie, as in Newfound-land: for the sculles of Mackerell, herrings, Cod, and other fish, that we daily saw as we went and came from the shore were wonderfull; and besides, the places where we took these Cods...were but in seven fadome water, and within lesse than a league of the shore: where, in Newfound-land they fish in forty or fiftie fadome water, and farre off. ¹

...no sure fishing place in the land is fit for planting, nor any good place for planting found fit for fishing, at least near the shore, and, secondly, rarely any fisherman will work at land, neither are husbandmen fit for fishing, but with long use and experience.²

The plantation is now set upon fishing for a staple commodity; store of salt I see already for the fish and a ship to go to the salt islands for more where are mountains of salt for the fetching, and shallops made and tackling provided to catch it withal and to send it into other countries to fetch in all other commodities.³

From the earliest settlement fisheries, more than furs, had driven New England's economy, and fisheries provided early impetus for the maritime industries. What was the relationship between the early fisheries and the coastal ecotone, and how did settlers affect both as they began to harvest the sea? Although the principal subject here is the commercial fisheries, especially the cod fishery, it is also useful to examine briefly the harvest of other marine

¹ Brereton's *A Brief and True Relation*, (1602) in English New England Voyages, D. B. Quinn Editor, (London: Hakluyt Society Series II, 1983), vol. 161, p. 147.

² Letters From New England. Massachusetts Bay Colony, 1629-1638, Everett Emerson, Editor, (Amherst: University of Massachusetts Press, 1976), p. 1. Letter from John White, of the Dorchester plantation in Salem, 1626. White was writing from a very limited experience. North of Cape Ann many settlers both fished and farmed.

³ *Ibid.*, p. 94. Thomas Welde to his former parishioners at Tarling, 1632.

animals, to understand better the effects of European agriculture, commerce, economic theory and technology on the maritime resources themselves, and on the coastal ecotone. When human endeavor once confronted a natural resource, the two were bound together inextricably within limits defined by local and regional topography. A consequence of these relationships was that regional differences in topography and environment caused nascent maritime industries to grow in different directions.

Fishing

Whether or not one face ever launched a thousand ships, one fish certainly did. The cod fisheries instigated the earliest emigration to New England. With lesser fisheries, it comprised the foundation of all maritime industry there for two hundred years or more. Paradoxically, the failure of the Reformation and Protestantism to convert much of Europe, especially around the Mediterranean, was responsible for much of the financial impetus of the fisheries, which were increasingly controlled by Protestants.

Catholicism and slavery made their market. It seems safe to suggest that without the Catholic doctrine of abstention from meat on Fridays, during Lent, and on other religious occasions, Protestant fishermen of the western North Atlantic would have had less market for their catch, and the settling of New England might have followed another course. In Catholic Europe, and under its high-church shadow in England, the numerous days of meatless diet required by church doctrine created a huge market for fish protein. Outside of Catholic Europe, New England fishermen found burgeoning markets for their products in the plantation economy of the Caribbean and in the growing transoceanic trade itself. Both laborers on the plantations and mariners at sea needed cheap non-spoiling protein, and dried salt cod would keep well in a plantation storehouse

or through long voyages across southern seas. Wherever men fished for cod, sea-mammals and birds fished also, and attracted human predators. Thus the cod fisheries became the nucleus of a larger maritime harvest that defined New England's economy for its first hundred or more years.

The development of New England's coastal resources followed the Newfoundland fisheries by nearly a century, and was an outgrowth of that industry. The Newfoundland fishery had been the object of a long international rivalry among Spanish, Portuguese, Basque, Breton, French, Irish, Scottish and English fishermen. Predominance over these fisheries went back and forth among the Basques, Catholic French, Huguenots, Portugal and England. Who would keep what was not decided until 1713, at the Treaty of Utrecht, but at the time New England was first being settled, the French had won the dominant position in the green, or offshore fishery, and the English had won dominance on Newfoundland itself, with the dry, or inshore fishery.⁴ English predominance ashore merely exacerbated the internecine contest among aristocracy, yeomanry and small capitalists which would define much of England's politics for the next century. It also provided much of the inspiration for conflict with France.

Captain John Mason, before he obtained patents in New England, had been governor of Newfoundland, and was familiar with the cod fisheries there. In 1620 he had published A Brief Discourse of the New-found-land, a natural history of the place based on his own observations. From his own personal experience he apparently recognized that west-country fishermen, who were in fact small capitalist interlopers and squatters along the coast, had already made

⁴ A fine and thorough account of the Cod Fisheries from Newfoundland to New England during this period is presented in the first 138 pages of Harold Innis's The Cod Fisheries: The History of an International Economy (Toronto: 1940, 1978 reprint).

an aristocratic monopoly difficult in Newfoundland.⁵ New England offered better possibilities.

Sir Ferdinando Gorges, an active member of the old Virginia Company of Plymouth, had sponsored several fishing voyages to New England. In 1620 he acquired, largely on his own initiative, an initial patent to the plantation of the North Parts of Virginia in America, which patent he shared with thirty-nine others, all aristocrats. They became the Council for New England, established at Plymouth. Hoping to prevent a repetition of the Newfoundland experience, Gorges immediately sought to exclude all interlopers from the New England fishery. The general goal of the Council, as Gorges formulated it, was to resurrect in New England the feudal society which was then disappearing in England, and to finance the new domains with proceeds from fishing, forest products and the fur trade. Ultimately Gorges and Mason proposed to coordinate their projects, divide much of northern New England between them as feudal patents under the king, and then further subdivide their patents into feudal fiefs held in "knight's service," (or "knight's tenure,") a procedure which would have given them sole jurisdiction over the fisheries, as well as the forests.⁶

Except in occasional omnipotent dictatorships, however, rich natural resources do not sleep easily under monopolies. Unable to maintain practical monopolies in Newfoundland, the aristocratic members of Gorges' Council had extended their efforts to New England. (See Map 3.) They acquired patents for those newly-discovered fishing grounds only to find their endeavours both there

⁵ Gillian T. Cell, English Enterprise in Newfoundland, 1577-1660 (Toronto: University of Toronto Press, 1969), pp. 74-5.

⁶ "Knight's tenure" was a holdover from feudal times, and provided that the grantee owed a few days' service each year to the grantor as long as he held the property. By comparison, a significant number of deeds of sale in Boston in the first few decades stipulated that the land was to be held "in free and common socage, and not in capite nor by knight's service." See Suffolk Deeds, Liber 1, various deeds of sale.

and at home disrupted by more interlopers from the class of their old Newfoundland rivals. They could not maintain their Royal Patents as monopolies, because economic necessity forced them to share power in the New England Council, and later in the Massachusetts Bay Company, with small capitalists eager to compete on the new fishing grounds. Additionally, Gorges' would-be monopoly was contested each year in Commons by the partisans of a free fishery, until, when the charter was confirmed in 1639, fishing rights and appropriate shore access were reserved to all the king's subjects.⁷ Further complicating their plans, economic exigencies eventually forced the Council for New England to include among its members men with growing Puritan sympathies, often small capitalists or merchants from London and the eastern counties. These newer members were not comfortable allies of west country aristocrats with Royalist sympathies and atavistic dreams. Ultimately the aristocrats' newly-planned fiefdoms would be defeated not by the sword, but in the counting-houses of their bourgeois new partners.

Although the aristocratic faction of the Council got their projects underway quickly, they soon found that the conception was more easily accomplished than the deed. On the New England coast there were already experienced small-capitalist interlopers operating more efficiently than they, as Christopher Levett found when he went to stake out his future city of York at Casco Bay.⁸ Levett believed that their seasonal habits might be dangerous to settlers, for they left their shallops, to the number of 75-100, on the coast from one season to the next:

⁷ C. M. Andrews, Colonial Period of American History, vol. I, p. 325.

⁸ Christopher Levett, A Voyage Into New England Begun in 1623 and Ended in 1624. (London: 1628. Reprinted in MAHS collections, series 3), vol. 8, pp. 164-71.

The time of danger is from the beginning of June to the last of January or thereabouts. All which time there is no English ships upon that coast, for the fleet of the fishermen do commonly arrive there in January and February. The fishing continues until the beginning of May, and by the end of that month commonly they depart.

The manner of the fishermen is to leave their shallows in the country until the next season, every ship in that harbor where they fish. There may be of them in all about 3 or 400, and if they want their boats they may easily be prevented.

If an enemy should come...now they can come into no harbor but they shall find boats for the transporting of their men along the coasts to any place they desire, wherein is the greatest danger, for they cannot march by land. And it is not like(ly) that there will come any great fleet to take up many harbors, *the planters being in all not above 300.*⁹

Moreover their own fishermen, once at the New England stations, soon discovered that they could walk away from the Company operation, acquire a piece of land for a house and garden simply by squatting, acquire also an interest in a shallop through trade or their own fabrication, start up on their own as part-time planters and fishermen, and find among the "sack ships" independent markets for their fish that would give them a greater return for their efforts.¹⁰

⁹ Wilbur D. Spencer, Pioneers on Maine Rivers, (Portland: 1930. Reprinted Bowie MD: Heritage Books, 1990). p. 221. Mss. letter from Christopher Levett to Sir John Coke, November 17, 1627.

¹⁰ A number of primary sources together demonstrate this. One example is John Billings and John Lander, the fishermen who left Richmond Island after a dispute with the Fishing-master, Narias Hawkins, over their pay in 1636 (Trelawney papers, p. 98), and turned up in Maine and New Hampshire records, see Fn. below. Other examples are Hercules Hunking, of Star Island, who in 1659 left three boats, four mainsails, a house, stage and mooring on the Isles of Shoals, and "hose, hoses and land which I have to the moan (main) with upland, mash (marsh) and cattle as folleth fowar milch Coues and fower Oxen and a lefen yearelans and Cafes and tow and twenty shep and nine honks;" John Lines, fisherman of the Isles of Shoals, who in 1674 left an estate of £729:13:00, most of it to non-conformist ministers; Christopher Joce, who in 1676 left "housing & stage, shallops & mooring place at the Isles of Shoals," as well as land on Great Island and elsewhere along the Piscataqua, and three-quarters of the ketch Providence, one-quarter to his wife, one-sixteenth to each of his children; Richard Cutt, a cofounder of the Cutt dynasty, who began as a fisherman on the Isles of Shoals, and left holdings both there and on the main at his death in 1677; Walter Matthews, who in 1678 left two houses, a garden, storehouse, stages, moorings, boat, and fifteen flakes on Smutty Nose, as well as houses and land at Oyster River; John Cutt, brother of Richard, who in 1680 left a Warehouse at Smutty Nose and lands scattered all over the Piscataqua district; Eleanor Wilcomb, of the Isles of Shoals, who in 1699 left to her son-in-law John Muchemore her "new boat which now John Currier is master and all her appurtenances;" Thomas Diamond, fisherman of the Isles of Shoals, who in 1708 left an estate of £1,308:17:11; John Frost, who in 1713 left stages, flakes and moorings at Star Island along with land "in Yorke & elsewhere;" State Papers of New Hampshire (Concord: NHHS, 1907) pp. 40-1, 153-4, 177-9, 161-7, 211-13, 245-51, 445-8, 593-4, 710-2. The first William Pepperrell also began as a fisherman on the Isle of Shoals, see Byron Fairchild, Messrs. William Pepperrell, Merchants at Piscataqua (Ithaca: Cornell University Press, 1954). Sack ships were fish transports that sailed with goods instead of fishing

Apparently three hundred of them had already done so when Levett appeared on the coast in 1623. New England possessed a rich inshore fishery enhanced in places, especially southwest of the Kennebec, by a marked agricultural advantage over Newfoundland, which was climatically incapable of satisfying its own agricultural needs. The New England combination of fertile soil and rich fisheries would prove impossible to regulate by proxy from England. When the Puritan faction within the New England/Massachusetts Bay Company began their plantation in the Bay, they shrewdly had their own patent fabricated surreptitiously and brought it over with them, ensuring themselves of at least the façade of legal authority *in loco*.¹¹ But patents could be reversed by the King, under pressure from wealthy lobbies. The rivalry at Court between aristocrat and merchant capitalist over access to natural resources in northern New England was exacerbated by religious differences within the groups. Inherent in a protestant social structure under a Stuart King sympathetic to Catholic France, it would eventually create such an unreliable environment for capital, and such consequent disgust and adversarial bitterness among those whose fortunes were in play, as would eventually help put the throne itself in receivership.¹²

On the other hand, the repeated attempts by aristocratic members of the Council, especially Sir Ferdinando Gorges, his son Robert and Captain John Mason, to monopolize the fisheries of New England, and their unwillingness to share access to the natural resources of the coast were self-destructive. They were

crews, and traded those goods to independent fishermen along the coast for a cargo of fish. In 1681, sack ships transported from Newfoundland about 42 percent of the amount of fish taken by seasonal fishing ships, according to the abstract of a report in CSP, Colonial Papers, vol. 11, p. 178.

¹¹ C. M. Andrews, Colonial Period of American History, vol. 1, p. 402. "It is at least significant that between May 5, 1623, and November 17, 1629, the council (of New England) issued no grant of which we have record, except this supposed patent to the New England Company; and it is equally significant that there is not a shred of evidence to show that any such grant could have been made legally."

¹² *Ibid.*, pp. 319, 320-43, 400-29.

doubtless among the irritants which prompted the Bay Colony to fabricate its own patent, bring it to New England, and override their absentee patents on the ground there between 1630 and 1653.

The Phylogeny of Settlements in the Bay

A company based in Dorchester, the stock of which was held by gentry and merchants from that town and its neighbors, was the first capitalist corporation of commoners to plant fishermen on the Bay, at Cape Ann (modern Gloucester). Unfortunately for the stockholders, Cape Ann was too far from the fishing grounds for a day-fishery in open boats to operate successfully. The colony began in 1624, but in 1626 the most perseverant removed to Naumkeag (Salem), the remainder returning to England.¹³ In the event, they migrated in the wrong direction; the Bay fisheries off Salem withered within a couple of decades for reasons explained below, while fisheries to the north of Cape Ann lasted more than two centuries.

The Dorchester company had been preceded in the Bay by freelance squatters, stragglers from Plymouth, a few short-lived settlements and individuals claiming small grants under Gorges or Mason. All comers found that rights on the ground were not as clearly delineated as patent holders in England supposed, and claims often conflicted. Farmers arrived hard on the heels of fishermen and stave-and-clapboard rievers, originally to supply the fishermen and rievers with produce, saving valuable cargo space for other goods. Soon farming would unwittingly be at cross purposes with fishing. Grist and saw mills dammed the creeks where small anadromous fish bred, and plowed fields eroded to silt in the bays and marshes where they and other fishes fed. Although settlers soon realized that dams and weirs injured the anadromous fish

¹³ Ibid. pp. 346-53.

populations, and towns and colonies passed ordinances and laws regulating them, it would be a long time before anyone recognized the relationship between degradation of the riparian and salt marsh environments along the littoral and a decline in the health of the fisheries just offshore.¹⁴

The first generation of farmers from Cape Ann southwest to Braintree happened into fortunate circumstances, from their point of view. The surviving Indians in the Massachusetts Bay, just beginning to replenish their numbers after the plague of 1616, must have been in a state of cultural shock much like that of Europe after the Black Plague in 1350. Along every tidal river were abandoned fields, not yet so grown over that they couldn't easily be cleared by hand. Most of the early planters' accounts praised the quality of the soil, although some were doubtful of its staying capacity without manuring.¹⁵ The first generation of farmers, then, acquired farms which wanted only husbandmen, seeds and plows to produce crops. These farms were also located on or close to tidal waterways, which gave ready access to Salem and Boston, the two principal ports of the colony at that time. If the farmers worked diligently and did not themselves succumb to disease, they would not merely succeed, but thrive, with a ready market for their surplus never more than a day's round trip by boat from their barns.

Farmers who came to the Boston-Salem axis even ten years later were in a less enviable position, because they were forced to settle inland, and thus further

¹⁴ Although Plymouth apparently passed early ordinances regulating the harvest of trees on islands in its harbor, not to preserve fishing, but to prevent erosion. See "Notes on Plymouth, Massachusetts," in *MAHS collections*, series 2, vol. III, (Boston: MAHS, 1815. Reprinted 1846 by Charles C. Little and James Brown), pp. 162-204.

¹⁵ *Letters From New England*, p. 214: This soil is like your woodland in England, best at first, yet afterwards grows more barren...after five or six years, it grows barren beyond belief...beans, millet, and fitches and roots, which delight in a cold soil, prosper here alike. For the present we make a shift to live, but hereafter, when our numbers increase and the fertility of the soil doth decrease, if God discover not means to enrich the land, what shall become of us I will not determine....

from a market for their products. As new towns were established by absentee proprietors, either for speculation or as safety valves for their own burgeoning progeny, it became harder for newcomers to own a farm at all, until they had spent years as tenant farmers developing someone else's land far beyond the circle of commercial enterprise in the Bay.¹⁶

Farming, moreover, is a job that demands constant attention. Even today, a twelve-hour day, three hundred and sixty-five days a year, is the norm for a successful family farmer. Livestock require daily feeding, cows require milking twice daily. Fields need plowing and cultivating in season, crops must be harvested, feed must be stored to keep livestock through the winter, and the various buildings and all of the implements must be kept in repair. Fuelwood must be cut, or surplus products raised and exchanged for it. Moreover, there is no guarantee that crops will succeed in a given year.¹⁷ While fishermen can move their operations to follow the fish as they migrate, farmers cannot. A bad year forces farmers to make a choice between selling livestock or going into debt to feed them. In the age of wood and iron technology, and wind, water and muscle power, only those farmers who had a reliable market, safe fields, a good woodlot, a large healthy family and a source of ready cash and credit could sleep securely. With only cart-tracks connecting inland towns, an inland farmer could not enjoy contact with the greater world except by leaving his farm overnight; at home his meager savings must be spent on peddlers' wares, not by comparison shopping. He could aspire at best to leaving an unmortgaged farm to his

¹⁶ For an excellent description of the joint rôle of economics and politics in the plantation of new towns, see John Frederick Martin, Profits in the Wilderness, (Chapel Hill and London: University of North Carolina Press, for The Institute of Early American History and Culture, 1991).

¹⁷ Howard S. Russell, A Long Deep Furrow, (Hanover: University Press of New England, 1976) gives a detailed description of colonial agriculture. New England from the mid 17th century was regionally plagued by wheat rust, until observant farmers identified the barberry as the intermediate host for the disease. Other crops were periodically damaged by insects, as John Winthrop Jr. wrote to Hugh Oldenburgh in 1668. MAHS series 5, vol. 8, pp. 121-25.

children, if they survived him.¹⁸ His woodlot might bring him extra income in the winter if he could sell his timbers to shipbuilders, get his sawlogs to a mill, get his stavewood riven, convert the residue to pot or pearl ashes, and get them to a market town. In a heavily-forested land, the profit in forest products was all in value added, and labor-intensive.

Fishing on the other hand offered, in return for occasional exposure to deadly perils and the demands of exhausting labor, opportunity to enjoy relatively long periods of leisure time, much greater ratios of income-to-labor and return on capital than farming, and access to all that went on in the world, even if only second-hand in a seaport shop or tavern.¹⁹ Fishermen were in regular contact with merchants, and might venture a little of their savings in a voyage, or go deep-sea themselves in the off-season, and with a little luck could aspire to joining the merchant class.²⁰ A farmer paid in constant independent labor for a life chained to the soil; a fisherman paid in occasional dependent labor for a life of relative freedom.²¹ Little wonder, then, that seventeenth-century

¹⁸ Percy Wells Bidwell & John I. Falconer, History of Agriculture in the Northern United States, 1620-1860 (Washington: Carnegie Institute. NY: Peter Smith reprint, 1941) p. 37. These farms were not very large: in 1675 the average at Muddy River (Brookline) was 13.5 acres per family excluding pasture and commonage; at Romney Marsh (Chelsea) it was 37.4 acres per family; at Essex, the average was 50 acres, (always excluding commonage rights). It is clear from these figures that the average farm size increased with distance from Boston.

¹⁹ For instance, a single storm might destroy the crews of several boats. NH State Papers, vol. 31, Probate Records, vol. 1, pp. 206-9 identify ten fishermen from the Isles of Shoals who were lost in one storm in 1677. The same probate records and the Maine Court Records of the period offer sufficient indication of the wealth distribution among fishermen around the Piscataqua, and the Maine Court Records contain a number of hints at the off-season tavern life of the fishermen, who were regularly haled into court for drunkenness and profanity. Thirteen of them were presented at one court in 1666, according to Maine Province and Court Records, vol. 1, part 3, pp. 49-50. That fishing was seasonal is evident from all accounts of the fisheries.

²⁰ "Those who predominate in shipping and fishing, have more occasions to frequent all parts of the world and to observe what is redundant or wanting everywhere; and what each people can do, and what they desire; and consequently to be the factors and carriers, for the whole world of trade." William Petty, Political Arithmetick, London, 1699. Quoted in Harold Innis, Cod Fisheries: The History of an International Economy (Toronto: University of Toronto Press, 1940, 1954, 1978 reprint [this ed.]), Fn. p. 133.

²¹ Rev. Allyn, "A Topographical History of Duxbury, 1793," MAHS Collections, series 1, volume II,

New England fishermen north of the Boston-Salem axis often owned land or farms, as well as their fishing craft, but farmers seldom owned more than their farms.²² A real comparison of wealth fails here, because the fishermen were part of a mercantile world, and probably had a greater cash flow than farmers, even though what they had to show for it varied greatly among individuals. Fishermen certainly had greater opportunities for investment, and we find some of them owning not only boats and houses, but farms, and in one case shares in a sawmill in Saco. No inland farmer had access to the profitable trading voyages in which a fisherman might invest his savings, if he hadn't poured them down his throat. Furthermore, the nature of debt was different for farmers and fishermen. Fishermen put their future catch up for collateral, while farmers put up their homesteads. For fishermen, failure led merely to more debt and another season of fishing, while for a farmer, failure meant the forfeiture of many years' worth of labor accumulated in the farm and livestock. It could thus be argued that a fisherman in debt became the partner of his merchant creditor, who could only recover his money by keeping the fisherman going, while a farmer in debt risked becoming a landless peasant.²³

(Boston: 1793. reprinted by Munroe & Francis, 1810). pp. 5-7. "It is very probable, however, that more land would be cultivated, were not the situation so convenient for navigation, which most people prefer to the more laborious life of the farmer. For the last fifty years, not more than two hundred acres, perhaps, have been converted into pasturage or tillage."

²² I have compared some probate records for the two occupations in NH State Papers vol. 31, as well as respective properties in York County Deeds, and the Essex County Probate Records for the area north of Salem. I believe that further comparisons will yield interesting results reflecting the variety of topography in the various places, but that generally a farmer might become a wealthy farmer with extensive lands and a mill, but a fisherman might become a wealthy merchant and own several farms and mills along with vessels, wharves warehouses, houses, etc.

²³ For instance, in 1647 Antipas Maverick, of the Isles of Shoals, bought a house and 100 acres near Sturgeon Creek, and later that month sold his two houses, mooring place and stages on Hog Island for £27. (York Deeds court records, vol. 1, Part I, fol. 13.0; and Maine Province and Court Records vol. 1, p. 112.) John Lander, a deserter from Trelawney's Richmond Island fishing station, was presented at the quarterly court for various misdemeanors and his property at Braveboat Harbor was sold for debts after his death in 1647. However, his erstwhile Richmond Island fishing partner and fellow deserter John Billings was still buying more land at Braveboat Harbor in 1660.

But land and sea were inextricably bound together. The development of the fisheries would be controlled largely by the geography of the shore, and the lives of fishermen would be changed dramatically by changes in the shorelands, tidal marshes, and tidal rivers. European agriculture was exploitive, and quickly wasted soil.²⁴ Indians had hilled their fields over mounded cores of small stones, and the fields eroded slowly if at all; vestigial hills in abandoned 17th century

(York Deeds, Court Records, vol. 1, Part I, fol. 15.0; and Maine Province and Court Records vol. 1, pp. 68, 117.) In 1650, Nicholas Bully, fisherman of Parker's Neck, Saco, bought for £30 John Smith's 100 acre plantation & houses on the south side of the Saco River, which he had received from Vines in 1642. Bully paid in two installments, and Smith had use of one room in the house for two years, until it had been paid off. (York Deeds, vol. 2, Part I, fol. 11). Nine years later, Roger Spencer mortgaged for £130 to Thomas Savage of Boston: one-quarter of a saw-mill at great falls of the Saco, owned by him and Robert Jordan, with all his rights of lands within 12 miles of the mill, & a fishing stage & house & neck of land where they stood, called Parkers neck, & "also Two Shallops wch I have now in my use on a fishing vioage, one of wch I bought of Samuel Rucke of Boston, the other I had buijt for mee at Pischataqua by John Dyamond, with all the ankers, Cables, Masts, sayles, Roapes, blockes, oares...& alsoe all the fish yt shall bee Caught by the Crew of fishermen wch do fish this spring season in yt shallopp wch I bought of Samell Rucke, aforesd, betwixt this and the end of June next. (York Deeds, vol. 1, folio 113.) Steven Craford, who died when the shallop he had borrowed was "cast away," was young enough to leave minor children, but in his estate valued at more than £160, he left more than £14 in cash. The estate included a house and ground at Oyster River, but it wasn't enough to support the widow and children after his expenses, including the lost shallop and a borrowed servant drowned therein, had been deducted. (Maine Province and Court Records vol. 1, Folio 109). For Essex County, MA, see Probate Records of Essex County (Salem: Essex Institute, 1916, 1917, 1920) vols. I, II, & III. For John Hardy of Salem, who died in 1652, leaving one-eighth of the ketch Flower, three-quarters of the ketch Gift, one-half of the ketch Return and one-quarter of the ketch Alligator (vol. I, p. 147); James Patch, of Salem, who died in 1658, leaving an estate worth £250:16s that included one-third of a shallop appraised at £10, slightly over seven barrels of mackerel appraised at £9, and various pieces of land and a share of a farm (*Ibid.*, p. 271); William Jeggles, of Salem, who died in 1659 leaving the ketch William, appraised at £50, and an old boat appraised at £2 (*Ibid.*, p. 287); Robert Gray, who died in 1661 leaving one-third of an unnamed ketch, worth £140, and an estate of £588:01s (*Ibid.*, p. 385); Mrs. Grace Sallow, a Salem widow who died in 1664, leaving part of a fishing stage and house "at the Misery," as well as some codlines, the whole valued at £113:13s:03d (*Ibid.*, vol. I, p. 445); Samuel Moody, who died in 1675, leaving one-quarter of the bark Flower as well as farm lands and animals in Newbury, Newburyport, and Wells, ME (vol. II, p. 8); For Piscataqua see the listings above in this chapter, and Maine Province and Court Records, vol. I, pp. 120-1.

By contrast, Kenneth Lockridge, in A New England Town, the First Hundred Years, (New York and London: W. W. Norton & Company, 1970), p. 59, describes the disaster that befell successful Dedham farmer Robert Hinsdell when he attempted to become a merchant. He lost his farm in a debt collection, was forced to move to the frontier in Deerfield, and there died with all of his sons in the massacre at Bloody Brook, in King Philip's War.

²⁴ Lockridge, A New England Town, pp. 148-9 and footnotes. Dedham's soil was unproductive by the mid-eighteenth century, or the fifth generation of English inhabitants. In contrast, by careful fertilization and hilling rather than plowing, Indians had managed to keep field rotation down to twenty or more years, and never exhausted the health of their farmland.

Indian cornfields could still be seen as late as the mid-twentieth century.²⁵ English farmers plowed their fields in furrows, carefully extracted the stones, and the fields eroded rapidly and regularly. Wherever a farmer cleared and plowed a slope near a stream, or a millwright built a dam, or a shipwright or merchant filled in marsh and built a wharf, or dredged a dock, some change occurred in the ecosystem of the fisheries.

The most intensive early development of the ecotone between land and sea was along the Boston-Salem axis. Intensity of development decreased with distance from Boston, and in Maine much of that ecotone remained relatively pristine into the early nineteenth century. The course of the fisheries accordingly depended heavily on the fate of the nearby ecotone where land and sea met. Although they did not know it in 1640, fishermen in Salem, Marblehead and Hull did not share a destiny with fishermen between Cape Ann and Casco Bay, or with fishermen from Casco Bay to the Kennebec. In each region fishermen would become hostages to local topography that regulated the productivity of the near-shore fisheries. Fishermen below Cape Ann would soon be forced to adopt a nomadic fishery with larger vessels, longer voyages and greater startup expenses; above Cape Ann, fishermen would enjoy for two centuries or more a sustainable nearby fishery requiring smaller, cheaper vessels and shorter, cheaper voyages, in some areas merely day fishing virtually within sight of shore.

Fisheries: The Boston-Salem Axis

The New England Company, or its successor, the Massachusetts Bay Company, had superseded the Dorchester company's fishing station at Salem in 1629. Matthew Craddock, governor-in-absentia for the Massachusetts Bay

²⁵ Howard Russell, Indian New England Before the Mayflower, pp. 144-6.

company, had eight shallops fishing from there under the direction of Isaac Allerton, an old hand on the coast, as early as 1634. In 1632 a ship had delivered men to start a fishing station at Scituate.²⁶ In 1636 the men of Charleston had been given Lowell Island in Boston Harbor to use as a fishing base. A new fishing station had been incorporated on Cape Ann in 1639, on Robert Gorges' old patent, and fishermen on Nantasket had petitioned the General Court to be allowed to incorporate themselves as "companies of fishermen" to fish the local waters in 1641.²⁷ Initially the future seemed bright: in Broad Sound, or the western bight of Massachusetts Bay, the Bay colony enjoyed a commercial fishery which dwarfed its agricultural production and rivalled its forest products in the export market.²⁸ Between 1639 and 1641 fishermen around the Boston-Salem axis enjoyed a bull market. There was a flurry of shipbuilding for the fishing industry, mostly shallops with some ketches or small pinnaces, as numerous court records attest.²⁹

These early years of the fishery must have been close to ideal for the men involved. They practiced what was called the "sedentary" fishery; that is, they fished virtually within sight of shore, and brought their day's catch home at night to be dressed and salted, and spread to dry in the sun. By far the best account of the early Codfisheries was published by Nicholas Denys in 1672. In this he described in detail the difference between the "dry" and "green" fisheries,

²⁶ Winthrop's Journal, vol. I, p. 99.

²⁷ *Ibid.*, p. 119; Records of the Massachusetts Bay Colony in New England, vol. 1, p. 183; *Ibid.*, p. 256-7; Thomas Lechford's Notebook, 1638-1641, (Cambridge: John Wilson & Son, University Press, 1885), p. 406.

²⁸ Although in the seventeenth century the Bay became an exporter of some agricultural products, especially root vegetables, horses and meat, to Newfoundland and the Caribbean, agricultural exports never approached the value of fish, timber, clapboards and pipestaves, which found an additional market throughout Europe. See the bills of lading in Lechford and the Aspinwall Notarial Records.

²⁹ A perusal of Thomas Lechford's Notebook will substantiate this.

and showed how they differed from the "sedentary" fishery. Briefly, the "green" fishery was practiced at sea, on the banks. Fishermen stood in barrels arranged on scaffolding along the side of a ship, and fished with two lines, lowering one line as they brought up a fish on the other. Fish were cleaned and packed in salt in the hold after each day of fishing. In the "dry" fishery, the ships brought crews to the mainland, erected "stages" protruding into the water, with covered areas for cleaning and salting, and access at all tides for the boats to approach the stage to unload their fish. Near the stage were the "flakes," where salted fish were spread to dry, and when the fish were sufficiently dry they were stacked on a clean gravel shore to dry further. The crews fished from shallops, each man handling two lines, one from either side of the shallop. They brought their catch home at evening to the stage. At the end of the season, all the fish were stowed in the ship, the shallops were marked with the owners' mark and hidden in some convenient place, and the ship went home.³⁰ A variation on the dry fishery was practiced in far northern waters, in which fish were freeze-dried on racks in the winter, without salt. This procedure produced stockfish, the Icelandic staple export. By general consensus the Basques were the ablest dry fishermen, and the French dominated the green fishery, while practicing the dry fishery where they could from the shores of Newfoundland New France. Methods of payment and fishermen's shares varied from region to region, but in the green and dry fishery payment was upon delivery in Europe.

In New England, the fisheries started as a dry fishery practiced in large part by westcountrymen who began by sending over a ship or two without a land patent or grant, making seasonal trips to favorite harbors, where they could erect flakes in a protected area near the fishing grounds. When landed aristocrats like

³⁰ Nicholas Denys, Description and Natural History of Acadia (Paris: 1672. Reprinted Toronto: The Champlain Society, 1908), vol. II, pp. 247-349.

Mason, Gorges, and Trelawney received patents to sections of the mainland under the Massachusetts Bay Company, it progressed to what Denys called a "sedentary" fishery. In this fishery, the fishermen settled along the shore where their fishery was, occasionally brought their families with them, and built a community, finding other profitable pastimes in the off-season. The procedure was as in the dry fishery, except that the fish were sold to proprietors or merchants who, whether or not they had financed the settlements, contracted to buy their fish delivered at or near the flakes, and were essentially brokers and shippers.

The principal tool in all cod fisheries was the handline with a single hook and sinker,³¹ baited with mackerel, alewife, herring, pieces of seabirds,³² or in want of them, cod stomachs. The size of the fish caught was in part limited by the size of the hooks used--since dressing any fish was labor-intensive, it made little sense to fish for small cod, so hooks were sufficiently large to discourage them. This practice was largely responsible for the continuity of the cod fisheries in the colonial era. Cod were not taken indiscriminately, so those taken were sufficiently mature to have propagated already.³³

But toward the end of the second decade of Boston's settlement, after the Great Migration, the local fishery began to decline. The Bay Colony had limited and dwindling reserves of fish, timber and beaver in its own geographic domain, but had a fine natural harbor lacking only shore-side improvement. Boston

³¹ Harold A. Innis, The Cod Fisheries, p. 124 Fn. The "jigger," a lead plummet with multiple hooks on the bottom, was forbidden in 1684. No one I have read suggests that they were used extensively before that date.

³² Although this practice contributed to the extinction of the Great Auk, it was not a significant part of the New England fisheries until later in the eighteenth century, when fishermen had to compete with the food market for baitfish.

³³ The reader who wishes to learn more about the Cod Fishery in the 17th century is encouraged to read Nicholas Denys's, The Natural History of Acadia, and Harold A. Innis, The Cod Fisheries.

almost from its founding had of necessity either to evolve into an entrepôt or to be eclipsed by the greater coastal resources of a richer coastal topography further north.

The disappearance of the local fisheries on the Salem-Boston axis coincided with the destruction of the salt marshes and tidal creeks around Dorchester, Boston, Charleston and Cambridge, which occurred as those towns improved their facilities for maritime commerce, and nearby streams were dammed for mills. From Nantasket to Salem, local fishermen who had incorporated themselves as fishing colonies were soon forced by the economic expediency of a changing environment to modify their fishing patterns, and abandoned the day fisheries alongshore for seasonal fisheries further north and east. As they began making fishing trips or "viages" to the eastward, they required more complicated support facilities than had previously sufficed in the sedentary fisheries. Originally they had fished from shallops, which any good fisherman could buy into on a share basis, or even own outright, perhaps even build himself.³⁴ There are ample records of fishermen who owned a share of a shallop, and a shallop was not a capital-intensive project on the scale of a ketch

³⁴ In the winter of 1700 the French settlers of Port Royal, Nova Scotia, built 20 shallops, and that spring and summer they put down more than 30,000 green fish. Innis, Cod Fisheries, p. 126, citing De Dièrville, Relation of the Voyage to Port Royal (reprint, Toronto: 1933). In 1610, planters sponsored by the Company of London and Bristol, while overwintering in Newfoundland, built with local materials "a 12-ton decked vessel and six fishing boats and pinnaces." C. M. Andrews, The Colonial Period of American History, vol. 1, p. 30. Probate records of Essex County, vol. II, pp. 373 lists among the possessions of William Charles, of Marblehead, who died in 1672-73, a dwelling house with out houses, orchard and land adjoining, part of another farm, a parcel of salt marsh, half an island with half the stage standing on it, as well as half a shallop, and a debt due of two-and-one-half barries of mackerel. Again, (Ibid., pp. 403-4) when Michael Partridge and Robert Hooper, both of Marblehead, drowned in April 1672, each left an estate comprised of some old clothes, worth £2:15 for Partridge and 15s for Hooper, a bible and some furnishings of Partridge's, and one-third of a shallop each, appraised at £15. Shares of their last voyage, after debts had been paid, came to £11:06s:09d each, so their one-third parts of the shallop were not beyond the reach of their colleagues. See also footnotes 10 and 22 above.

or larger vessel. In 1641 a small (three ton) shallop could be leased for a season for a rent of £3 payable in money or fish.³⁵

As local fisheries expanded, shore space for stages and drying flakes was exhausted. By 1646, in response to a petition from the fishing community at Marblehead, the General Court had regulated the use by nonresident fishermen of town shoreland anywhere in its jurisdiction.³⁶ So even before local fisheries declined, there had been competition for shore stations. The only fisheries still within range of a shallop were those already controlled by communities to the north or south, and some fishermen from Nantasket to Salem must have had to leapfrog several days' journey north around occupied neighboring fishing grounds to gain access to vacant fishing grounds between Penobscot and the Canso Straits, which still had nearby land available for the shore facilities necessary to their fishing technology.³⁷

³⁵ Thomas Lechford, Notebook, p. 406: Joseph Armitage of Lynne let a shallop of 3 tons to Abraham Robinson, Thomas Ashley & Wm Browne of Cape Anne, fishermen, til 29.7. with tackling &c for £3 in money or dry fish dd to Armitage at the end of the term, and the shallop returned to Lynne with its tackle.

³⁶ Records of the Governor & Company of the Massachusetts Bay in New England vol.II. 1642-1649, pp. 147. May, 1646: Upon the petition of the Marblehead men, the Court thinks fit to declare, that howsoever it hath been allowed custom for foreign fishermen to make use of such harbors & grounds in this country as have not been inhabited by Englishmen, & to take timber & wood at their pleasure for all their occasions, yet in these parts which are now possessed, & the lands disposed in propriety to several towns and persons, & that by his Majesty's grant, under the great seal of England, it is not now lawful for any person, either fisherman or other, either foreigner or of this country, to enter upon the lands so appropriated to any town or person, or to take wood or timber in any such places, without the license of such town or proprietor; & if any person shall trespass herein, the town or proprietor so injured may take their remedy by action, or may preserve their goods or other interest by opposing lawful force against such unjust violence. Provided that it shall be lawful for such fishermen as shall be employed by any inhabitants of this jurisdiction in the several seasons of the year to make use of our harbors, & such lands as are near adjoining, for the drying of their fish, or other needful occasions, as also to take timber or firewood as they shall have necessary use of, for their fishing seasons, where it may be spared, so as they make due satisfaction for the same to such town or proprietor.

³⁷ Probate Records of Essex County, vol. III, pp. 121-2, show that John Cole, a Marblehead fisherman and small merchant who died in February, 1676, was "sometime of Pemaquid," and left, in addition to some clothing, drygoods, silver, furs and furnishings worth less than £40, half of a small boat worth £8, and a shallop with its gear, worth £50, and his share of fish from the "small boat he kept out" worth a total of £32:15s:04d. There were also debts "contracted at the eastward" due the estate but largely uncollectible amounting to £297:03s:05d. His debts to Salem and Boston

Otherwise they had to modify their technology and go offshore to the banks off the Massachusetts coast. To get to the offshore grounds, or to get from the Bay to the grounds along the coast of Maine, fishermen needed something more substantial than a small shallop-- they needed a ketch or a "great" shallop, of 12 tons or larger. Since the expense of a vessel increases with the volume, and the volume increases geometrically with the length, the second-generation vessels fishing out of the Boston-Salem axis were exponentially more expensive than shallops and small ketches. That meant, for most independent fishermen, giving up their own shallops for larger, more expensive vessels. If they had been independent boatmasters, it often meant sacrificing autonomy to debt. This led the Bay fishermen, who lacked adequate capital to acquire the larger boats necessary for distant fishing, first into dependent and ultimately into subordinate relationships with the merchants who collected and marketed their fish into the maritime trade of the North Atlantic.³⁸

For the first few decades of the fishery, this may have been on a quid pro quo basis--the merchants offering credit to assure themselves of enough fish to fulfill their contracts with international trading houses, and the fishermen acting

merchants amounted to £189:09s:06d. Other of his assets brought in separately, worth £25:06s:06d, were held for his child, his wife being dead. *Ibid.*, p. 277, lists in the estate of Edward Vinton, inventoried in October, 1678, half a shallop worth £11, mackerel worth £1:08s, and boat hire of £4:17s, the rest of his worldly goods being appraised at £5:08s. *Ibid.*, p. 284, lists in the estate of John Brimblecomb of Marblehead, inventoried in November 1678, half a shallop and a canoe, worth £15, and a dwelling house, out house and land worth £40, the whole estate being worth £76:06s. In contrast, the estate of a successful merchant, John Turner of Salem, (*Ibid.*, p.400) administrated by his widow in 1680, was worth £6,788:17s:11d, and included £2,843 worth of merchandise, over £1,200 worth of household goods, four warehouses, a wharf, four entire ketches, a shallop and a pleasure boat, and shares of five more ketches, a pink, a sloop, and a ship.

³⁸ Daniel Vickers, *Farmers and Fishermen*, describes the evolution of this relationship between fishermen, outport merchants, and the great merchants of Salem. One issue raised in the present work is that the gradual subservience of the independent fishing industry in Salem to merchant capitalism was an inevitable consequence of the regional topography, shoreland alteration and population concentration, which together made the local fisheries unsustainable. Where more favorable topography and lower population densities maintained, as between Cape Ann and Penobscot Bay, sustainable local fisheries persisted into the nineteenth century.

as independent contractors. Merchants staked them to the vessel and supplies for a voyage in return for a note against their expected catch.³⁹

However, as the coast north and east of the Bay became more and more settled, the Bay men had to go further and further down east to find unoccupied fishing grounds, and ultimately established fishing bases around the Canso Straits of Nova Scotia, or sailed offshore to the banks and ledges of the continental shelf on trips of several days.⁴⁰ To get to the grounds off Nova Scotia, they needed a vessel large enough to defend itself against rival French fishermen, who also fished out of Nova Scotia. The French since the early 1630s had possessed forts at Pentagoet (now Castine, on Penobscot Bay) and Port (now Annapolis) Royal on the Bay of Fundy, and after 1713 fortified the harbor of Louisbourg on Cape Breton Island close to the Canso Straits, from which they could easily dominate groups of undefended Bay Colony fishermen. In addition to requiring vessels sufficient to resist the French, voyages to the offshore banks also required vessels large enough to stay at sea for several days, and provide space for some preliminary cleaning, preserving and stowing on board. These were large ketches, barks or small ships, which in turn required much greater capitalization. Few fishermen could afford to buy into such a project, and the merchants and fishermen of the Bay became locked in a pattern of constant debt,

³⁹ For an account of this relationship, see Daniel Vickers, Farmers and Fishermen. Some of Vickers' conclusions concerning the seventeenth century Salem fisheries differ from my own findings for the area further north, and that is because fishermen were held hostage to the topography of their home regions. Fishermen from Salem needed to hopscotch the area between Cape Ann and Casco Bay in order to find unclaimed fishing grounds with vacant nearby shoreland. Fishermen dwelling from northern Essex County to Penobscot Bay could fish from home, and did not need so much borrowed capital.

⁴⁰ At this time what is now New Brunswick and Nova Scotia was claimed as part of New England and New France, depending on the claimant. Charles I, in a typical Stuart mistake, gave Nova Scotia, previously granted to a Scotsman, to the French. Not all New Englanders recognized the French claims, and some fished in disputed territory to the eastward as early as 1632, when a shallop belonging to Henry Way of Dorchester went missing on a fishing voyage to the eastward. Her crew of five had been killed by the eastern Indians. (Winthrop's Journal, vol. I, p. 82.)

each dependent on the other for economic survival. The relationship remained a co-dependency into the eighteenth century, for while the fishermen could not fish without merchant underwriters, the merchants could not pay their creditors without the cooperation of the fishermen. But not all fishermen were willing to sacrifice autonomy for the pleasures of residence in the Bay. By 1649 some Bay fishermen had begun to show up in Maine, where they secured land for their stages and continued the kind of independent shore-based fishing they had practiced in the Bay.⁴¹ Shore-based fishing in fact grew along the Maine coast as it subsided in the Bay, augmenting the fisheries already in place from the Piscataqua to Pemaquid.

By the middle of the century fishermen in the Bay area had few alternatives to the maritime trades, because the only farmland available at prices they could afford was so far inland that they could not continue to fish (and thus keep themselves in supplies) while farming. Additionally, successful farming required husbandry skills that the average fisherman could not have acquired in a port town. Furthermore, the available farmland was so remote that new farmers would not have had access to the sophisticated consumer markets that seaport folk enjoyed. While seaport towns had several taverns, year-round easy communication by water, and a relatively wide range of consumables in the marketplace, newly-formed inland agricultural towns had one or no taverns, limited, slow and only seasonal egress by foot, horse or oxcart, and only those market goods which could be transported by wagon or packhorse. Additionally, of course, the inland farmers had always the Indians to worry about, while the port towns were comparatively safe. Throughout the seventeenth century, the port towns were not only a haven for vessels, they were also a haven for the inland communities threatened by Indians. And they revolved around the

⁴¹ York Deeds, Court Records, vol. 1, Part 1, fol. 13.0-14.0.

maritime industries. The maritime industries were considered so valuable that after 1641 their workers were exempted from militia duty, as we have seen.⁴² Why would a fisherman want to give up the convivial life of a seaport town for the comparative exile in martial poverty of a pioneer inland farmer? Why, particularly, when he could move down east, where opportunities were still plentiful for the dry fisheries, cheap coastal land was available for a garden, beaver was still available,⁴³ authorities were too weak to bother him, and he could continue to fish near shore as he had in the past, trading his own fish to the highest bidder among the merchants who sailed by, rather than being locked into an employee's wage and limited by debts to trade at the company store?

Fisheries: Cape Ann to Falmouth

North of Cape Ann and south of Braintree the fishing industry enjoyed a different environment. The vast salt marshes guaranteed an annual supply of hay at no expense in plowing or fertilizing. Furthermore, all salt marshes and their tributary rivers were the seasonal habitat of several species of anadromous fish, which came to spawn in the rivers, or catadromous species (notably eels) which, having spawned offshore, returned to fresh water for their adult lives. Not only were they themselves edible species, but they drew with them more desirable commercial species such as cod and bass, which as predators followed the smaller anadromous fish inshore. Alewives, herring and mackerel were a

⁴² See Mass. Bay Charter & Laws, Colony Laws, Chapter 70, section 9.

⁴³ Maine Province and Court Records (Portland: MEHS reprint, 1991) vol. 1, pp. 321-2. Nov. 13, 1666: Estate of Christopher Collines (Collins) appraised at £422:14:00, incl. 8 oxen at £56:00:00, and one moose skin at £1:10:00 (30s) and 5 bear skins at 25s or £01: 05:00, and one deer skin at 3s, in beaver £04:00:00, another bear skin at 3s, 30 swine young and old at £40:00:00, and 13 calves and yearlings at £28:00:00, 23 cows and a bull at £100:00:00, 2 steers and a heifer at £10:00:00, 8 two-year-olds at £01:14:00. 2 canoes @£3, books 30s...Collins was a fisherman as well as a farmer-trader to the eastward, to judge from an fishing contract in *Ibid.*, p. 234, dated 1665, in which he promised to deliver nearly £11 of fish or provisions at York or Piscataqua by the following spring.

preferred baitfish for the demersal fisheries, but additionally when they approached the salt marshes and rivers to spawn, they also drew with them squid, which is another food for cod, and an acceptable bait. Without a reliable supply of squid, mackerel or herring the fisheries for cod, haddock, pollock, or hake would have had to find another source of bait. In Newfoundland it was the Great Auk, which was virtually exterminated by fishermen who killed Auks by the hundreds of thousands and chopped them into bait. Additionally they salted them down by the barrelful to eat during the fishing season, and boiled them down for their oil.⁴⁴ Little is said about bait in the early records, but Winter at one point mentioned that the Richmond Island boats had just spent a month at Cape Ann getting mackerel for bait, which he hoped would last til the later part of the winter season.⁴⁵ In 1671 the inhabitants of Hull, which had incorporated as a fishing community thirty years earlier, petitioned the Plymouth General Court for permission to take mackerel on the beaches of Cape Cod, as they had done for the past three years.⁴⁶ Whether or not it was merely a baitfish, mackerel was commercially important, and by 1671 was no longer available in reliable quantities on the home fishing grounds around the Nantasket Peninsula.

Where the salt marsh coastline extended for hundreds of miles along tidal rivers and around the Great Bay of the Piscataqua, farmers could obtain bait locally and fish seasonally without leaving their home territory. Fishermen from Essex to Casco Bay could own farms and attend to them, and in fact some

⁴⁴ Farley Mowat, Sea of Slaughter, (Toronto: McClelland and Stewart, 1984), p. 34.

⁴⁵ MEHS, Trelawney Papers, pp. 200-1.

⁴⁶ MAHS series 1, vol. 6, pp. 127-8. They petitioned to enjoy fishing privileges, using nets for mackerel at Cape Cod, "beating out by evening there, and travelling on the shore at all times and seasons, and so discovered the way to take them in light as well as dark nights...as we were the first that labored in it...this last year...hath yielded more profit clear than two or three years before...but the truth is, by reason of the dearness of salt, and lowness of mackerel in the years before, our gaining was not so considerable, especially add this to it, that we lost one voyage" (of the three).

Isles of Shoals fishermen maintained small farms ashore in Portsmouth or Kittery⁴⁷, and occasionally as far inland as Oyster River.⁴⁸ These fishermen did not have to change their fishing grounds or make longer trips offshore, at least in the first two hundred years of English settlement. North and south of the Bay, then, fishermen continued to work out of their home anchorages in shallops and small ketches or "barks." Records indicate that the fisheries persisted at this level in these areas into the mid-nineteenth century, although the market mechanism changed. When Boston grew large enough to contain commodities markets, the locally-focused fishermen in the region sold to someone below the level of international merchants, and another middleman was incorporated into the economy.

The fishermen from Cape Ann to Piscataqua thus maintained a greater degree of independence than their contemporaries around the Boston-Salem axis, even though some of them were just as poor. Because Portsmouth was a secondary entrepôt, fishermen in the Isles of Shoals area probably didn't enjoy the consumers' market choices that fishermen did closer to Boston, but it was Portsmouth's nature as a secondary port, combined with the dangerous currents in the Piscataqua and (probably) the relative amount of freshwater in the

⁴⁷ Among whom this author counts one of his own ancestors, Andrew Newcomb, who fished and was constable at the Shoals in 1670, but maintained a home near the mouth of Spinney Creek in Kittery. [Newcomb Family Genealogy, (Elgin, Illinois: John Bearse Newcomb, 1874), pp. 14-16.] Newcomb's father, also Andrew, was captain of several trading vessels hailing from Boston that cruised between Virginia and the Maine coast. Andrew Jr. fished on the Isles of Shoals in 1666. In 1669, then listed as a fisherman of Kittery, he bought a house and land at Spinney Creek, Kittery, ME. In 1671 he again was living at the Isles of Shoals, serving as constable. In 1673 he was sued in Dover for withholding the "hull of a fishing shallop" from Francis Small, which he had received "of Thomas Trickey by virtue of Small's order." Newcomb was then into the shallop for one-quarter of a fishing voyage at the Isles of Shoals. The case was withdrawn. That same year he sold a house on Hog Island and moved back to Kittery. In 1674 he sold his Kittery house to John Cutt, formerly a fisherman of the Isle of Shoals, and then a merchant of Portsmouth, and moved to the Isles of Shoals, whence he removed to Martha's Vineyard in 1675.

⁴⁸ See Maine Province and Court Records vol. I, p. 120; Norfolk County Records, in "Essex Antiquarian," vol. III, p. 43; York Deeds: Court Records, vol. 2, Part I, fol. 11; NH State Papers vol. 31, Probate Records vol. 1, pp. 211-2.

drainage system which might close the river with ice, that preserved the natural ecosystem of the Great Bay from commercial development, and in turn preserved the local sedentary fishery, which continued in small boats from the Isles of Shoals, Newcastle, Rye and Hampton to the end of the eighteenth century, or even later.⁴⁹

Going north of Piscataqua, the political and economic environments changed along with the geography. From York to Casco Bay it is difficult to establish exactly what the circumstances of the fishermen were--whether they were employees or semi-autonomous. Probably the situation was in flux most of the first several decades. At Winter Harbor (the mouth of the Saco River) and at Wells, Kennebunk and Spurwink, there were self-employed fishermen who owned small plantations, as well as some who may have fished for the larger landowners in their vicinity. But just across the harbor from Spurwink, fishermen on Richmond Island from 1636 to 1648, for instance, were not self-employed or in a *quid pro quo* with merchants; they were employees of the absentee patent-holder, Trelawney, and were supervised by his factor on location, Winter. But clearly Winter had a difficult time keeping men at Richmond Island: the economics of the Bay lured his shipbuilder Arthur Gill away, offering better pay, more consumer goods, and perhaps more autonomy. Two of Winter's fishermen, John Billine and John Lander, left Richmond Island in 1636 or 1637 and moved to the Piscataqua area, where they jointly bought the house and boat mentioned elsewhere in this chapter. Lander and Billing had come up in the world since they left Richmond Island; in 1639 they sold eight acres on Spruce Creek, and leased an adjoining twenty acres to Joseph Milles, for an annual payment of sixpence per acre for every acre cleared or planted. Perhaps

⁴⁹ Jeremy Belknap, History of New Hampshire, vol. III, (Dover: O. Crosby and J. Varney, 1812. Reprinted in two volumes, New York: The Sources of Science, No. 88, 1970), p. 158.

encouraged by his newfound status, in 1645 Lander brought suit against Trelawney's estate for £2:10s:11d owed him for his share of a load of fish caught in 1637, but the court awarded him only one penny and costs.⁵⁰ He had, however, won his case. We might therefore conclude from surviving records that the economic hazard of being self-employed as a shipwright in the Bay or a fisherman on the mainland was more attractive than a contracted salary working for Trelawney at his Richmond Island station. Winter's records show that on the Island, where there was no outside competition with the company, most of Trelawney's fishermen could not stay ahead of their debt to the company store. By 1648, when Richmond Island was inventoried at Winter's death, only three boats were in use, where six had been employed nine years before, so either the fish had become scarce or the men had trickled away.⁵¹ But several of the fishermen had simply deserted the Island and gone into the fishing business for themselves around the Piscataqua or along the Maine coast. One way or another, in partnerships and local collectives, the coastal fisheries from Cape Ann north to Casco, and south of Braintree, persisted into the 19th century, adapting themselves to economic and political necessity. How much the local nature of the inshore fisheries and the wealth of their local topography allowed them to maintain independence from Boston is a question not yet answered. By the mid-19th century, they too were in decline, as industry spread along the coast.

Fisheries: Casco Bay to the Kennebec

In the northernmost geographic area, from Casco Bay to the Kennebec, records are scanty. In 1623, when Christopher Levett coasted Maine from the Piscataqua to the Kennebec looking for a place to plant his men for a fishing

⁵⁰ Maine Province and Court Records, (Portland: Maine Historical Society, 1928) pp. 83-4.

⁵¹ MEHS 2nd series vol. 3, Trelawney Papers, pp. 200-1, 372.

station, he found much of the fishing ground along the coast already occupied or granted. Pemaquid, Cape Manwagan (Cape Newagen) and Monhegan were already spoken for, nine ships having fished at Cape Manwagan that year. Although Levett found no one fishing at Agamenticus or Cape Porpus, he maintained that at Saco "there hath been more fish taken within two leagues of this place this year than any other in the land." Two leagues east of Saco was Quack, which Levett renamed York (modern Portland); here he observed that "diverse ships of Waymouth" had fished that year. At Sagadahock (lower Kennebec) there had been two fishing ships the preceding season. Although nine ships had fished at Cape Manwagan that year, Levett criticized its lack of timber and planting ground, choosing not to settle there. Between Cape Elizabeth and Sagadahock, however, he speculated that "there may be twenty good towns well seated, to take the benefit both of the sea, and fresh rivers,"⁵² and finally settled himself at Quack, where the islands in Casco Bay afforded natural protection against attack from land forces, and the fishing was excellent within a day's sail of his projected station.

Fishing began very early along the northeastern Maine Coast between Penobscot and Machias, and continued there through the English occupation, although often the fishermen seem to have been independent contractors for absentee merchants. In any event, there was little commercial development of the shoreline. Patents and grants overlapped, titles were frequently in dispute, no extensive ready-made agricultural hinterland existed for the taking as it did around Boston, the Indians were stronger, the French were a threat in theory always and in fact from time to time, and these problems combined to discourage long-term investment until after the Bay Colony had become established.

⁵² Christopher Levett, A Voyage into New England, (London: 1628; reprinted MAHS series 3, vol. 8) pp. 164-71.

The Plymouth Company's experience with French corsairs who twice drove them from Pentagoet must have given potential capitalists pause for thought; they could trade with local outposts, or send fishing crews to the area seasonally at much less risk.⁵³ There were a few farms in the immediate

⁵³ Bradford's History, pp. 350-1, 395-6. The French looted the Pilgrims' trading post at Pentagoet in 1631 and again in 1635. Meanwhile, there were successful traders and fishermen operating at Pemaquid, not far to the westward. See Colonial Society of Massachusetts Transactions, 1899-1900, (Boston: Colonial Society, 1904), "Land Controversies in Maine, 1769-1772," pp. 26-7: Suffolk county Court Files, March, 1701.

Capt. Sylvanus Davis gives this account of the severall English settlements that he hath known to be formerly at and to the Eastward of Kennebec or Sagadahock along the seacoast to Matinicus sundry English fishing places some 70 and some 40 years since--

At Sagadahock many families & 10 boats sometimes more	
At Cape Norwagan (Newagen) many families and 15 boats	
At Hypocris Islands	2 boats
At Damariscove	15 fishing vessels
At two Bacon Gut, fishermen	
At Holmes Island, fishermen	
At Pemaquid	5 fishing vessels
At New Harbor	6 fishing vessels
At Monhegan near	20 fishing vessels
At St. Georges, fishers	
At Matinicus Island	<u>20 fishing vessels</u>
Total	93 fishing vessels

Farmers Eastward

At and near Sagadahock	20
East Side of Sagadahock to Merrymeeting	21
From Cape Newagen to Pemaquid	6 farmers
At Pemaquid	15
At New Harbor	10
At St. Georges West Side, Mr. Foxwell	1
At Saquid Point 60 years ago	1
On the East Side of Quisquamago	1
Philip Swaden fifty years ago } St. Georges besides fishermen 60 or 70 years, 84 within land }	84 families
Between Kennebec and Georges River	12
At Sheepscot Town besides Farms	50
Between Sheepscot & Damariscotta River	10
At Damariscotta	7 or 8
Between Damariscotta, Muscongus & Pemaquid & Round Pond	<u>12</u> 91 families

Many more had begun to settle many taken lots with intent speedily to settle but were disappointed by the War, besides the great improvements, Houses, Mills, Stores, Malting, building ships & vessels, the Inhabitants daily increasing, Monhegan Island was sold by Mr. Innings of Plymouth to Alderman Aldworth and Mr. Giles Elbridge March anno 1626, and improved ever since til the War,

hinterland, and a lingering fur trade carried on by part-time farmers and fishermen. Where shore stations maintained agricultural support for the fisheries, they free-lanced at the fur trade on the side. Certainly there was additional trade with the French across Penobscot Bay as well, and the nature of this trade remains to be discovered.

The fisheries of the north don't seem to have been noticeably depleted in the first two centuries of exploitation--Boston merchants could count on regular supplies of fish from stations at Pemaquid and Damariscove, and their even smaller satellites, as long as there was peace with the Indians. This made the area attractive to major financial interests in the Bay Colony. When there was war with the Indians, however, the northern farms and fishing stations became untenable, and this had long-term effects on the environment, as we shall see in chapter five.

Waterfront Rises. Fisheries Decline

With the building of ships the size of *Desire* (120 tons) and *Trial* (160-200 tons), the waterfront on the Boston-Salem axis was changed forever. In little more than a decade the creeks had been dredged and squared, the marsh filled in or dug out, wharves built, and the former habitat of ducks and the age-old nursery of mummichogs and herring spawn destroyed. In short, the areas which had provided the bottom of the marine food pyramid in that part of Massachusetts Bay were on their way to becoming the commercial nexus of New England's largest entrepôt. A similar process can be traced in Charlestown, and undoubtedly took place in Dorchester and Cambridge, as well as other settlements on the tidal rivers which flow into Boston Harbor and the North

in 1688.

Shore. The coming of large-scale maritime commerce, originally stimulated by the fishing industry, eventually wreaked havoc with the local fisheries.

Wharves & Docks

While New England's economy varied inversely with the fortunes of Puritan armies in England, New England merchants steadily acquired the properties which would guarantee their fortunes, regardless of who controlled the government in London. Boston had scarcely been settled when the Court began to change the tidewater ecotone. In June of 1631 a Mr. John Maisters undertook to dredge a channel up the Charles River to New Town (Cambridge). The proposed channel was to be 12 feet wide and 7 feet deep, and the court promised to reimburse him for his troubles. Three weeks later the Court assessed the towns of the Bay a total of £25 for the work, which must have gone smoothly, for ocean-going vessels were soon sailing upriver to Cambridge. Boston men may have had an ulterior motive in opening this waterway; it extended their access to timber, and Cambridge later sued them for taking timber from the Cambridge forest. In 1638 the town of Boston gave land at Mt. Wollaston (land confiscated from a prior settlement) to subsidize the town wharf and crane:

21st of 11th moneth, January, 1638

there is this day granted to the owners of the Wharfe and Crayne an hundred acrs of Land at Mount Wollystone, next to the allotments already graunted, towards the repayringe and mainteyning of the said Wharfe and Crayne.⁵⁴

At that time the wharf and crane belonged to a consortium of 14 people, including one widow. A year later Richard Parker, a merchant, bought the

⁵⁴ Boston Town Records, 1634-1660, and Book of Possessions (Boston: Record Comissioners, 1881), p. 37.

wharf, crane, warehouses and land at Mt. Wollaston from the consortium for £170, and the very next day he sold one-half interest in it to Edward Bendall for £75. Two months later he leased Bendall his own one-half share of the wharf, crane and warehouses for one year at £20 per annum, and leased Bendall one-half interest for one year in a "greate lighter with its tacklings and appurtenances" for £30 plus a pledge to maintain the wharf, crane, warehouses and vessel.⁵⁵ Thus Parker had recouped almost three-quarters of his investment in the Boston waterfront soon after his purchase.

What in fact was he buying? At the time, the Boston waterfront was tidal marsh, and the presence of the lighter indicates that larger vessels could not get in to the wharf, at least not at low tide. Parker and Bendall now controlled Boston's import and export facilities, for Bendall already had a wharf nearby. In June of 1640 Parker was awarded four hundred acres on the Monotacott River, with an additional hundred acres in lieu of the Mt. Wollaston acreage which had come with the wharf.⁵⁶ Others whose work required use of the waterfront were relegated to the marsh away from the wharf, as the selectmen had noted one month earlier:

...in regard our brother Everell hath a great parcell of woode and timber to land heare this present yeare, that he shall make use to himselfe for the time being, namely for this present winter following of the quantitie of eight Rodds or there about, betweene the beach and the sea, and that the timber he may rowle upon the marsh, provided he keepe a faire passage for other men to passe with their wood or with any other Loadeing.⁵⁷

"Our brother Everell" got the use of one hundred and thirty-two feet of marsh frontage "for the time being." He could get his great parcel of wood and

⁵⁵ Thomas Lechford, Notebook, 1638-1641, p. 70-3.

⁵⁶ Boston Town Records, 1634-1660, and Book of Possessions, p. 54.

⁵⁷ *Ibid.*

timber ashore by rolling or dragging it upon the marsh, or he could pay Bendall and Parker to lighter it onto their wharves. This de facto monopoly of Parker and Bendall apparently didn't work out, because a year later, at the end of November, 1641, the town of Boston went before the Massachusetts Court over wharfage rates. Whatever the arguments were, at the end of November that year the town of Boston gave Valentine Hill and his associates the right to dredge, fill and wharf all of the small marsh frontages around what was then the principal cove, between the lots of Edward and William Tyng. This apparently supplanted all the wharves of the current owners, seemingly including Bendall and Parker, with one much larger wharf, or a series of them, for a period of up to 15 years. This grant reserved for the former frontage owners, now merely abutters on the projected wharves, only the right to use the new wharves to land their own

goods, wood, timber and other things being of this jurisdiction, without any charge, during the term before granted, so that the vessels stay not in the coves nor creekes delivering, nor the goods remain upon the wharfe, above forty-eight hours.⁵⁸

The Grantees agreed that they would,

within the space of two yeaes next ensuing sufficiently wharfe, and from time to time keepe in repaire the creeke next to George Burdens house, fitting fot the lading and unloading of a lighter of twenty tunne in ordinary Tydes on either side thereat.⁵⁹

Edward Tyng had five years in which to fill the seventy-four foot space between his property and Valentine Hill's wharf, or forfeit the opportunity to Hill and his associates. In return for their efforts at dredging and filling, "Valentine Hill and his Associates" were "allowed to take tunnage of all such vessels and wharfage of all such goods" as might arrive there.

⁵⁸ Ibid., p. 64.

⁵⁹ Ibid.

Thus Boston first granted a *de facto* monopoly on its waterfront trade, then, faced with popular resistance because of the high prices, granted a second, wider wharf area to another consortium in the apparent hope of expanding trade. The grants probably had their desired effect, but a collateral result was the rapid filling of tidal marshes, and dredging and walling of tidal creeks. All of this systematically destroyed that ecotone which formed the bottom of the very food pyramid whose top provided their fishery with cod.

Soon the entire waterfront was opened to development. In November 1643 Thomas Clarke, Valentine Hill, John Milam and William Tyng all received grants to wharf their properties progressing eastward around the peninsula from the earlier Valentine Hill grant. Two months later seven more men received grants to wharf before their properties.⁶⁰ The following year three more men received grants to wharf their marsh frontage, and Bendall's rates were fixed for a year. In 1645 five more men received wharfage grants, and Bendall was offered the town's remaining marsh in one area, but refused it at the town's price. That year Bendall, William Franklin and Valentine Hill sold a twenty-five foot strip of waterfront access through a section of their wharfage grant, retaining all wharfage benefits while the buyer, Scotto, agreed to maintain his section of their wharf.

It's pretty clear that these early combinations of saints manifested their cumulative grace with singular acquisitiveness and business acumen. Harbor frontage drove the first speculative real estate boom in New England. Wharves soon became a valuable commodity; within another year shares in wharves began to appear as collateral for loans, while the natural salt marsh surrounding Boston peninsula and abutting the other nearby towns quickly disappeared.

⁶⁰ *Ibid.*, pp. 75, 78.

The matter of jurisdiction over waterfront and wharfage seems to have been a bone of contention between the merchants and the town, and would bear further research. Twice the town apparently gave waterfront rights to combinations of merchants and their associates, in effect expropriating the wharfage rights of small proprietors along the waterfront, but the rulings seem to have exercised little restraint on the continuing development of the waterfront. Meanwhile, the flats in front of the wharves were gradually filling up with jetsam and refuse, some of it dangerous to the vessels which lay there. In 1649 the town appointed a water bailiff, to "se that noe stones nor timber doe lye on the flats or shoor to the Damage of boats or vessalls..."⁶¹

Impact of Waterfront "Improvements" on the Environment

This first wave of destruction of the tidal flats probably had an effect on the fishing environment, although it is impossible to make any direct connections. Lacking scientific observations of the water and salt marsh, we may follow references to the fishing resources as they appear chronologically in various sources. In 1634, William Wood reported of his recent New England sojourn:

A mile and a half from this town (Watertown) is a fall of fresh waters, which convey themselves to the ocean through Charles River. A little below this fall of waters, the inhabitants of Watertowne have built a wear to catch fish, wherein they take great store of shads & alewives. In two tides they have gotten one hundred thousand of those fishes.⁶²

Wood's book is a good source of information about the fisheries of earliest New England; he reported not only the general availability of various species, but also the harvest at various towns. Saugus had received the privilege of a weir in 1632, along with Watertown, Roxbury apparently having built a weir without the

⁶¹ Ibid., p. 98.

⁶² William Wood, New England's Prospect, 1977 ed., p. 60.

Court's leave. Wood reported that at Saugus he had seen two men take ten thousand alewives in two hours using only a few stones for a weir, and that sea-bass occasionally drove so many mackerel onto the beaches that the inhabitants gathered them in wheelbarrows. "Codfish in these seas are larger than in Newfoundland, six or seven making a quintal, whereas there they have fifteen to the same weight."⁶³ The sea-bass themselves were sometimes taken with seines at high tide in the creeks, "two or three thousand at a set," "sturgeons be all over the country, but the best catching of them is upon the shoals of Cape Cod and in the River of Merrimac." "The salmon is as good as it is in England and in great plenty in some places."⁶⁴

Given such a plenty of fishes in 1633, when there was bountiful fishing but before the English had begun to fill the salt marshes for their wharves and dredge and wall the marsh creeks for their docks, it is interesting to extrapolate the extent of subsequent fisheries results through various ladings and bills. In 1641 there was a good cod fishery just outside of Boston Harbor. That was the year Nantasket applied to become a fishing community, and Joseph Armitage of Lynne let the 3-ton shallop to fishermen Abraham Robinson, Thomas Ashley & Wm Browne of Cape Anne, for £3 in money or dry fish. Clearly the fishery extended right around the Bay from Nantasket to Salem in 1641.

In 1643 Thomas Dudley, Esq. sold his right in the Watertown weir to Edward How of Watertown for £59 10s 2d.⁶⁵ At that time substantial numbers of alewives and shad must still have been running in the Charles River, for sixty

⁶³ Ibid., p. 53. That is, most New England cod weighed about 17 pounds apiece; most Newfoundland cod weighed an average of 6 pounds. A quintal is 100 pounds, although Innis says that the fisherman's quintal was 112 pounds, to make up for spoilage. Large fish in both places ran to 100 pounds and more, and had to be brought into the boat with a gaff.

⁶⁴ Ibid., pp. 53-62.

⁶⁵ Suffolk Deeds, Vol. I, Lib. 53.

pounds was then a substantial sum--the value of a house or a pinnace. In 1645 Stephen Winthrop exported one thousand quintals (50 tons) of codfish to London in the ship *Dolphin*.⁶⁶ We might assume that these fish came primarily from the fishermen who fished the immediate area of Boston, from Nantasket around to Salem. But by 1647 something was affecting the inshore cod fisheries. The first indication we have is a temporary shortage around the Isles of Shoals. In that year John Treworgy, merchant fisherman of a family early settled in the Piscataqua area, failed to make good on a fish contract at the Isles of Shoals with Robert Sedgwick, a Charlestown merchant. For this he was forced to indenture and sell "two dwelling houses, one store house, stages, stage room, salt & salt room, flakes & ground pertaining thereto, as well as 7 shallops, masts oars, grapnels, killicks, rodes, and a Ketch Pinnace now in Piscataqua sometimes belonging to this place a fishing..."⁶⁷ In other words, he lost his shirt. Furthermore the deed doesn't contain the usual mortgage escape clause nullifying the transaction should certain conditions be fulfilled within a certain time.

This suggests relationships between Isles of Shoals fishermen and Boston area merchants differed from the relationship between fishermen and merchants in Salem at the same period, as Vickers interpreted it. Vickers suggested that Salem merchants kept fishermen in their debt by giving them credit against their next catch.⁶⁸ My research suggests that this was not the case from Cape Ann north, or only one of several possible scenarios, for it seems to me that during the seventeenth century many merchants were at far greater risk of losing their entire property in settlement of debt than were individual fishermen. Nowhere

⁶⁶ Aspinwall Notarial Records, p. 397.

⁶⁷ York Deeds, Vol. I, part III, folio 9.

⁶⁸ Daniel Vickers, Farmers and Fishermen, pp. 103-16.

do I see evidence that an independent fisherman had difficulty finding a merchant broker for the boatload of fish he had, but merchant brokers who contracted for fish by the shipload couldn't always find enough successful fisherman to supply them. Therefore, liberal credit from the merchant, by securing the fisherman's loyalty, may have been a de facto insurance policy against predation by other merchants. At any rate, the shortage at the Isles of Shoals was temporary, but its consequences hint at what was about to happen in the Bay.

In 1649, just two years after Treworgy's experience, William Bartholomew, a merchant of Ipswich who traded in the Bay and elsewhere, was unable to deliver 1,600 quintals (80 tons) of cod at Cape Ann to fulfill a contract with London Merchants. His embarrassment put him in real financial danger. Eventually, a consortium of Bay area merchants collectively posted a bond for £10,000 as surety against possible damages incurred by the ship *Swallow* in moving to the Isles of Shoals or to Marblehead to complete that lading (the Isles of Shoals not being a protected anchorage). Another group of merchants posted a bond for £400 to protect the *Swallow* in moving to Marblehead or the Isles of Shoals to load another 300 quintals of cod.⁶⁹

This tells us that the fish had come back to the Isles of Shoals, and reveals a great deal about the infrastructure of the maritime community as well. Had the *Swallow* been lost at the Isles of Shoals, the forfeiture of that ten-thousand pound bond would have ruined many of the merchants in the Bay area, drastically curtailing the exchange of goods upon which all fishermen and, in fact, all the citizens of the colony, ultimately depended. Nonetheless, William Bartholomew must have been too inextricably bound to the other merchants for them to let him go under without suffering damage themselves, so they

⁶⁹ Aspinwall Notarial Records (Boston: Records Commission, 1903) pp. 217-18.

collectively took the risk of insuring his creditors and filling his contract. This suggests to me that the merchants did not control capital, but simply manipulated a system analogous to credit cards, which could be paid down only as long as fishermen or clapboard and pipestave reivers fed their products, which functioned as currency, into the system. That is, the fishermen and their fish (as well as the woodsmen and their staves and clapboards) constituted the capital without which the whole system must have folded like a house of cards. At the time, fish and forest products were often referred to as "current pay," suggesting a hazy line between cash and commodities.⁷⁰ The stability of the system depended on access to resources. This lesson was not lost on the Bay merchants.

Of particular interest here is that Bay men had not stepped in to save Treworgy, who until his embarrassment had occupied a large fishing station belonging to his uncle on the Isles of Shoals. The Bay's merchant-saints, swallowing their zeal for the tenth commandment, were already in 1647 casting a covetous eye toward this valuable geography. Treworgy was a West countryman, and not of the Puritan stock. More importantly, when Sedgewick, who was from Charleston, foreclosed on Treworgy he acquired a foothold on the Isles of Shoals, in the heart of an established fishery beyond the current territories of the Bay. Sedgewick was one of the Bay merchants who pledged the bond for Bartholomew; when he did so he was getting fish from his new fishing station.

⁷⁰ Aspinwall Notarial Records, pp. 126, 131. Also NHSP vol. XXXI. Probate Records vol. I, p. 168, a fisherman's share in a voyage was used to pay off his debts. Also York Deeds, Court Records (Portland: John T. Hull, 1887) vol. I, part 1, folio 11; Also Thomas Lechford's Notebook, p. 326, in 1640: Wm Pomfret of Dover on Piscataqua bound to George Druell of London, Marriner, to pay him 1,000 red oak merchantable clapboard in exchange for the passage of his wife and daughter, Hosanna and Elizabeth. Also Stackpole, Thompson & Meserve, History of the Town of Durham, NH (Concord: Rumford Press, 1913. Somersworth: NH Publishing Company, 1973 reprint), pp. 9-10: Tax Rates assessed to Oyster River planters, to be paid in pipestaves & one-quarter in corn. Also York Deeds, Court Records, vol. 1, Part I, fol. 116-117: 8th August, 1661, Thomas booth contracted to pay Antipas Maverick £520, the first payment to be £68 in pipe staves & boards with £10 in money, the 2nd payment to be £12 in dried Codfish, 20s in money, and £13 in "Currant Mrchandable pay in this River," with the fish payable in Piscataqua or the Isles of Shoals. Subsequent payments of £26 to be made annually in money or merchantables.

They were both members of the merchant confederacy which operated under the aegis of the Bay government.

William Bartholomew's ordeal indicates that by 1649 the Bay merchants were having trouble filling large orders for cod with locally caught fish, assuming that their first line of supply would have been the fishing companies right next door on Nantasket and in the Salem-Marblehead area. The 300 quintals the merchant consortium delivered at Marblehead were less than twenty percent of Bartholmew's contract. Their second line of supply, for the balance of the contract, was around the other side of Cape Ann at the Isles of Shoals, then a prime cod habitat facing thousands of acres of unspoiled salt marsh. There may be no connection between the increasing destruction of saltmarsh for wharfage in the Bay, the apparent decline of the Bay fisheries, and the spread of the fishery north from the Isles of Shoals along the coast of Maine, where the salt marshes were as yet untouched. However, in that year, four fishermen from away were granted space for their stages on the Cape Neddick River, on the Maine coast a few miles north of the Isles of Shoals,⁷¹ and one of the signatories to the bond in William Bartholmew's trouble with the 1,600 quintals of cod was Thomas Lake. Lake appears again that year as a guarantor of 400 quintals of cod for part of a lading on Nehemiah Bourne's ship *Malago Merchant*. His fishing station was at Arrowsic, in the mouth of the Kennebec River, an area rich in precisely the environment which generates cod food. In all probability, his fish were coming from there, and he was delivering them to the Isles of Shoals or points closer to Boston. Clearly, as the fishery declined in the Boston area, fishermen further north were ready to step in and keep up the trade. And Boston merchants were anxious to get control of those fisheries, to ensure their own economic survival.

⁷¹ York Deeds, (Portland, ME: John T. Hull, 1887) vol. I, part 1, fol. 13-14.

Although bass had heretofore been a prize fish for local consumption, on the 15th of May, 1650, Theodore Atkinson of Boston shipped 40 kintals of Bass upon the ketch *Remember*, John Browne, Capt., for the account of Mr. John Wilkins, a haberdasher of hats in London, to be delivered in Barbados.⁷² Later that year, on the 28th of December 1650, John Tuttle, a Boston merchant, loaded 40 kegs of sturgeon aboard *Adventure*, Daniel Bradley Master, along with 6 hogsheads of mackerel, 1 hogshead of beef, 23 barrels of beef, and 22 barrels of mackerel, consigned to William Eastchurch in Barbados for the use of John Woodward & Co.⁷³ Although mackerel were common enough to ship to the Caribbean, it would seem that the presence of high-quality fish like bass and sturgeon in a shipment to the Caribbean, especially in payment of a bill to a London creditor, might suggest a shortage of cod.

The following year an exchange of protests occurred which supports this theory. On the 30th of June, 1651 Aspinwall recorded a series of exchanges between Mr. Benjamin Whetcomb & Philip Jackson and their New England assignee William Stratton, on the one hand, and Captain John Leveret of Boston on the other hand, over non-delivery of 308 kintals of fish at £112 per quintal. Robert Houghton of London had pledged delivery to Whetcomb & Jackson via Stratton, through his assignees in the Bay area, Francis Norton & John Leveret. Leveret replied that he had delivered to Stratton 149 kintals of fish from several accounts, but Stratton had refused to consider his plea that he was unable to find more fish, "& himself knoweth, that fish hath not beene to be pcured for money." Mrs. Norton stated in her husband's absence that "if her husband could have procured fish he would have done it to his utmost."⁷⁴ The

⁷² Aspinwall Notarial Records, p. 287.

⁷³ *Ibid.*, pp. 423-4.

⁷⁴ *Ibid.*, pp. 390-1.

fact that Leveret had to call on several accounts to come up with 149 quintals indicates that no one was catching many cod in the Boston area.

It seems that by 1649 the codfisheries were in decline in the immediate vicinity of Boston, and that by 1651 a Boston merchant couldn't gather 308 quintals of cod anywhere nearby, no matter how many fishermen he called on. This may of course have been merely a cyclical decline in the cod population, or the result of overfishing within a day's sail of the Bay. It is curious, however, that it followed closely the beginning of saltmarsh destruction, since the salt marsh was the spawning ground of a staple food of the inshore race of cod, the herring.⁷⁵

The Salt Marsh in The Maritime Economy

The function of salt marsh as a producer at the lowest level of the marine food pyramid has been explained by John and Mildred Teal in their Life and Death of the Salt Marsh.⁷⁶ Briefly, an acre of salt marsh captures three times as much solar energy as an acre of corn, and produces about ten tons of organic matter per year, or two and one-half times the product of prime hay fields.⁷⁷ The annual production and decay of salt marsh flora (especially the grasses *Spartina patens* and *Spartina alterniflora*) and other simple salt marsh animals, provide nourishment for countless bacteria and algae, which in turn fall prey to countless grazers and predators which in turn feed the fishes of the salt marsh. Among these fishes are species of herring, especially alewives, which in turn are important food for some races of cod and their near relations at certain times of the year.

⁷⁵ G. Brown Goode, American Fishes (Boston: L. C. Page, 1887, 1903 rep.) pp. 339-40.

⁷⁶ John and Mildred Teal, Life and Death of the Salt Marsh. (Boston: Atlantic Monthly Press, 1969).

⁷⁷ *Ibid.*, pp. 198-200.

The destruction of substantial areas of salt marsh, combined with the annual harvest of marsh hay in adjoining marshes, must have disrupted the food chain and caused some reduction in the groundfish species immediately offshore. By the same token, the presence of vast untouched areas of salt marsh between Ipswich and Saco, especially in the Great Bay, must have been the ecological basis for the enduring cod fishery based on the Isles of Shoals, which lasted nearly into the 20th century. According to the Teals, "only tuna, haddock, yellowtail flounder and ocean perch, among the twelve most important kinds of fish and shellfish...are not associated with estuarine waters."⁷⁸ A more recent study of estuarine ecology states that "ecologically, river herring (alewives) appear to be important energy links between zooplankton and predatory fish."⁷⁹ One may extrapolate from this that degradation of the salt marsh destroys the spawning ground of non-migratory estuarine fish such as *Fundulus heteroclitus* (mummichog) and *Menidia menidia* (silversides). It thereby destroys a seasonal feeding ground for the migratory intermediate fish--especially *Clupea harengis* (herring) *Mallotus villosus* (capelin) *Scomber scombrus* (mackerel) *Pomolobus pseudoharengus* (alewife) and *Alosa sapidissima* (shad). Since these last serve to transmit the solar energy of the salt marsh into the various species of *Gadidae* (cod) and other demersals,⁸⁰ salt marsh destruction must depress the population of demersals in the immediate offshore area. There are corollaries to the estuarine portion of this study--farming, forestry and the effects of siltation--which will be treated further in a later chapter.

⁷⁸ Ibid., p. 207.

⁷⁹ Short, F. T., (ed.) The Ecology of the Great Bay Estuary, New Hampshire and Maine: An Estuarine Profile and Bibliography. (NOAA-Coastal Ocean Program publication, Durham, NH: 1992.), p. 121.

⁸⁰ Berrill, Michael & Deborah, A Sierra Club Naturalist's Guide to The North Atlantic Coast, (Sierra Club Books, San Francisco: 1981), pp. 223-33, 385-414.

We should remember here that in 1633 William Wood reported the inshore cod went "six or seven making a quintal" as opposed to the Newfoundland cod, which then went "fifteen to the same weight."⁸¹ By the time that Goode made his report, in 1887, cod weighed from ten pounds on average off Cape Cod to "twenty or twenty-five to a quintal" for those caught on trawl lines in the Gulf of St Lawrence, to "thirty or forty to a quintal when dried" from the Grand Banks, to one hundred to one hundred and ten to the quintal off the coast of Labrador. Goode had records of fish taken along the New England Coast in the nineteenth century weighing as much as 160 lbs, but they were unusual.⁸² Thus we can safely say that the average size of New England Cod had declined from 17 lbs in 1633 to ten pounds in 1887, or about 41 percent.

Goode drew on both scientists and fishermen for his information. Both professions concurred that the recent scarcity of cod along the New England shore in the 1870s was due to the destruction of tidal streams throughout New England by lumbering and manufacturing interests, tidal streams being, as we have shown, habitat for alewives, shad, herring, and mackerel, among others--the natural food of cod in coastal waters. The first such destruction had occurred in the 1640s, as Boston and its satellites wharfed and filled their waterfronts for their maritime industry, and dammed their tidal streams in part to saw lumber for their export cargoes. The first reported local shortage of cod was in 1647-1651.

Of corollary importance were weirs. The autochthonous peoples had kept weirs in many of the coastal rivers, some of them for hundreds of years. But their annual harvest was modest, compared to the incessant demands of the English. Indians used their weirs to provide for themselves directly or for their

⁸¹ Wood, William, New England's Prospect, p. 53.

⁸² Goode, G. Brown, American Fishes, pp. 347-8.

planting ground. They harvested only a small percentage of the fish that came through each year; for them, the fish were food, not capital.

For the English colonists, the fish were capital, just like clapboards and staves. In a specie-scarce economy, a shallop or a house could be bought with fish and clapboards. They caught all the fish they could, and what they didn't use for food, fertilizer or bait they exported in exchange for credit against foreign products. In 1632 the men of Watertown built a weir on the Charles River, where they "took great store of shads."⁸³ William Wood's report, mentioned above, suggests that Winthrop's "great store" was substantially more than the population of Watertown could consume; they must have exported them, perhaps to Boston. In 1633, when the Court granted Israel Stoughton weir rights on the Neponset River, it was on the condition that he sell the plantation alewives at 5s or less per thousand.⁸⁴ The English weren't letting many fish go by. The next year the people of New Town (Cambridge) were permitted to build a weir on the Winotomy River, Stoughton was given hereditary tenure of his weir, and Governors Craddock and Winthrop were given hereditary rights to a weir on the Mystic River at Medford.⁸⁵ In 1635 the General Court granted Mssrs. Dummer and Spencer liberty to set up a mill *and weir* at the falls of the river in Newbury.⁸⁶ In 1637 Indians sold their weir at Concord to the men of the new settlement there.⁸⁷ Two years later the town of Weymouth was granted a weir right "where it will not prejudice the right of any other."⁸⁸ But in that year, 1639, the General Court instituted a conservation law for the weirs, perhaps noticing

⁸³ Winthrop's Journal, vol. I, p. 76.

⁸⁴ Dorchester Town Records, p. 5.

⁸⁵ Records of the Massachusetts Bay Colony in New England, Vol.I, pp. 113, 114, 127, 128.

⁸⁶ *Ibid.*, p. 145.

⁸⁷ *Ibid.*, p. 201.

⁸⁸ *Ibid.*, p. 263.

already that the population of anadromous fish was falling. They ordered that all the weirs in their jurisdiction "be opened from noon of the last day of the week until morning of the second day."⁸⁹ In 1645, when Richard Leader was negotiating to build an ironworks in Saugus, Thomas Dexter of Lynne granted him the right to divert the river in front of his house only if he would turn the water back into its old course during April and May--the season when the shad and alewives ran.⁹⁰

Counting other weirs elsewhere mentioned, there were already at least six commercial weirs operating in the Boston-Salem area by 1645. There were at least two on the Charles, one on the Saugus, one in Lynne, one on the Winotomy, and one on the Neponset. Taking a commercial harvest from these must have had a devastating effect on the food chain which supplied the fisheries off Boston Harbor. Putting dams in at the fall line further exacerbated the problem.

At the same time merchants attempted to monopolize the weirs in New Hampshire. In 1640 Exeter had ordered that "all creeks are free; only he that makes a weir therein is to have in the first place the benefit of it in fishing time; and so others may set a weir either above or below, and enjoy the same liberty."⁹¹ Four years later, however, the town granted Christopher Lawson and his heirs "the right to set a weir in the river of Exeter," provided they supply the townsmen with alewives to fish their land at 3s per thousand, country pay, and make flood gates "so that barks, boats and canoes may come to the town." The inhabitants were not allowed to set any weir below Lawson's.⁹² This did not sit

⁸⁹ Records of the Massachusetts Bay Colony in New England, vol. 1, p. 261.

⁹⁰ Suffolk Deeds, Vol. I, Lib. 71.

⁹¹ Charles H. Bell, History of the Town of Exeter New Hampshire (Boston and Exeter: Farwell Press and Charles H. Bell, 1888) pp. 47-8.

⁹² *Ibid.*

well with the rest of Exeter's inhabitants, and the next spring the town voted for Lawson's monopoly to be dissolved. "All the creeks for fishing this year are divided into three divisions by lot, eleven or twelve persons to a division according as the lots lie."⁹³

Much the same occurred in Dover, but there the townsfolk, fearing the grantees' political power, did not dare contest the monopoly. In April of 1644, the town ordered that Edward Starbuck, Richard Waldron & William Furber be weirsmen for Cocheco Falls and river for their lives, as long as they continue to be inhabitants. They were to pay a rent to the town of 6,000 alewives yearly, and the first catch was to go to the church. What fish was necessary for the church's use was to be delivered at 3s per thousand, at most. The first salmon was to go to the pastor or teacher. Each of the weirsmen was to have 6,000 fish for his ground. In order of preference, first the church officers, then all officers of the commonwealth, then the most ancient inhabitants were to be served with fish, 1,000 each. The weirsmen were to serve themselves right after the church had its share.⁹⁴ Since the weirsmen were church officers as well as ancient inhabitants, and Waldron, at least, had connections with the aristocratic absentee landlords of the town, their bases were well covered. This widespread commercialization of the weirs boded well for merchants, but it did not bode well for the anadromous fish, or their more valuable predators, the demersals.

Other Marine Fauna

The ancillary early maritime industries of northern New England cannot be followed as closely as the fisheries and shipbuilding, but there are sufficient

⁹³ Ibid.

⁹⁴ Alonzo Hall Quint, Historical Memoranda of Ancient Dover, NH, (Dover: Dover Enquirer, 1850-1888, reprinted 1900), p. 33.

records of them to include them in this study. Where fish were plentiful, non-human predators were plentiful as well, and provided secondary commercial targets for Europeans. It is certain that the North Atlantic sea otter was hunted nearly to extinction by the end of the eighteenth century. The walrus disappeared from New England waters during the eighteenth century, though in the Gulf of Saint Lawrence, where originally its population had been the greatest in the Atlantic, it persisted into the nineteenth century.⁹⁵ The New England sea mink, another marine fur-bearer, disappeared altogether in the nineteenth century.⁹⁶

Bay men had some direct hand in the disappearance of the walrus. John Winthrop recorded on June 24, 1635 that the ships *James*, Graves master, & *Rebecka* (Rebecca), Hodges master, had set off for Sable Island for walrus and wild cows. One John Rose had been wrecked there in 1632. He had gotten off in a pinnace made from the wreck of his ship *Mary and Jane*, and reported the island contained about 800 cattle. Winthrop also recorded the return of the expedition on August 26, having found few walrus, and only 140 cattle.⁹⁷ French walrus hunters had beaten them to it on this occasion. It seemed that with so few wild cattle, Sable Island would not become a new seat of buccaneers, but this early failure only whetted the appetite of the Bay men. On August 31, 1637, 20 men set out in a pinnace for Sable Island to take walrus, but were unable to find it. They returned and set out again, with a crew better versed in navigation, to spend the winter there.⁹⁸ Two years later, in June of 1639, the Bay men returned from Sable Island. A bark had set out to retrieve them on the 2nd of March, but was

⁹⁵ For the story of these marine extinctions--holocausts, really--see Farley Mowat, Sea of Slaughter.

⁹⁶ *Ibid.*, pp. 130-2.

⁹⁷ Winthrop's Journal, vol. I, p. 153.

⁹⁸ *Ibid.*, p. 231.

wrecked there, and they all returned in a smaller vessel built from her remains. They brought "store of seal oil and skins, and some horse (walrus) teeth and black fox skins," but not enough to compensate for the loss of the vessel. The adventurers concluded not to sail there before the middle of April.

Sable Island seemed to be very healthful; Winthrop noted they hadn't lost a man there in two years.⁹⁹ In 1641 the voyage was repeated with considerably more success. That summer Boston merchants again sent a vessel with 12 men to stay a year on Sable Island. For reasons not mentioned, in October they sent a 2nd trip of the year. This vessel returned in 3 weeks, bringing back the men from the station who had taken 400 pair of walrus teeth, worth £300, 12 tons of oil and many skins, which a storm forced them to leave behind on the island.¹⁰⁰ On the 21st of June, 1641, Thomas Lechford recorded a commission to John Webbe of Boston and his company to trade & do business at Sable Island in the bark *Endeavor* of Salem, Joseph Grafton, Master.¹⁰¹ This must have been the summer voyage Winthrop referred to, and suggests the Sable Island walrus population had attracted enough attention in the Bay colony to inspire a consortium including Boston and Salem--not the first of its kind, as we have seen with the Winthrop-Pierce-Hollingsworth collaboration described in the preceding chapter. The following year the Bay men made much greater depredation on the Sable Island fur-bearers, for Winthrop recorded in the summer that the Boston Adventurers to Sable Island brought back their men all safe, with oil, walrus teeth and hides, and seal and black fox skins worth nearly £1500.¹⁰²

⁹⁹ *Ibid.*, p. 307.

¹⁰⁰ *Winthrop's Journal*, vol. II, p. 35.

¹⁰¹ Thomas Lechford, *Notebook, 1638-1641*, p. 413.

¹⁰² *Winthrop's Journal*, vol. II, p. 62.

Sable Island would continue to support a walrus population until 1700 or so, thanks largely to the succession of wars with the Dutch and French, which prevented each nation from establishing permanent hunting stations. Along the North American coast these wars were fought largely by privateers, who made it very dangerous for private corporations to leave small groups of men exposed in isolated locations, particularly with a growing hoard of valuable commodities. Between wars the Bay men had made a good dent in the walrus population, though, and between them and their French rivals, they managed to exterminate the walrus population south of Nova Scotia in a little over a century. The last New England walrus, no doubt a straggler, was discovered and killed in Massachusetts Bay in 1754.¹⁰³

Had they already begun to make some impression among other marine mammals, as well? John Smith, in his history of New England, recounted

In the month of April 1614...I chanced to arrive at Monahigan an Ile of America...our plot was there to take Whales...we found this Whale-fishing a costly conclusion, we saw many and spent much time in chasing them, but could not kill any. They being a kind of Jubartes, and not the Whale that yeelds Fins and Oile as we expected...¹⁰⁴

Probably for lack of appropriate technology, in the first decade of the Bay Colony whaling was not active. Winthrop noted in his journal for April of 1635 that some of the Bay men had gone to Cape Cod to make oil from a beached whale, indicating that there was as yet no whale fishery.¹⁰⁵ However, by 1641 Aspinwall noted in his records a detailed breakdown of Samuel Maverick's freight debt for ten hogsheads of whale oil delivered to Bristol, suggesting that either an active

¹⁰³ Farley Mowat, Sea of Slaughter, p. 308.

¹⁰⁴ John Smith: History of New England, pub. 1624, reprinted in Forerunners and Competitors of the Pilgrims and Puritans, Charles Levermore, ed., (Brooklyn: New England Society of Brooklyn, NY, 1912, vol. 2, p. 652.

¹⁰⁵ Winthrop's Journal, vol. I, pp. 148-9.

whale fishery was building, or that beached whales were providing export trade.¹⁰⁶ By 1650, it seems that whalebone was being imported for bodices, for in June of that year, Aspinwall notarized the delivery in Boston from the

Swallow, London, Wm Greene Master, dd for acct Wm Greene Mercht: inter alia 2,000 foot window glass, 10 cwt pewter, 100 doz hour glasses, 500 doz knives, 100 pr whalebone bodies (bodices).¹⁰⁷

The next month, Aspinwall notarized the delivery of 140 pounds of whalebone from the *Speedwell*, London, Dickery Carwithy Master, to Daniel Fairnaxe, merchant.¹⁰⁸ The fact that whalebone was being imported indicates first, that the domestic whale fishery had not been firmly established, and second, that there must have been sufficient demand to constitute an economic incentive to start one. The account books of George Curwen, a prominent Salem merchant of the time, (linked with the Hollingsworths, QED) show occasional sales of small quantities of whalebone, apparently a few ounces at a time. Most of his sales were to fishermen, however, and it would seem that the greatest demand for whalebone at the time may have been for netting shuttles to make fishing nets.¹⁰⁹ Certainly there are relatively few entries for whalebone in

¹⁰⁶ Aspinwall Notarial Records, pp. 71. In Bristol, 6th May, 1641: Mr. Samuel Maverick of Noddles Island in New England Mercht is debtor, To ffreight Custome & all Charges on 10 hhs. whaleoyle received out of the William & John of Bristol paid as followeth:

To ffreight	£06.....05s.....00d
To Custome fees	01.....05.....00
To Sherriff for custome gageing & other duties of the Citty	00.....07.....08
To Selleridge	00.....08.....09
To landing & haleing to the seller with Porteridge	00.....04.....06
To hoopeing at 4s p tonn is	<u>00.....10.....00</u>
	£09.....00s.....11d

¹⁰⁷ *Ibid.*, p. 414.

¹⁰⁸ *Ibid.*, p. 417.

¹⁰⁹ Essex Institute, Curwen Family Papers. mss account books, vol. I, pp. 55, 66, 70, 72, 77, 78, 82, 103, 106, 114, 137, 138 with price of 4d; 146 with price of 3s 1d; but see p. 150 for whalebone in the

commercial quantities, even for a single tailor. At any rate, we cannot conclude from the evidence that the maritime industries of the Bay Colony and its satellites in the mid-17th century were making a measurable impact on the whale population, although the market for whalebone was growing.

There was, however, a brief seal fishery on the Maine coast. There is very little direct evidence of it, but it clearly was established. We recall that the 1639 expedition to Sable Island returned with "store of seal oil and skins," as well as walrus teeth, as did the expedition of 1642. In addition, the York County deeds for 1639-40 show that on 10 Jan., 1639-40,

John Lander of Piscataqua, sealer, and John Billine of Piscataqua, fisherman divided a shallop, house and land between them, Lander receiving the starboard side of the shallop. ¹¹⁰

On May 16, 1639 (probably) Lander & Billine, lately of Trelawney's Richmond Island fishing station, had been granted 6 acres of land at Braveboat Harbor, and apparently they found it expedient to make a formal division of their property. If nothing else, it makes an interesting intellectual exercise to imagine the two of them exercising their respective professions simultaneously from that shallop. We hope the fish kept to port, the seals to starboard. Lander's subsequent appearances in the record indicate that he had changed professions again, and returned to fishing. Perhaps the seals favored the wrong side of the boat, but more likely they were hunted to local extinction.

amount of 3 pounds ten ounces, valued at 11s, and an entry for "4 whalebone" pp. 153, 155, 158. Also for the same general period, *Ibid.*, vol. II, pp. 13, 24 to value of 1s 2d; p. 28 to value of 8d; p. 65; p. 75 for a quarter whalebone at 8d; p. 92 to the value of 4d. All transactions between 1653 & 1656.

¹¹⁰ York Deeds, court records, vol. 1, Part I, fol. 10.0.

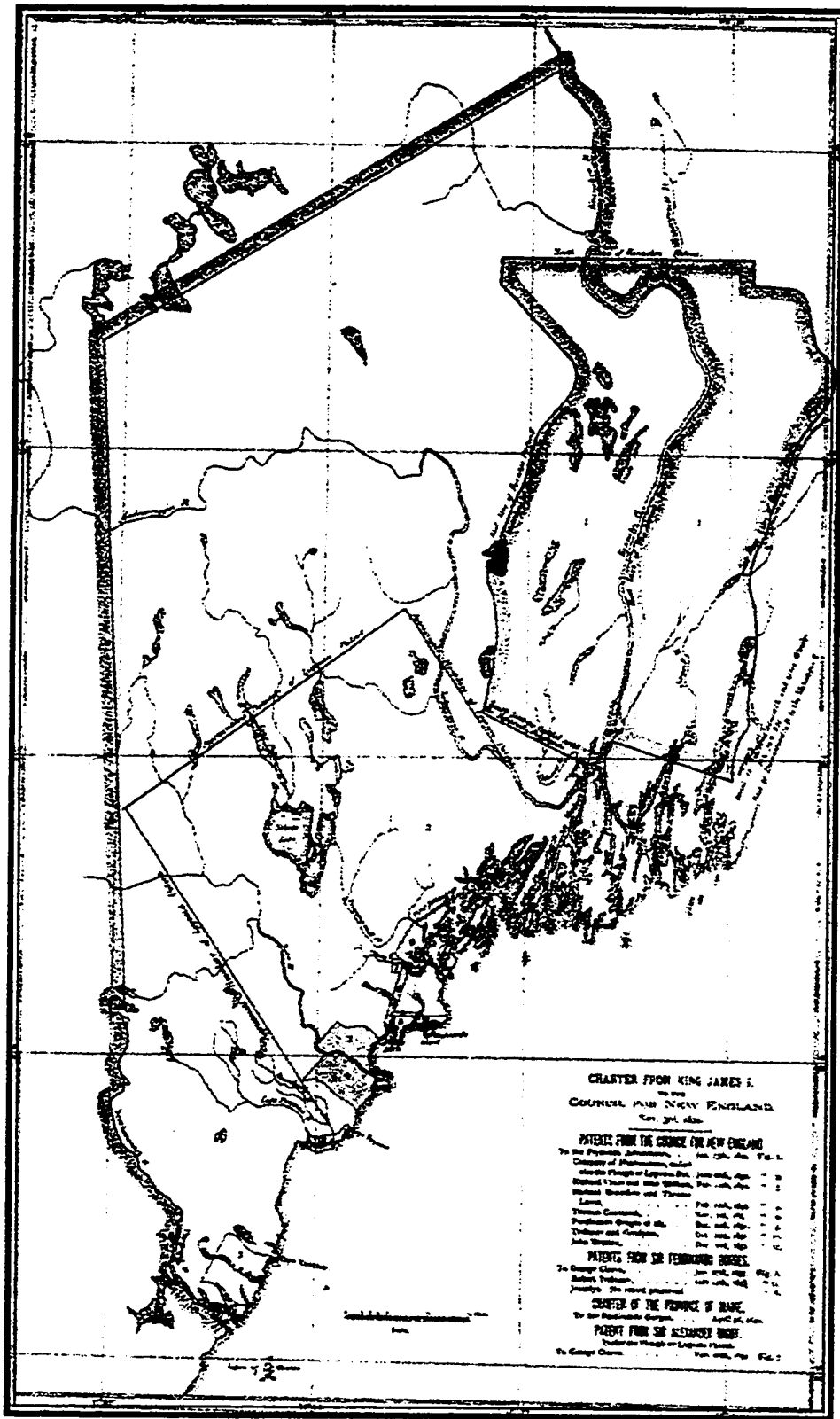
Coda & Introit

This apparent digression into aspects of the maritime industries other than shipbuilding and fishing, and their impact on the environment, is a reminder that as early as the second decade of the Bay Colony, several maritime industries formed an interrelated base for the New England economy. Shipbuilding was perhaps the most capital- and labor-intensive, and therefore most obvious of the maritime industries which arose in the first two decades of settlement in Northern New England.

However, by 1650 a complex array of maritime industries was already changing not only the visible environment, but was affecting natural resources, the legal system, the economic system, and political, social and commercial relationships. Conversely, the changing environment affected those industries and the political, social and economic systems built up around them. Fisheries were already diminishing in the Bay but still plentiful along the disputed coastline eastward. The economic necessities of the maritime economy would drive Massachusetts expansionism and occupy Massachusetts capital for the next century and a half. They needed to control adequate fisheries resources, and to preserve local timber resources for shipbuilding while securing forest resources elsewhere to harvest for exportable clapboards and staves. In this quest, the Bay Colony would conduct wars, seize land, defy the King, change New Hampshire for at least two generations, and shape Maine's destiny into the indeterminate future. The Bay Colony would win her contest with the Royal prerogative, control all of the northern New England coast to Cape Breton for awhile, and 1745 she would conduct an independent military campaign against the French to protect her fishery resources. Boston mercantile interests retained political control of Maine, which contained the best natural resources, long after they had

lost the rest of their former domains in New Hampshire, New Brunswick and Nova Scotia.

Maine would not regain its political independence until 1820. Moreover, Maine would never completely emerge from the shadow of Massachusetts power and capital, even after the last Puritans had rejoined the Episcopal church and removed from Beacon Hill to the suburbs. To this day natives along the coast downeast preserve a strained relationship with Boston.



Map 3, "Charter from King James I," by James P. Baxter, 1885, (courtesy of the Maine Historical Society.)

CHAPTER FOUR

THE SCYLLA OF GRACE, THE CHARYBDIS OF MAMMON: AN ECOLOGICAL INTERPRETATION OF PURITAN EXPANSION 1630-1675

If, say they, there be so many plantations, there will be no room in the country for such ships as do come yearly to make voyages, and by this means ships shall lie still and decay, mariners and fishermen shall want employment, and so all will be out of frame if ever we have wars.

I answer, that if these things were thoroughly examined by his majesty, the parliament, or council-table, it would plainly appear, that the most of them which keep such ado against plantations, are the greatest enemies to the public good, and that their shew of care for the commonwealth is nothing but a color, for the more clearly concealing of their unknown profits...whereas now none doth take the benefit, but a few merchants...not one of a thousand. By plantations, not only all the merchants in the land, but all the people in the land may partake thereof.¹

Between 1630 and 1675, the Massachusetts Bay colony expanded its territory dramatically. This expansion must be explained not just in terms of political or religious triumphs, but as the gradual fusion of the City on the Hill with the Counting House on the Wharf, and the consequent methodical accumulation of natural resources to benefit both. Charles F. Carroll treated this subject in one chapter of The Timber Economy of Puritan New England, and Bernard Bailyn approached it in The New England Merchants in the Seventeenth Century. Although they each present a good portrait of the issue from different perspectives, their work neglects some important aspects of the

¹ Christopher Levett, A Voyage to New England Begun in 1623 and Ended in 1624 (London: 1628. Reprinted MAHS series 3, vol. 8), pp. 184-5.

relationship between counting house, government and natural resources. Neither Carroll nor Bailyn gives the nexus of environment and economy a rôle in the evolution of the General Court, though evidence suggests that environment and economy were as influential as the Puritan dream in forming the General Court. Bailyn's work doesn't mention significant early influence of the merchant community on Massachusetts' expansionist policy, and the merchants' connection with Governor John Winthrop, which I will discuss in this chapter. He also does not give sufficient weight to the importance of trade with the Newfoundland fisheries in the early years.² Carroll dismisses both the importance of the fisheries to Massachusetts Bay in the first half of the seventeenth century,³ and the growing importance of shipbuilding as an export industry, which will be discussed in the next chapter. Much work remains to be done on the relationship between the Puritan expansion, merchants, the General

² Bernard Bailyn The New England Merchants in the Seventeenth Century, (Cambridge: Harvard University Press, 1955). Bailyn doesn't mention it, but Captain John Mason, Sir Ferdinando Gorges' partner in the patent of Maine, had been Governor of Newfoundland, and at least one of Gorges' fishermen in 1619, Thomas Dermer, had spent two years at Newfoundland (Pioneers on Maine Rivers, p. 18). Bailyn says the New Englanders started trading to Newfoundland in 1645, but five years before that John Bodington, a Boston merchant, had bound himself to pay Richard Russell, a Charleston merchant, £80 in codfish at Newfoundland. Bailyn gives Hugh Peters the credit for conceiving of a New England fishery, which he thinks "was not fulfilled." (New England Merchants, pp. 76-7) He states that the fishery was again "put forward in 1640 by Matthew Craddock; apparently Bailyn was unaware of Craddock's earlier endeavours under the leadership of hired foreman Isaac Allerton, who, according to Winthrop's Journal, vol. I, pp. 119-20, had eight boats fishing at Marblehead in 1634. They were all living in one of Craddock's buildings when it burned on February 1, but Winthrop noted they were still fishing on February 22.

³ Charles F. Carroll, The Timber Economy of Puritan New England. (Providence: Brown University Press, 1973). Carroll states that in the 1630s "the export of fish and timber...were of little importance south of the Merrimac." (Timber Economy, p. 75) This neglects primary source material about fishing in Salem and Marblehead, and the letter of 1631 referring to "our fishing trade which is sufficiently well known..." (Saltonstall Papers, vol. I, p. 117). It is also inconsonant with the repeated town ordinances before 1641 restricting tree felling and regulating clapboard, stave and shingle rieviers in Salem and Dorchester.

Court, the maritime economy and the environment in northern New England. This chapter presents a small piece of that work.

As the General Court brought more territory under its jurisdiction, the great merchants of the Bay area were never far behind, sometimes just ahead, and eventually indistinguishable from the Court, using the Court's authority to acquire both new natural resources and the means of processing them. The General Court did not immediately establish religious hegemony in the new lands, was unable to maintain religious hegemony where it was finally established, and eventually had to withdraw politically from its acquisitions in New Hampshire. Merchants, however, gained great influence over the General Court, and through it, lasting control of some of the fisheries, and many of the forests and millsites of the northern New England coastal ecotone. Those eastern grants and settlements became economic colonies of the Bay for nearly two centuries.⁴

Voices Arguing In The Wilderness: Two Cultivars of Capitalism Conflict

The New England Council and its predecessor, the Plymouth Council, were not homogeneous groups. Their various members had different plans for New England, none of which had been cleared with the indigenous peoples, and some of which the disparate factions had not cleared with each other. Between the initial settlements and the English Civil War, the Council divided along religious and geographic lines and the colonies of the two sides became virtual

⁴ The last part of Maine was annexed through purchase in 1663; Maine remained under

antagonists. When the Civil War came, the cavaliers also lost in New England, much sooner than in England.

But there were more than political and religious differences. The principal factions of the Council had differing concepts of capital management and resource exploitation. The colonies begun by West-country aristocrats remained focused on returning products and profits directly to the mother country, and conceived of their colonists, whether fishermen or woodsmen, as employees contracted to work for the grant-holder for a certain time-span. In contrast, Puritan merchants centered on the Boston-Salem political axis built trade empires incorporating all Atlantic trade routes, trading wherever they could to bring profits home to themselves in Massachusetts Bay. Their system, which increasingly competed with the home companies' centralized capitalism, utilized the profit-motivated labor of other colonists as another resource that provided them with the fish and forest products they exported, the casks in which they were packed, and the ships in which they were carried. Their contracts were not for labor over a given time-span, but for delivery of a fixed amount of a well-defined product by a certain date. For awhile there existed in effect two competing versions of proto-capitalism side by side, the one essentially feudal and paternalistic, and the other a pragmatic, experimental and flexible form of outsourcing.⁵

Massachusetts control until 1820.

⁵ The Trelawney Papers, on the one hand, document the failure of an attempt to combine capitalism with feudalism in order to extract a profit from undeveloped land with subordinate labor. Notable in contrast are many individual contracts such as that (Lechford's Notebook, pp. 94-100) between William Tyng, a Boston Merchant, and John Reade, a Weymouth planter, for Reade to

Matthew Craddock, the absentee governor of the New England Company, may have set an example for the Bay men with his ecumenical approach to investing in New England's natural resources. In 1629 he had helped finance Endecott's incursion into Salem, and had arranged for the fishing and shipbuilding to be divided by halves and by thirds between the colonists and himself with his partners. In this kind of partnership between capital and labor there was always a profit motive for the men in the colony, but Craddock and the merchant capitalists who financed the operation were guaranteed a portion of any profit so gained. (See Appendix D for the company directive to the Salem station). Within five years of Endecott's arrival, Craddock had a shipyard building ships for him in Mystic,⁶ fishermen fishing for him at Salem under Isaac Allerton,⁷ Richard Williams contracting for him with two rieviers to rive clapboards on Richard Vines' grant in Saco,⁸ and he had been granted co-ownership of the weir at Mystic, along with John Winthrop.⁹ The weir must have provided his Salem fishermen with bait, they in turn provided him with codfish, the Saco operation provided forest products, and the Mystic shipyard

manage and improve Tyng's farm in exchange for half of the increase, Tyng agreeing to stock the farm initially. See also the contract (Ibid., p. 162) between David Offley of Boston and Samuel Hosier of Watertown "that they shall & will be partners together in procuring sturgeon to be taken and cured and sold at Yarmouth in New England or elsewhere for & during the space of four years from the day of the date hereof." Another example is the proviso (Aspinwall Notarial Records, pp. 300-1) in the indenture of the ship Gift of God, at Piscataqua and bound for Guinea, Africa, that each seaman might take aboard £200 worth of goods to trade on his own account "provided they buy no negroes."

⁶ William Wood, New England's Prospect, 1977 reprint, p. 61.

⁷ Winthrop's Journal, vol. I, p. 119.

⁸ Maine Province and Court Records, vol. 1, pp. 96-101.

⁹ Records of the Massachusetts Bay Colony in New England, Vol. 1, p. 113.

contributed vessels to transport both fish and clapboards. Craddock's eclectic enterprises set an innovative example for the neophyte merchants of the Bay colony, though he himself never came to the country!

Other merchants would feel their way into similar multiple enterprises, but through production contracts with fishermen, shipbuilders and woodsmen. Starting as merchants or shipbuilders, they acquired ownership (often fractional, sometimes fractious) of ships (occasionally building their own), and as the Bay expanded its political control over new territories, they added mills, fishing stations, and forest lands.

These merchants soon realized that although fish and forest products were their best bulk trade goods, the local natural resources in the Bay area would not long supply the demands of the international markets they were developing. Not that they weren't there in plenty, but in each newly formed town, far-sighted selectmen made ordinances to preserve the timber on the common lands for shipyards and building construction. At the first or second town meeting, they invariably restricted access to common lands to the town's inhabitants--that is, to shareholders in the town who would be entitled to receive future divisions of town land--and limited even those men to specific numbers of trees from the commons.¹⁰ Soon thereafter each inhabitant had to apply to the town for liberty to cut specified numbers of trees on the common, and eventually commons trees could not be cut for transport beyond the town; only timber on private lots could be cut for export. Widows also occasionally received permission to cut clapboard,

¹⁰ For a superlative account of the political-economic process of town formation, see John Frederick

and eventually, some towns began to levy a fee per tree cut with permission, and a fine per tree cut without permission.¹¹ With the market for forest products growing, therefore, the merchants had to find other sources of raw material. The same was true of the fisheries, which were more immediately vulnerable to local environmental changes, and could therefore fail locally, as we saw in the last chapter.

Town ordinances that restricted cutting in the common forest may have kept timber harvests below the regenerative capacity of the forest. It certainly maintained a steady local supply of timber for the first century or more in some cases, as we shall discuss in the next two chapters. But leading merchants, seeing their local sources of timber carefully rationed, and the local fisheries declining, began to acquire those exportable resources within the lands of rival patent-holders to the northeast. Starting at the Merrimack, in a slow but inexorable wave of expansion they began buying woodlots, mill interests and fishing grounds farther and farther east.

Martin, Profits in the Wilderness.

¹¹ Dorchester Town Records, pp. 5 (1633); 8 (1634); 14 (1635); 25-6 (1637); 41 (1639); 44 (1640); 45 (1641); 53 (1644); 289-90 (1645); 84 (1656); 91 (1657); 108 (1661); 112, 115 (1662); 121 (1664); 139 (1666); 141-2, 149 (1667); 155-6, 158 (1668); 160, 163-5 (1669); 167-8, 173-4 (1670); 178, 182 (1671); 185, 188-91 (1672); 194, 196-7 (1673); 199, 204-5 (1674); 209-10, 212, (1675); 213-15 (1676); 218-23 (1677); 227-9, 233 (1678); 235, 238-40, 244 (1679); 248 (1680). In 1641 Cambridge petitioned the General Court to preserve its wood from Boston poachers, (Lechford's Notebook, 1638-1641) p. 411-12. For Salem, see Salem Town Records vol. 1, pp. 14 (1635); 17-8, 30-1, 34, (1636); 107 (1640); 112 (1642); 196-8 (1656); 219 (1658). *Ibid.*, vol. II, p. 14-6 (1661); 105-7 (1669); 115-9 (1670); 166, 179 (1673); 282 (1678). Winthrop Papers, (Boston: MAHS, 1944), vol. IV, p. 304-5; the 1641 letter from Hugh Peter and Emmanuel Downing to John Winthrop. For Dover see Alonzo H. Quint, Historical Memoranda of Ancient Dover, NH, pp. 32 (1642); 34 (1647); 35 (1648); also NHHS Series, vol. 11, p. 530 (1652). For Exeter, NHHS Series, Provincial Papers, vol. I, pp. 138-43 (1639-40); also Charles H. Bell, History of the Town of Exeter New Hampshire, pp. 51-3 (1640-1673) from mss records of the town of Exeter.

The Bay Colony authorities sitting on the General Court nearly synchronized their political movements with the capital flow of their principal merchants. They increased the Bay Colony's demographic capital as well as natural resources, by siezing political control and establishing Puritan hegemony in a rolling series of peaceful coups d'état. These coups were sometimes prepared by the Bay's own fifth column of religious or political sympathizers who, after establishing some economic presence in an area, proceeded to invite the Bay to "protect" them, as they did in the Piscataqua area. The result was always the same for the Bay merchants; they gained access to new natural resources for which local harvesters could readily be found. But the smaller merchants and woodsmen of the satellite areas also benefited, because, as Carroll points out, Massachusetts' hegemony meant they were able to secure the backing of the most powerful legal system in New England to regulate contracts and facilitate lawsuits. This legal resource enhanced the salability of their products, increased the value of their labor, and attracted merchant investment capital from the urban nuclei to the frontier outports.

Earliest Settlements

In the initial scramble for New England, Westcountry merchants and freelancers at first had seemed to have the initiative. Although the Council for New England had appealed to the Westcountry towns to provide official settlers, who would take up land under Council grants, few merchants from that region apparently thought it necessary to secure licenses from the Council to do what

they were already doing anyway. That would later prove to have been a mistake, when it came time to defend their property improvements against interlopers armed with legal documents.

Meanwhile Thomas Weston and one Captain Wollaston landed with their own retinues at Wessagusset and Passonagesit, modern Weymouth and Braintree. When Wollaston left for Virginia, his establishment and remaining people at Mount Wollaston were taken over by the infamous Thomas Morton, who may have had a legitimate patent of his own.¹²

By 1623 the Council for New England had issued five known patents. These included one to Captain John Mason for Cape Ann, and another to Mason and Gorges for the province of Maine (defined then as the lands between the Merrimac and the Kennebec, and which they then split between them). A third was given to David Thompson for 6,000 acres and an island at the mouth of the Piscataqua. A fourth, including Agamenticus, was granted in tenure by knight's service¹³ to Sir Ferdinando Gorges' son Robert, and a fifth, for 6,000 acres, was granted to Christopher Levett at a spot to be chosen by him. (He eventually settled in Casco in 1624).¹⁴ In 1622 Robert Gorges also received a patent by knight's service to what then was called Massachustack, boundaries unclear but extending ten miles into the interior, and three noble members of the Council

¹² C. M. Andrews, Colonial Period of American History, vol. 1, p. 333.

¹³ Held of the King by the sword: the grantee promised to provide four able men to serve the governor general on demand. *Ibid.*, p. 336.

¹⁴ *Ibid.*, also Wilbur D. Spencer, Pioneers on Maine Rivers, pp. 219-20.

received "dividends" of land from the Saco River to Pemaquid, which they never improved or even saw.¹⁵

At Agawam (Ipswich) lay a settlement established by Captain John Mason under a previous Council of Plymouth Grant from March, 1621-22. Mason's steward here was Ambrose Gibbons, a Plymouth (Westcountry) man.¹⁶ This settlement, on the best harbor between Cape Ann and the Piscataqua (the Merrimac having a very strong current), controlled the coastal fisheries between Cape Ann and the Isles of Shoals, as well as the southern approach to the Merrimac. Mason would have chosen it for this purpose; he had lived among the great and often contested fisheries in Newfoundland, as we have seen earlier. Lying north of Mason's grant at Agawam/Ipswich, and extending from the Merrimac to the Sagadahoc,¹⁷ was that grant obtained by Mason and Sir Ferdinando Gorges in August of 1622, which constituted (among other things) the province of Maine.¹⁸

Some of these grants were conflicting, and apparently reveal already-existing disagreements within the council. In the middle of October 1622, the Council had made the grant of 6,000 acres to Scottish apothecary David Thompson, which he had then taken in 1623 at Great Island in the mouth of the Piscataqua, trespassing on land previously clearly granted to Mason and Gorges.¹⁹

¹⁵ C. M. Andrews, Colonial Period of American History, vol. I, pp. 336-7.

¹⁶ Wilbur D. Spender, Pioneers on Maine Rivers, p. 33.

¹⁷ "Sagadahoc" referred to that part of the Kennebec from the mouth to the confluence with the "Pejepscot," or lower Androscoggin.

¹⁸ Wilbur D. Spender, Pioneers on Maine Rivers, p. 35.

¹⁹ *Ibid.*, p. 39.

Unfortunately for Thompson, that same year Sir Ferdinando Gorges' son Robert started out to claim his grant in Massachusetts Bay, with the title of "governor" granted by the Council. He began on Weston's old site at Wessagusset/Weymouth, whence he proposed to make his presence felt as newly-appointed Governor of New England. During his residence at Weymouth, Robert Gorges dropped by Thompson's settlement at Piscataqua, and acting in the capacity of attorney for his father and Mason, persuaded Thompson to leave. Thompson removed to Winnesimet (modern Chelsea), soon to be renamed after Rumney Marsh in the Fenlands of eastern England.

Gorges and Mason were actively jealous of the fisheries along the coast of their territory, and unwilling to allow interlopers on their patent. But their attempts to monopolize that resource drew growing criticism in Parliament, where urban capitalist merchants were also represented, some of whom had for several years sent vessels seasonally to fish on the Maine coast. Of course the eviction of Thompson, a well-connected representative of the urban merchant class, aggravated the problem. This parliamentary contest would continue until Charles I prorogued parliament in 1628.²⁰ After the beginning of the Civil War, competition for fishing grounds would soon be as great as that for nearby forest resources.

²⁰ C. M. Andrews, Colonial Period of American History, vol. 1, p. 325.

The Old Planters

Young Gorges remained in New England for a year and returned to England, leaving his retainers to scatter through the area. One of them, the Rev. William Blaxton (Blackstone), settled on the Shawmut Peninsula where Boston now stands. Samuel Maverick settled at Winnisimmet/Rumney Marsh (modern Chelsea), in partnership with the evicted David Thompson, and eventually married Thompson's widow. They moved then to Noddle's Island in Boston Harbor, before emigrating to New Amsterdam to avoid further Puritan unpleasantness after the General Court fined Maverick a substantial sum without proving its case in the matter of Dr. Child and the merchant remonstrance to the General Court.²¹ Thomas Walford settled with his wife at Mishawum (Charlestown). John Balch went to Cape Ann (Mason's southern patent, regranted in 1624 to the Plymouth Colony,²² and successfully wrested from them by the Dorchester Company before being abandoned²³ and subsequently regranted to the Massachusetts Bay Company). Thence Balch went to Naumkeag/Salem, where the Dorchester Company had eventually settled their fishing enterprise, and which the Massachusetts Bay Company was soon to commandeer for their own fishing station.

It happened then that on the eve of the Puritan migration many of the best natural townsites in the Bay area had already been settled by freelancers,

²¹ Bailyn mentions this written insurrection in New England Merchants, p. 107. It can be followed step by step in the records of the Court for 1646 and later.

²² Wilbur D. Spencer, Pioneers on Maine Rivers, p. 40.

²³ C. M. Andrews, Colonial Period of American History, vol. 1, pp. 350-2.

stragglers or prior grantees. What is important is that all of these so-called "old planters" who did not have Puritan sympathies were ultimately either driven from their homes by Puritans or forced to submit to Puritan authority.²⁴ Blackstone, for instance, who had originally settled the Shawmut peninsula, was relegated by the General Court to a 50-acre plot there, and ultimately removed to the Narragansett area, where the Blackstone River preserves his name. Walford moved from Mishawam (Charlestown) to Portsmouth, to escape the oppression of the General Court.

A Saintly Foot in the Door

While Thompson and Robert Gorges were shifting around between the Bay and the Piscataqua, the members of the Plymouth Council had renounced their prior grants, and redrawn lots in the King's presence, without mapping the borders of their claims. In subsequent years more specific grants would be given. Cape Ann, previously granted to Mason, was regranted in 1624 to Plymouth Colony, as noted above. The Council for New England ignored both that grant and Mason's infant colony at Agawam/Ipswich in March 1627/8, when it made a grant to John Endecott and others, all Puritans or Puritan sympathizers, of all the land between a point three miles south of the Charles River and another point three miles north of the Merrimac River, extending westward to the Pacific Ocean. The course of the Merrimac was presumed to flow west-to-east; apparently, no Englishman had followed it to the northern bend, a topographical

²⁴ Ibid., pp. 340-1.

feature which would prove to Massachusetts' great advantage. At Cape Ann Harbor, now called Gloucester, fishermen from the Dorchester Company under Roger Conant had faced down Pilgrim claimants from Plymouth under Miles Standish, only to find that the excellent harbor was too far from the good fishing grounds of Massachusetts Bay to support a shore fishery. They had moved to Naumkeag/Salem, where their successful fishing station unintentionally provided an opportunity for the Puritan faction on the Council for New England, led by Endecott, to establish a toehold. The Puritan vanguard under Endecott had been sent ostensibly to join the Dorchester Company's fishing post at Salem, but once arrived they easily dominated the Dorchester men through weight of numbers, weight of finances, and Endecott's officially-delegated authority. When John Winthrop arrived, armed with a charter of dubious validity,²⁵ they quickly expanded to Charleston and Shawmut, establishing a Salem-Shawmut axis. This area was easy to control, the distance between the two villages being traversed in a couple of hours by boat in almost any weather. The direct route from Boston to Salem was a chord across an arc which comprised the seaside of a vast salt marsh, of inestimable value for farming, and til that time, for herring production.

²⁵ C.M. Andrews (Colonial Period of American History, vol. I, pp. 356-60) offers a persuasive argument that the charter was fraudulently conceived. At best, it was apparently a regrant by the Earl of Warwick of lands formerly granted to him in common with Lord Gorges, Sir Ferdinando Gorges and others in 1622. Warwick, possessing the seal, apparently passed the sealed patent to the Massachusetts Bay Company in the absence of the required quorum of members of the Council for New England, and unbeknownst to the other patent-holders at the time. This would not have been inconsistent with other Puritan behaviour regarding the tenth commandment, which does not specifically mention thy neighbour's land.

Salem had thus been the first to fall under Puritan rule, followed by Shawmut/Boston, and Mishawum, or Charleston. But by Winthrop's arrival in 1630, the New England Council had conferred more specific patents to Piscataqua, east and west Agamenticus, Cape Porpoise, Winter Harbor, Saco, Black Point, Richmond Island, Cape Elizabeth, Casco, Pejepscoot and Cushnoc (the last two being located on or along the Kennebec River). Thus the best fishing and forest reserves north of Cape Ann had also been granted at least once already to others when the Puritan settlement began to expand from the Salem-Shawmut axis in 1631.²⁶

Endecott, Winthrop and their General Court set about to remedy this. The Bay men had in their possession a patent of their own contrivance, and an agenda. It would seem that they intended from the first to establish an independent polity, with little regard for the rights of prior patent-holders.²⁷ The

²⁶ Readers with the desire, patience, prudence and grace to follow and unravel the tangled skein of grants and patents for New England will find it waiting for them in the Maine Historical Society Collections, Series 2, vol. 7.

²⁷ For Example, Suffolk Deeds, Liber 1, xiii, xiv: "I finde Mr Oldham's graunt from Mr. Gorge, is to him & John Dorrell for all the lands within Massachusetts Bay between Charles River and Abousett River, Cont in length by a streight line 5 myles up the said Charles River into the maine land north and west from the border of the sd Bay including all the creeks and points by the way and 3 myles in length from the mouth of the foresaid river of Abousett up into the maine land upon a streight line S: W: including all creeks and points, and all the land in bredth and length betweene the foresaid rivers, wth all prerogatives Ryall Mines excepted; the rent reserved is 12d on every 100 acres of land that shalbe used; Wm Blaxton Cler(ic), and Wm Jeffryes gent. authorised to put John Oldham in possession, having a sight of his graunt, this I found though I hold it voyde in lawe, yett *his clayme being to this you may in your discrection prevent him by causing some to take possession of the chief part thereof.*" (This is addressed to Capt Jo: Endecott Esq. Governor, Francis Higginson, Samuel Skelton, Francis Bright, John & Sam Browne, Sam Sharpe, Thomas Graves, & the rest of the *Council for London's Plantation in the Massachusetts Bay*, by those remaining in England at the time, probably including, (following the next entry): Richard Saltonstall, Isaac Johnson, Matthew Craddock (governor), Thos. Goff (deputy), George Harwood (treasurer), John Winthrop, Thos. Adams, Symon Whetcombe, Wm Vassall, Wm Pynchon, John Revell, Francis Webb. (Italics & boldface mine. Notice that the council had renamed itself, omitting from its new name any reference to the aristocratic West Country roots of the original members.)

economic basis for their New Jerusalem would be the natural resources of the coastal ecotone, and the concomitant maritime industries related to the fisheries and carrying trade. Identifying the rightful owners of those resources they intended to harvest did not seem to trouble them excessively. As one of their later critics suggested, Puritan philosophy was based on two premises: "Resolve first that the earth belongs to the saints; secondly that we are the saints."²⁸

Covering the Southern Flank

Morton's home at Passonagesit/Mount Wollaston/Merrymount, on the Puritans' southern border, had been invaded by Plymouth men under Miles Standish before Endecott's arrival at Naumkeag/Salem. They had deported Morton and tried to break up the settlement. In Morton's enforced absence Endecott paid Merrymount a visit and tore down his famous Maypole. (C. M. Andrews suggests that the underlying motive for these attacks was Morton's superiority at trading for furs, that is, Morton, by "going native" surpassed the Pilgrims and Puritans at employing or inspiring Indian labor to extract resources for trade.²⁹) Whatever the underlying motives, Puritans occupied Wessagusset/Weymouth but not all of the original settlers were driven out--they were merely incorporated under the Massachusetts' jurisdiction. Mount

²⁸ Quoted in 1851 from an earlier source, by Alonzo H. Quint, in Historical Memoranda of Ancient Dover, p. 22.

²⁹ C. M. Andrews, Colonial Period of American History, vol. I, pp. 362-3. For an account of these earlier settlements, see *Ibid.*, pp. 320-75, as well as Wilbur D. Spencer, Pioneers on Maine Rivers.

Wollaston was also occupied by new immigrants, but it is not clear whether or not any original settlers stayed on. Mount Wollaston's new settlers would soon give the Puritan autarchs trouble enough when they and their minister, John Wheelwright, evinced suspiciously Antinomian sympathies. But for the time being, the land between Boston and Plymouth was cleared of potential religious or political rivals, and just as important, of economic competitors.

Once they had protected their southern flank by driving out rival polities from Wessagusset and Passonagesit/Mount Wollaston/Merrymount, (Weymouth and Braintree) the Puritans could turn their attention northward. To accomplish this they managed to recharter themselves as the Massachusetts Bay Company, effectively giving themselves legal standing equal to that of their nominal parent, the New England Company, with this difference: most of the members of the Massachusetts Bay Company, along with their charter, were soon in Massachusetts, where they made up in numbers and weapons for what their customized charter might have lacked in legitimacy. Winthrop first offered the old planters the option of swearing the "freeman's oath" of loyalty to his Puritan government, but once the new arrivals had established themselves more firmly, the alternatives to church membership were loss of voting rights or leaving Puritan territory. Now, with de facto legal authority and with superiority on the ground, Winthrop and his General Court began to expand their jurisdiction. Although the initial expansion seems to have been inspired by a desire for geopolitical security, the leading men of the colony quickly granted each other

valuable lands north of Boston along the Concord River,³⁰ and the leading merchants were close behind them.

Turning North

The center was firmly in control, and the southern flank was protected. To the North, Ipswich/Agawam had been settled by stragglers from Mason's and Levett's settlements, on land originally granted to Mason, but later given to Endecott and his backers. On September 7, 1630, the newly-constituted Massachusetts General Court passed a secret order concerning Agawam. They decided "to command those that are planted there forthwith to come away."³¹

Conveniently for them, at about that time the Sagamore of that area appeared at the Court to complain about a raid by the Tarratines of Penobscot, during which they had taken away his wife for ransom. When Abraham Shurt of Pemaquid fetched her back for him, Winthrop's journal implies that the General Court ingratiated itself with the Sagamore either by paying the ransom itself, or by reimbursing Shurt.³² In the Sagamore's culture, that put him in the Court's debt. Paying it off would cost him his patrimony.

At the end of January 1632, Winthrop and some of his associates explored up Beaver Brook, a northern tributary of the Charles, until from the top of a hill

³⁰ Records of the Massachusetts Bay Colony in New England, vol. I, p. 229, 278, 345 for a total of 6,200 acres given to Winthrop, Dudley, Mrs. Winthrop, Increase Nowell and Thomas Allen between 1638 and 1641.

³¹ Massachusetts Colonial Records, 1-58. (From Spencer, Pioneers..., p. 43.)

³² Winthrop's Journal, vol. I, p. 67.

they could see "to the N.W. the high hills by Merrimack, above sixty miles off."³³ Perhaps that set Winthrop thinking about the resources of the Merrimac Valley. What is certain is that on January 17, 1633, the Court voted to begin a plantation at Agawam, noting that it was "the best place in the land for tillage and cattle, lest an enemy, finding it void, should possess and take it from us."³⁴ What they did not state outright, but implied with the word "enemy," was that Agawam/Ipswich was an excellent harbor, and its strategic location controlled not only their own approach to the shore fisheries from Cape Ann to Piscataqua, the Isles of Shoals and the eastern regions, but also controlled the southern approach to the Merrimac Valley, as before mentioned.³⁵ They would use the hypothetical "enemy" argument again and again, until real enemies appeared.

They got away with this overt land-grab, interestingly, through "the Lord's good providence," to use Winthrop's words. On February 22, 1633, just after the General Court had decided to occupy Ipswich, word had come from England that letters from the Bay Colony prejudicial to their good standing with the Royal government, which had been sent by discontented planters via Christopher Levett (the patentee of Quack/York/Falmouth/Casco), had been intercepted when Levett died at sea. Gorges and Mason, after acquiring possession of those

³³ Ibid., vol. I, p. 73.

³⁴ Ibid., vol. I, p. 98. He never identified the potential "enemy," but given subsequent Puritan behavior, we might assume the term included anyone, especially rival grantees, who disputed the claims of the Government of Massachusetts Bay.

³⁵ William Wood, NewEngland's Prospect, chap. 11: Wood's assessment of Ipswich, conceived before he left for England in August, 1633: "Agowamme...is one of the most spacious places for a plantation being neare the sea, it aboundeth with fish, and flesh of fowles and beasts, great Meads and Marshes and plaine plowing grounds, many good rivers and no rattle snakes. In a word, it is the best place but one, which is Merrimacke, lying 8 miles beyond it..."

letters, had with their faction on the New England Council (along with Sir Christopher Gardiner, whom the General Court had deported, and whose house the Puritans had then burned in 1630/31)³⁶ pressed the King for stricter controls over the Massachusetts men.

The Colony had escaped censure by the Privy Council only through the good offices of Winthrop's brother-in-law Emmanuel Downing, (who was soon to come over and be rewarded with large land grants,³⁷ as well as a monopoly on shooting waterfowl over decoys in the Salem area³⁸) and Capt. Wiggin of Piscataqua. Wiggin had originally come over as overseer for a Bristol company that had bought a two-thirds interest in the Hiltons' old patent on Dover Neck, on the Piscataqua. When Puritan sympathizers Lords Say and Brook, along with several associates under Sir Richard Saltonstall bought out the Bristol merchants, they had kept Wiggin on. He had visited the Bay several times, and had, in his new employers' interests, brought over a group of Westcountry settlers for Dover, whom he had initially landed in the Puritans' harbor at Salem, rather than at Mason's establishment on the Piscataqua. Wiggin's importees tipped the balance of political power on the ground in Dover in favor of the Puritan faction, and Wiggin was then on friendly terms both with the General Court in Boston and with their aristocratic allies on the New England Council. Downing was not only Winthrop's brother-in-law, but also related by

³⁶ New England's Canaan, p. 183, mentioned in Spencer, Pioneers on Maine Rivers, fn p. 45.

³⁷ For instance, Records of the Colony of Massachusetts Bay in New England, vol 1, p. 276, at the General Court, Sept. 9, 1639: "Mr. Emmanuel Downing is granted 600 acres of land."

³⁸ Ibid., vol. 1, p. 236.

marriage to a Peer of the Realm. Together Downing and Wiggin managed to head off royal intervention.³⁹

Perhaps, having dodged the potential problem of Royal disapproval for the time being, the General Court felt temporarily free to move, and thought they must move quickly. Within three months of the Court's decision to settle Agawam, John Winthrop Jr. had taken over Mason's settlement there, peopling it with twelve reliable Puritans.⁴⁰ Early that fall, the General Court gave John Winthrop Jr. liberty to establish a trucking house up the Merrimac River.⁴¹ Thus, in less than nine months, the Massachusetts Bay men had overrun a prior neighboring grant and extended their claims and jurisdiction right up to the border of the next patent, doubling their territory, and acquiring substantial timber and fishing resources, as well as water powers. The Merrimac was then renowned for its salmon fishery and its sturgeon.⁴²

John Winthrop Jr. made his acquisition of Ipswich official in March of 1638-39, when he got an acknowledgement from Maschanomet, the Sagamore of Agawam, that he had been satisfied by Winthrop's payment of £20 for all his land in that town, which apparently included Plum Island.⁴³ At that time the General Court reserved the island for itself (it was a substantial source of marsh hay, and excellent waterfowl habitat, but equally importantly the strategic

³⁹ Winthrop, Journal, vol I, p. 99.

⁴⁰ Ibid.

⁴¹ Records of the Massachusetts Bay Colony in New England, vol. I, p. 108.

⁴² Letters From New England: several references. The fishery was still important in 1816; see MAHS series 2, vol. 4, pp. 121-76.

⁴³ Records of the Massachusetts Bay Colony in New England, p. 252.

protection for Ipswich Harbor), while giving temporary use of it to Ipswich, Rowley and Newbury. The economic importance of the salt marsh was not lost on these men; many of them had come from that area around the Wash called the Fens, and had experienced recent losses at home through enclosures, diking and drainage by aristocratic interests.⁴⁴ The Court was reserving Rumney Marsh for grants to powerful allies who might come over, that they might be persuaded to stay in the Boston area, and the marshes of Plum Island and Agawam/Ipswich might similarly be a valuable asset. Endecott soon sent two men to discover whether or not a canal could be dug through Cape Anne, to give the Bay men protected shipping access to their new properties.⁴⁵ It could not, at that time. Concerned readers should be reassured that Winthrop Jr. did not long suffer for his generous transaction with the Sagamore of Agawam; the Court on the following November 5th ordered the newly-settled men of Ipswich to reimburse Winthrop for the £20 he had paid out, so he acquired the town scot-free.⁴⁶

The Puritans had just begun to expand. Although their next great acquisition was the Pequot country, beyond the geography of this study, it is relevant because one of the principal beneficiaries of that expansion, too, was

⁴⁴ See H. C. Darby, The Changing Fenland, (Cambridge: Cambridge University Press, 1983) pp. 1-102, for a history of the fenlands in the sixteenth and seventeenth centuries. Enclosure and drainage had nearly precipitated an insurrection in the early seventeenth century. Boston, Cambridge, and Rumney Marsh (modern Chelsea) were all named for cities bordering the fenlands. Rumney Marsh was the preferred location for grants to the gentry, and farms there were larger and wealthier on average. See Percy Wells Bidwell & John I. Falconer, History of Agriculture in the Northern United States 1620-1860 (Washington: Carnegie Institution, reprint New York: Peter Smith, 1941) pp. 30, 37. Taken from the Essex County Quarterly Courts, Records & Files vol. I. Probate Records vol. I. Also: Boston Tax Lists, 1st Report Boston Records Committee, 1876.

⁴⁵ Records of the Massachusetts Bay Colony in New England, p. 252.

⁴⁶ Ibid., p. 279.

John Winthrop Jr. At the beginning of the Pequot hostilities (instigated primarily by Bay men), Winthrop thoughtfully left Saybrook Fort (at the edge of Pequot territory) for Boston and his Ipswich holdings, and after the dust had settled, he returned to Connecticut to become governor. Now John Winthrop Jr. controlled tens of thousands of acres both northeast and southwest of the Bay. Here we will leave him for the moment and return our attention to the Merrimac area.

On To The North

The Merrimac proved no obstacle to Massachusetts expansion. Near the end of September, 1634, the general Court ruled that gentlemen coming from Scotland & Ireland should be given any unsettled land up the Merrimac River "to sitt downe."⁴⁷ This of course improved the value of Winthrop's 1633 grant, for it provided him with labor to improve the land around his trading post, and to manufacture forest products to sell to his merchant friends. Then in March of 1635-6, the General Court voted to begin a settlement at Winnicunnet, or Hampton. This lay north of that place three miles beyond the Merrimac (now Seabrook), where they had established a trading house at the previous limits of their patent. The Court empowered Richard Dummer and John Spencer, two powerful men in Newbury, to impress others into labor to build a house there "forthwith, in some convenient place..."⁴⁸

⁴⁷ Ibid., pp. 129-30.

⁴⁸ Ibid., p. 167.

They lost no time securing their new acquisition. In November of 1637, the inhabitants of Newbury were invited to take up a six-mile-square section at Winnicunnet or at any place on the Merrimac below the first falls.⁴⁹ In the summer of 1638, new arrivals in the Great Migration were sent to expand settlements at Merrimac (Colchester--modern Salisbury) and Winnicunnet/Hampton.⁵⁰ The Hampton settlement was a clear trespass on Mason's patent, as well as a trespass on the recent Exeter purchase. But now the Bay Colony controlled both sides of the Merrimac River, and Hampton was a valuable harbor for the inshore dry fisheries. This area would continue to supply Boston with timber, wood and fish through most of the next century, even after Hampton was restored to New Hampshire.

Then, in March of 1638-39, at the same meeting of the General Court in which they annexed Plum Island, the Court ordered one of its deputies, William Bartholomew of Ipswich, to carry letters to several prominent men of the Piscataqua area "about the east." The men to whom these letters were addressed were: Captain Wiggins, Captain Champernoone, Mr. Williams, Mr. Wannerton, Mr. Edw. Hilton, Mr. Treworthy & their neighbors.⁵¹ Those merchants comprised the majority of the prominent men on the Piscataqua at the time, and although the content of the letters was not recorded beyond "about the east," (the Court seems to have avoided leaving an explicit written record of any expansionist policy) past and subsequent events would suggest the purpose of

⁴⁹ *Ibid.*, p. 206.

⁵⁰ *Winthrop's Journal*, vol. I, p. 274.

that correspondence. Bartholomew must have been happy to do this, because both he and his brother in Salem were merchants, and ties with the Piscataqua would be profitable to each. Piscataqua was one place where a merchant could find a shipload of staves or clapboards without going through the selectmen of a town. The export of pipestaves through the merchants in Massachusetts Bay would become such a problem for New Hampshire that they would briefly forbid such exports in vessels belonging to Bay merchants, and then after 1640 encourage it as a means of supporting their own officials.⁵²

A week before the letters were sent, two Bay men had been given extensions of time to extradite two men from Piscataqua. To understand how this became part of the Bay Colony's expansion, we must go back to 1635, when Captain Wiggin, then governor of Piscataqua for Lords Say and Brook, had written to his friends in the Bay colony, inviting them to try two Piscataqua men for sodomy. At the time, the governor and Council, unsure of their jurisdiction

⁵¹ Records of the Massachusetts Bay Colony in New England, vol. 1, p. 253.

⁵² Charles H. Bell, History of the Town of Exeter New Hampshire, pp. 21-7: Edward Colcord, who lived variously at Exeter, Dover and Hampton between 1638 and 1682. He was a stave dealer. New Hampshire State Papers, vol. XXX, (NH: 1943) Court Records, 1640-1692. Court Papers, 1652-1668, p. 13: William Payne summoned at the suit of Clement Campian (Campion?) upon an action of the case for carrying pipe staves and masts into the Bay. Found for the plaintiff 3 principal twenty shillings damage and costs of court. See also Exeter Town Records, mss in Exeter Historical Society, p. 43, April 22, 1650: Ordered that every inhabitant of the town shall pay for every thousand of pipestaves they made two shillings which shall be for the maintenance of the minister. And for every thousand of hogshead staves 1s 6d. And for every thousand of bolts that is sold before they be made into staves 4s and also what is due from the sawmills shall be for the maintenance of the minister. Any who deliver any staves or bolts before they have satisfied the town orders to pay 10s per thousand staves, and 20s per thousand bolts. *Ibid*, p. 49, Dec. 5, 1650: Frances Swain and Henry Robey to bargain with any able merchant in the Bay to pay or cause to be paid unto Mr Dudley £40 in good English commodities in May next for his whole year's maintenance and to accept hogshead staves or pipestaves for the £40 worth of goods, the townsmen paying proportionately in staves.

and, probably, unsure of their power, had not thought it "fit to try them there."⁵³ Now, four years later, after securing Ipswich and the north shore of the Merrimac, the General Court began to cast a covetous eye on the Great Bay area of New Hampshire, where Bay merchants were already acquiring forest products. The advantage of being included in the judicial system in the Bay must have been evident to the woodsmen and small merchants of Piscataqua, because they quickly availed themselves of the Bay's legal services. In November of the year Bartholomew went as messenger to Dover, Edward Colcord and Lieutenant Richard Morris of Dover enlisted Thomas Lechford in the Bay to record their bond in the amount of £70:

to deliver to Stephen Greensmith 5,000 of clapboard 4 & one-half feet long and at the heart from 2 inches to 5 inches thick or upward every way merchantable & at any time after the last of March next within a cables length of the usual riding place of the ships just at the water's side at Piscataqua River's mouth & to find a boat or lighter to help put them aboard.⁵⁴

At about this time, the General Court had been ordered to send their charter back to England, the fame of their zeal having been carried to England by their victims. Several men who for their heresy had been "cast out" by the saints had found refuge around the Great Bay, among them the Reverend Wheelwright, who had settled Exeter. Among these exiles, a great irritant to the Bay was Captain Underhill, who was under suspicion by the General Court of having successfully coveted a number of his neighbors' wives, as well as having Antinomian sympathies, both of which failings overshadowed his brave performance in the Pequot War. To make things worse, a murderer under

⁵³ Winthrop's Journal, vol. I, p. 147.

sentence of death had escaped and found refuge at Piscataqua, where the locals refused to give him up. Winthrop noted in August of 1638 "It was their usual manner (some of them) to countenance, etc., all such lewd persons as fled from us to them."⁵⁵ Earlier, the General Court had abjured from usurping the legal autonomy of the Piscataqua; now they wanted extradition rights.

Of these irritations which the Bay felt from Piscataqua, sheltering Underhill, as an apostate heretic, may have been the most provocative. In November of 1638, Winthrop wrote to Burdet and Wiggin, whom he felt were potential allies, to remonstrate with them for "entertaining and countenancing, etc., some that we had cast out, etc.," and threatening "that our purpose was to survey our utmost limits, and make use of them." He also remonstrated with them for having aided Wheelwright in his settlement at Exeter.⁵⁶ Upon this threat to local sovereignty, Burdet returned "a scornful answer, and would not give the Governor his title, etc."

Noting that "this was very ill taken, for that he was one of our body, and sworn to our government, and a member of the church of Salem," Winthrop at first meant to summons Burdet from Piscataqua. He was dissuaded by his deputy, who argued that prosecuting Burdet would weaken the Bay's already-precarious position with the archbishops, and not help their case in England, while they were trying to avoid returning the charter. Choosing a less direct alternative Winthrop then wrote to Edward Hilton, an original founder of the

⁵⁴ Thomas Lechford, Notebook, 1638-1641, p. 223.

⁵⁵ Winthrop's Journal, vol. 1, p. 274.

fishing station on Dover Neck, warning him "how ill it would relish, if they should advance Capt. Underhill, whom we had thrust out for abusing the court with feigning a retraction both of his seditious practice and also of his corrupt opinions..." but he laconically entered in his journal "Piscataqua men had chosen him (Underhill) their governor before the letter came to them."⁵⁷ Clearly the time had come to bring Piscataqua under the Bay's jurisdiction, for practical as well as philosophical reasons.

Encirclement

Faced with such insolence coming from an area so rich in natural resources, the General Court conducted a rather brilliant campaign to acquire its northern neighbors. Winthrop's threat to make use of the Bay Colony's utmost limits had not been idle. Two months before Winthrop sent the warning to Burdet, the General Court had commissioned "Goodman Woodward, Mr. John Stretton, with an Indian & 2 others appointed by the magistrates of Ipswich (of whom one was John Winthrop Jr.) to lay out the line 3 miles northward of the most northernmost part of Merrimac, for which they are to have 5s a day apiece."⁵⁸ They may already have been at work on their survey when Burdet got the letter, because on the 6th of the following June, (1639) the General Court awarded Goodman Nathaniel Woodward £3 for his journey "to discover the running up of Merrimack; 10s more added by order of Governor & Deputy"

⁵⁶ Charles H. Bell, History of the Town of Exeter New Hampshire, pp. 11-13.

⁵⁷ Winthrop's Journal, vol. I, pp. 279-81.

(Winthrop Sr. & Dudley) and the four who went with him were to have 50s each for their 10 days' work.⁵⁹ Thus were the wheels set in motion that would roll over the New Hampshire patents, bring the area under the jurisdiction of the Massachusetts General Court, and give Bay merchants ready access to new forests and millsites.

Burdet of Piscataqua (who had displaced Wiggin as governor of the Dover properties of the Lords Say and Brook, and had been himself subsequently displaced by Underhill) wrote to England stating that the Bay Colony now aimed not at implementing law and order but at gaining sovereignty. One of the Bay's sympathizers or spies "having opportunity to go into Mr. Burdet his study, and finding there the copy of his letter to the archbishops, sent it to the governor..."⁶⁰ Thus Winthrop was apprised in advance of what he might expect from England.

The first ships of the year brought a letter from Matthew Craddock, the original Governor of the Council for New England, ordering Winthrop to send the Massachusetts patent home by the next ship for England. A gauntlet had been thrown down on each side, and once again the Bay prevailed "by God's good providence; for the letters (by some means) were opened."⁶¹ It's not difficult to surmise by what means the letters were opened. Winthrop simply ignored Craddock's letters, making sure that there were no disloyal witnesses to

⁵⁸ Records of the Massachusetts Bay Colony in New England, vol. 1. p. 237.

⁵⁹ *Ibid.*, vol. 1, p. 261.

⁶⁰ Winthrop's Journal, vol. I, p. 300.

⁶¹ *Ibid.*

their delivery, and arranged for it to appear in England as though he had never received them.

The issue now had to be resolved, because Exeter enjoyed close contact with the Dover plantation, and friction was growing between independent Exeter and the Puritan colony of Hampton over their mutual boundary. Edward Hilton and Thomas Wiggin had meanwhile moved from Dover to the Squamscot river, and built houses across from Wheelwright's settlement at the falls. There was some danger that a rival power center would form based on the rich forest land around the Great Bay of the Piscataqua and its rich fisheries just offshore, which might interfere with an otherwise promising potential source of forest products for the Massachusetts merchants' trade. Hypothetical enemies threatened again.

But the General Court had already taken the precaution of outflanking them on the coast. On the 22nd of July, 1639, an indenture had been made between Thomas Purchase, gent., of Pejepscoot on the one part, and John Winthrop, Esq., Gov., on behalf of himself, the Gov. & Company of the Massachusetts, on the other part, that gave & granted to

John Winthrop & his successors the Gov. & Company of Massachusetts, forever, all that tract of land at Pagiscott (Pejepscoot) aforesaid, upon both sides of the river Androscoggin, being four miles square towards the sea...so as they may plant the same with an English colony when they shall see fit, and shall have as full power forever to exercise jurisdiction there as the have in the Massachusetts; provided that ...⁶²

Purchase could retain those lands that he should make use of within the next seven years, and all residents there would be under the protection of the General

⁶² Ibid.

Court.. The indenture was signed, sealed & delivered as witnessed by Stephen Winthrop, Thomas Lechford and Amos Richardson.⁶³

Now the General Court, through a perfectly legal purchase, had secured a prime fishing area and protected anchorage beyond the settlements of their rivals in New Hampshire and Maine, who found themselves effectively surrounded by Puritan landholdings along the coast. Again one of the Winthrop sons had served the General Court as a cat's paw, to pull in another fledgling settlement with substantial natural resources. The Pejepscot was the lower part of the Androscoggin river, and encompassed a rich source of salmon and sturgeon as well as a substantial hinterland of timber and an excellent sawmill site at the fall line.

Meanwhile the survey of the Merrimac had established that that river providentially curved north, to a latitude beyond the patents of Mason and Gorges. The Great Bay area must be theirs by right of their patent, where *vacuum domicilium* failed. Already stave and clapboard rievvers, under contract with merchants in Boston, were making up cargoes on the tributaries of the Great Bay, and everyone knew about the masting potential of the Piscataqua pine swamps. The Massachusetts General Court would have to secure those resources for their merchants. In fact, by 1641 the steadily increasing number of merchants among the deputies and assistants to the General Court probably already made such an annexation inevitable.

⁶³ Records of the Massachusetts Bay Colony in New England, Vol.I, pp. 272-3.

Taking the General Court

We shall pause in our account of the annexation of New Hampshire to examine briefly how it came to pass that within fourteen years of the colony's founding, merchants comprised a plurality on the General Court, and were apparently influencing Court policy. As a preamble, in 1646 the General Court had allowed Alexander Beck £5 per year to support Sarah Thorne, who was "crazy."⁶⁴ We should not suppose that £5 was sufficient money to support an adult comfortably, but it might give us a lower limit for the cost of an adult's upkeep in the Bay colony at that time. With that in mind, we should remember that most years the Court granted the previous year's governor a £100 honorarium, with a lesser amount for the deputy governor. Since John Winthrop was one or the other nearly every year until his death, he received substantial sums of money from the Court almost annually, in addition to extensive parcels of land.

But in 1643 he gave 1260 acres on the Concord River and part of his "Ten Hills" farm in Charleston to his son John, Jr., to repay a debt of £150. He then mortgaged the rest of "Ten Hills" to William Tyng, Thomas Allen, Richard Dummer, Captain Gibbons, Captain Sedgewick, Valentine Hill, Richard Russell, Benjamin Gillom, Edmund Angier & Richard Parker "for & in consideration of divers sums of money wherein he stands indebted to them & divers others."⁶⁵

⁶⁴ Ibid., vol.2, p. 160.

⁶⁵ Suffolk Deeds, Vol. 1, folio 45.

The gentlemen mentioned were all wealthy merchants in the Bay. The following year Winthrop signed over his "mansion house, yards, gardens & orchards to Valentine Hill to satisfy a debt of £500 to him, "that being more than a third part of all that is due to all the creditors," and gave "Ten Hills" farm to the following other merchants: Richard Dummer, Thomas Allen, Richard Truesdale, Benjamin Gilom (Gillom), Richard Russell, Robert Sedgwick, Henry Webb, Anthony Stoddard, Timothy Hatherley, Susan Hudson (who signed with a mark), Edward Bendall and Robert Long as attorney for Mr. Axtel.⁶⁶ Winthrop had amassed debts of nearly £1650 in just fourteen years, and was now in the pockets of the great merchants. Valentine Hill even put Winthrop up in one of his own houses after foreclosing on the Governor's "mansion house." Edmund Morgan attributes Winthrop's enormous debt to the incompetence of his manager at "Ten Hills."⁶⁷ Winthrop had been brought up to manage landed estates, however, and must have had an idea of what was going on. He had, however, apparently spent some of his own money on state affairs, to avoid having to submit his plans to the scrutiny of the General Court.⁶⁸

The takeover seems to have happened swiftly. In 1640 William Tyng became the treasurer of the General Court. Tyng was a principal Boston merchant with ties to London, and the only one of Winthrop's creditors who

⁶⁶ Aspinwall Notarial Records, p. 211.

⁶⁷ Edmund S. Morgan, The Puritan Dilemma: The Story of John Winthrop (Boston & Toronto: Little Brown and Company, 1958), p. 175.

⁶⁸ *Ibid.*, p. 114.

never signed off on Winthrop's "mansion house" mortgage.⁶⁹ By September of 1643 Winthrop was already almost £1,500 in debt to Tyng and others; at the end of that year Tyng and six other merchant-adventurers, two of whom (Robert Sedgwick and Valentine Hill) were also among the mortgage holders on Winthrop's property, were given a monopoly on trade with the Indians of the great westward lake, should they discover it.⁷⁰ In 1645 Richard Russell, another great merchant and shipowner to whom Winthrop was in debt, replaced Tyng as Treasurer. In 1649, the year of Winthrop's death, Russell and three other merchants, two of whom (Sedgwick & Norton) had also been involved in the monopoly on Indian trade, received the franchise on wine imports for the next 4 years. A year later, the General Court, acknowledging that the country was in debt to Russell for £38:15:07, granted him the collection of £124:10:08 in outstanding taxes as payment, a return of more than 300% on his loan.⁷¹ There were certain advantages to being treasurer of the General Court and lending the Governor and Colony money.

By 1646, at least 18 of 37 deputies to the General Court were recognizably merchants, as were at least two of the Governor's assistants and the treasurer.⁷² Virtually all of the Bay Colony's share of transatlantic trade was controlled by Merchant deputies to the General Court. It should not surprise us, therefore, to learn that by the time Winthrop died the merchant deputies were manipulating

⁶⁹ Suffolk Deeds, Vol. I, Lib. 34.

⁷⁰ Records of the Massachusetts Bay Colony in New England, Vol.2, p. 60.

⁷¹ Records of Massachusetts Bay in New England, vol.3, p. 219.

⁷² *Ibid.*, p. 62.

the General Court to acquire new resources for their trade. Bernard Bailyn considered this connection between Winthrop and the merchants obliquely in his New England Merchants in the Seventeenth Century, but he did not mention the consequences of it for New Hampshire and Maine. In 1641 the merchant faction within the Court had been sufficiently powerful to keep one of their colleagues, the merchant-shipbuilder Thomas Hawkins, from being ejected by the Court for his "scurrilous speeches."⁷³ By 1646 the General Court was sufficiently controlled by merchants that they adjourned Court for a month to attend to their shipping:

Oct. 7, 1646: With respect to the extraordinary occasions that many members of this Court have, & the ships being suddenly to depart for England, wherein most have much to do, the Court was adjourned to the next 4th day of the 9th month, at one of the clock. By both Houses.⁷⁴

Given John Winthrop's life tenure on the Council to the General Court,⁷⁵ his default on an enormous debt to the merchants, and the concurrent growth of the merchants' remarkable power within the General Court, it is easy to understand their sorrow at his death.

Taking New Hampshire

The General Court initiated several measures which together secured the resources of the Great Bay area, and surrounded their nearest neighbours and potential rivals to the northeast beyond the Merrimac. About the same time that

⁷³ Ibid., vol. 1, p. 313.

⁷⁴ Ibid., vol. 3, p. 79.

⁷⁵ Ibid., vol. 1, p. 174.

Massachusetts began to develop designs on the Merrimac River, they had instigated a consortium that secured Hilton's old grants in the Piscataqua. The Lords Say and Brooke, Sir Richard Saltonstall, Sir Arthur Hazelrig, Mr. Boswill, Mr. Wyllys, Mr Whyting, Mr. Howett and others had bought out the Bristol merchants' recent purchase of Edward Hilton's two grants at Dover and Piscataqua for £2,450, "they being Writt unto by the Governour and Majestrates of the Massachusetts who Incouraged them to perchas the said Lands of the Bristoll men In Respect they feared some ill neighbourhoode from them."⁷⁶ (Again the hypothetical enemy argument.) Sir Richard Saltonstall had been a member of the original General Court that met on the *Arbella* on the way over in 1629, and two of the subsequent General Courts. He was no doubt instrumental in organising the capital to purchase the grants. After the grants had been safely in their possession for several years, Wyllys, Whiting, Makepeace and Holyoke, on June 14, 1641,

on behalf of the rest of the patentees, dispose(d) of the lands & jurisdiction of the premises as follows, being willing to further such a good work, have hereby for themselves & in the name of the rest of the patentees, given up & set over all that power of jurisdiction, or government, of the said people dwelling or abiding within the limits of both the said patents, unto the government of the Massachusetts Bay, by them to be ruled & ordered in all causes, criminal & civil, as inhabitants dwelling within the limits of the Massachusetts government...⁷⁷

In this they were no doubt encouraged by Saltonstall, who had seen the area and knew its potential. Perhaps their interest in the Squamscot patents was also a valuable trading ante for Connecticut land, for Whiting and Holyoke, at least, were now in Connecticut, and the General Court still presided over that colony.

⁷⁶ Saltonstall Papers, Robert Moody, ed., (Boston: MAHS, 1972), vol. 1, 1607-1789, p. 153.

After receiving their gift, as an additional measure the Court exercised its jurisdiction according to the newly-surveyed patent boundaries:

Aug. 9, 1641...Whereas it appeareth that by the extent of the line (according to our patent) that the ryver of Pascataquack is within the jurisdiction of the Massachusetts...It is now ordered...That from henceforth the said people inhabiting there are and shall be accepted & reputed under the government of the Massachusetts...Also they shall enjoy all such lawfull liberties of fishing, planting felling timber as formerly they have enjoyed in the said ryver.⁷⁸

Annexation of the Piscataqua, with its vast forest resources, was finally accomplished. Exeter at first refused to be included, but eventually petitioned the General Court in Boston for inclusion under their jurisdiction in May, 1643. With the arrogance of a successful thief, the Court replied "as Exeter fell within the Massachusetts patent, they took it ill that the petitioners should capitulate with them." Exeter was forced to accede to more demeaning terms than those which had governed the acquisition of Dover and Portsmouth; it was allowed no delegates to the General Court.⁷⁹

The Piscataqua pipestaves were already very important to the Boston merchants. When the General Court dunned the town of Dover for funds to support its Deputies "dyet" in Boston during Court sessions, one of the Waldron brothers, either William, the Deputy, or Richard, a merchant and commissioner:

engaged himself, for his own charge, for this Court, & also when the account is perfected, of what is due to the country for the deputies of Dover's diet for severall Courts past, that it shall be suddenly engaged for & discharged in merchantable pipestaves, either in the river or at Boston, at the current price in either place.⁸⁰

⁷⁷ Records of the Massachusetts Bay Colony in New England, vol. 1, pp. 324-5.

⁷⁸ NHHS Provincial Records, Vol. I, p. 158.

⁷⁹ Charles H. Bell, History of the Town of Exeter New Hampshire, (Farwell Press, Boston: 1888), pp. 44-5.

⁸⁰ Records of Massachusetts Bay in New England, vol.3, p. 63.

Boston merchants would get their pipestaves without having to deal with hostile local boards of selectmen around the Bay, and equally important to the General Court, heretics and criminals in the Bay would no longer have a refuge to the northward.

Maine

There remained Gorges' Patent of Maine, which by the criteria of the Massachusetts General Court also lay within their own patent. Here, ten years earlier, the Council for New England had granted Sir Ferdinando Gorges (a royalist) patents for the house & plantation at Piscataqua, lately belonging to Capt. Walter Neale, John Mason's former factor. Also at that time there were patents sealed for two 1,500 acre pieces on Blackpoint River in Maine,⁸¹ and various groups of unsupervised tenants and squatters, enfeoffed or not, had settled along the coast, in areas with substantial natural wealth in forest and fisheries resources. Now the Massachusetts General Court wasted little time bringing the nearest of these potentially lucrative resources under their "protection." In 1651, just ten years after the Court had passed the first laws governing quality control in the new shipbuilding industry, and swallowed the Piscataqua towns, Massachusetts annexed Kittery and York. The Court presented the same argument that because of the northern source of the Merrimac River their patent included all the land to the latitude of that source. They also stated the argument of self-defense they had used to sieze Ipswich:

⁸¹ CSP, Col. Papers vol. 1, p. 135.

This Court, taking into consideration the premises (of their patent), together with the commodiousness of the River of Piscataqua, & how prejudicial it would be to this government if the aforesaid place & river should be possessed by such as are no friends to us, has ordered, that a loving and friendly letter be sent from this Court to the said inhabitants of Kittery, acquainting them with our aforesaid right...⁸²

That this eleven-year period of expansion was not driven principally by religious zeal seems evident from the conditions granted to the newly-annexed territories. In the newly-acquired lands, Puritans were a minority, and many local settlers enjoyed the status of freeman. Consequently, when the lands were annexed church membership was not at first a prerequisite for the status of freeman, as it was in Massachusetts proper. Unchurched freemen could vote for their representatives to the General Court, although Massachusetts kept a close eye on things, sending trusted Court Assistants to "help" in local decisions. That was soon revoked, as the case of Dr. Robert Child attests (see below).

The expansion seems to have been driven principally by economic expedience: the neighbor's land was rich enough to covet, and worth the sin. In fact, the Deputies to the General Court were more restrictive about the newly-acquired land than the Court was about the religion. Thomas Wiggin, that old friend and erstwhile saviour of the Puritans, who had defended them to the Lords of Trade, and used his connections to facilitate the purchase from the Hilton patent, had been made a commissioner in Piscataqua. In 1650 the town of Dover had granted him and Edward Starbuck a sawmill site on the second falls of the Cocheco River, and granted him and Simon Bradstreet, (the merchant Magistrate assigned by the General Court to oversee the lesser court in Dover) a

⁸² Records of Massachusetts Bay in New England, vol. III, p. 250.

sawmill site at Newichewannock, or South Berwick.⁸³ Those grants were within the town's jurisdiction. Wiggin then patiently acquired several shares in each of the two Squamscot Patents, which contained excellent timber to supply his mills. But in 1653, when Wiggin petitioned the General Court for the two patents of Squamscot to be divided so he could gain clear title to some of those trees, the court, now dominated by merchant Deputies from Massachusetts, postponed the division for a year and forbade him to cut any more trees on the land in question.⁸⁴ Some of them may themselves have had plans for those trees; the land was now theirs to dispose of, and Winthrop, who had known Wiggin's services to the Puritan cause, was now four years dead.

Over the next several years, sawmills sprang up in the (then) new counties of Norfolk (Merrimac to the Piscataqua) and York (Piscataqua to Casco), and millsites with their adjacent timberlands came increasingly under the ownership of Boston merchants, often before the sawmills were erected. Indeed, Bay merchants had already had extensive contacts with sawmill owners, boatbuilders, and woodsmen between the Merrimack and Casco Bay before the annexation. In 1645 Adam Winthrop and Benjamin Gillom gave a performance bond to deliver 100 masts of Pine or Spruce 16 to 36 inches in diameter 12 to 14 feet from the butt, to Emanuel Downing Joshua Foote, Stephen Winthrop & Thomas Bell "at Kennebunck or some other place as convenient for the ship

⁸³ Alonzo Hall Quint, Historical Memoranda of Ancient Dover, NH, p. 39.

⁸⁴ NH Provincial Papers, Vol. I, p. 209.

rideing at Cape Porpus or some other place as safe for the ship & fitt for ladeing."⁸⁵

But non-Puritan landowners were not secure in their ownership once the General Court controlled southern Maine. Dr. Robert Child, a non-Puritan merchant, had bought much of the old Vines patent around Saco in 1645. His proprietorship surrounded the valuable fishing station at Winter Harbor, at the mouth of the Saco, with Magnus Redland's nearby shipyard, and Roger Spencer's and (possibly) John Davis's sawmills on the lower falls of the Saco River. When Child was prosecuted for sedition and exiled to England in 1647, Saco was essentially left dangling under the noses of the Deputies on the General Court.⁸⁶ If before annexation the merchants had not troubled themselves about legal jurisdiction, now they were in a position to make legal jurisdiction serve them. There were also sawmills and/or fishing stations between Saco and York, at Cape Porpoise, Kennebunkport, Wells, Ogunquit and Cape Neddick. In 1653 the general Court annexed Wells, Cape Porpoise and Saco, along with the smaller intervening plantations. The Court claimed all of Maine south of the latitude of 43° 43' & 11" or the northernmost bound of the Merrimac River.⁸⁷

⁸⁵ Aspinwall Notarial Records, p. 13.

⁸⁶ See Records of Massachusetts Bay in New England vol.3, pp. 90-1. See also Winthrop's Journal, vol. II, pp. 271-340 variously. Child and several other merchants sent a petition and remonstrance to the court, demanding that it grant freeman status to residents who were not members of an orthodox Puritan church. To the General Court, that was sedition.

⁸⁷ Records of Massachusetts Bay in New England, vol. III, pp. 332-9.

Recapitulation. From the Perspective of Natural Resources

The foregoing is a synopsis of the political expansion of the Massachusetts Bay Company into New Hampshire and the various patents and grants which comprised Maine. But the political expansion was driven by something more than a simple thirst for power or religious zeal. Puritan orthodoxy was not initially a prerequisite for freeman's status in the new counties of York and Norfolk and outlying stations along the coast. Submission to Massachusetts law was part of the ritual of annexation, though. This was important, because, as Carroll points out in The Timber Economy, the merchant faction in the Bay had to be able to guarantee its legal access to fish and forest products. They had to be able to make contracts with independent woodsmen, independent fishermen and smaller merchants north of the Merrimac, to invest in timberlands, sawmills and fishing stations, and to have some legal recourse in the event of contractual problems. They had to be able to sue and collect, and to initiate deeds and partnerships under a single legal system.

Jack P. Greene, in Pursuits of Happiness, states "In so many respects militantly antimodern, the world established by the New England Puritans was intended not to replicate but to move in precisely the opposite direction of the world they had abandoned in old England."⁸⁸ I would argue, on the contrary, that the Puritans were led in a different direction by a newer competing form of capitalism, based not on agriculture or the loom, but on harvesting natural resources either from the sea or virtually within sight of it. Their evolving

⁸⁸ Jack P. Greene, Pursuits of Happiness, (Chapel Hill: UNC Press, 1988), p. 38.

economy emulated that of the old country where it could, most importantly in bringing the region under a uniform legal code where contracts and resources were concerned. Their stock in trade, however, came in the first decades neither from farms and plantations nor from concentrations of looms. Their wealth was based on the products of the coastal ecotone,⁸⁹ and their capital was invested in the ships, boats, stages, and sawmills necessary to harvest the fish stocks and timber stands of that ecotone. It competed with other forms of proto-capitalism that had begun along the Maine and New Hampshire coasts, and subsumed them. Moreover, Edmund Morgan makes the case that politically, Winthrop attempted to maintain an autocracy as exclusive as that of the Stuarts.⁹⁰ I believe it was the same new cultivar of capitalism, and its merchant practitioners, that prevented Winthrop from succeeding.

Within ten years of the founding of the Salem fisheries by the Dorchester Company, not only were Salem fishermen contracting independently to fish for Bay merchants rather than for the Company, but several of Trelawney's Company fishermen at Richmond Island had settled ashore between Kittery and Saco and were fishing independently to supply either merchants in the Bay or "sackboats" that came expressly to trade for fish.⁹¹ Trelawney's shipbuilder,

⁸⁹ An ecotone is an edge community where two ecosystems overlap. Here, that included the waters near shore (on soundings, or fathomable with a lead line) and the rivers and forests within a few miles of the fall line, the edge between land and sea, where both environments were active factors.

⁹⁰ See chapters 7 & 11 of Edmund S. Morgan, The Puritan Dilemma.

⁹¹ Carrol, in his Timber Economy, discounts the fishing component of the Puritan economy, because loadings of fish do not appear as often as loadings of forest products in Boston port records. However, there is adequate circumstantial evidence in probate records, the Aspinwall Notarial Records, Curwen Account Books, etc. to suggest that fishing was at least as important to the economy as timber, but that fish were usually loaded directly into both local ships and sackboats not at Boston,

Arthur Gill, had left Richmond Island in 1639 to build ships on his own in the Bay. In 1653 he sold four Marblehead fishermen the Bark *Dorothy*, which he had presumably built there. Clapboard and stave reivers were working up their stock and marketing it by the thousands to Bay merchants, rather than working for a salary for an absentee landlord or company. When William Paine, the Ipswich merchant, won a suit for non-performance against the Gilmans of Exeter in 1653, they paid him in part as follows:

5,000 staves in Francis Swaines hands which he received of Nathaniel Boulter; book debts of Boulter; 4,000 pipe staves due from Thomas Chase at Lamprey River, 1,000 white oak bolts each due from Robert Sewers, Goodman Cornish, & Goodman Leeson; 2,000 red oak bolts lying at head of Little Cove with Wm Furber's bolts; the flat bottomed boat with all appurtenances, all the boards which shall be sawn by the half of the mill belonging to the two Gilmans.⁹²

It required the products of seven suppliers of staves and bolts just to pay a debt of £207. Everywhere a farmer had access to a landing on the water, he piled up staves or bolts to trade to merchant brokers, who in turn collected them and traded them to the larger merchants who shipped them abroad.

Trelawney's station at Richmond Island, under the overseer John Winter, had been unable to compete with the Bay in shipbuilding. The attempts of Beex

but at Salem, the Isles of Shoals, and other deepwater anchorages near fishing stations. Forest products, on the other hand, were picked up by smaller shallow-draft ketches, lighters and shallops at points along the rivers and creeks, and collected at Portsmouth or Boston for loading into large ocean-going vessels. For instance, in Oct. or Nov., 1639, Edward Colcord & Lieut. Richard Morice (Morris) of Dover on the River Piscataqua in NE bound themselves for £70 to Stephen Greensmith, to deliver to Greensmith 5,000 of clapboard 4 & one-half feet long and at the heart from 2 inches to 5 inches thick or upward every way merchantable & at any time after the last of March next within a cables length of the usual riding place of the ships just at the water's side at Piscataqua River's mouth & to find a boat or lighter to help put them aboard--Lechford's Notebook, 1638-1641, p. 223. And a generation later: on Oct. 2, 1662, Thomas Davis of Haverhill mortgaged his house and lot in Haverhill to Nathaniel Fryer of Portsmouth for lumber to be delivered to Robert Gibbs's warehouse, Boston dock--Norfolk County Records, in *Essex Antiquarian*, vol. III, p. 172.

⁹² Records and Files of the Quarterly Courts of Essex County, vol. 1 pp. 296-7.

& Company, based in England, to operate absentee proprietary industries at the Newichewannock sawmills and the Saugus Iron Works, all under the direction of their overseer Richard Leader, could not compete with the outsourcing capitalism of the Bay merchants; in the case of the Ironworks, their employees simply were co-opted by nearby merchants, and became freelance ironware exporters, or more accurately, embezzlers.⁹³

In early colonial America capitalism was in an experimental stage, and in New England the Puritans had developed a form that worked.

The centralised, paternalistic investment mechanisms that operated in the other colonies were simply not as efficient as outsourcing and independent self-interested ambition, when it came to extracting natural resources from the New England littoral.⁹⁴ So far from "moving precisely in the opposite direction of the world they had abandoned in old England," the Bay men were looking for ways to make their own capital work more profitably. They found ways to avoid the enormous interest rates—up to 30%—which their London creditors charged, and the exorbitant expenses of chartering European shipping for their exports. They

⁹³ Ibid., vol. 2, p. 95. Oct. 26, 1653, Sworn: by Theophilus Bayly, about 31 years old: that he went in the company's boat, and by Mr. Gifford's order carried four tons of bar iron from the iron works, one year ago, and delivered it aboard a ship at Piscataqua, bringing back one butt and one hogshead of wine. Deponent thought the iron was on Mr. Pattishall's (Pateshall's) account. Last winter he delivered iron to Mr. Cook's ship, for Mr. John Jarvis, and ordered to be delivered to another ship, but that ship being loaded with pipestaves, it could not be taken on. He also delivered several dozen of small wares to Mr. Cook's ship. Ten weeks since, he also delivered aboard the bark of William Stranguish eleven dozen skilletts: Gifford urged him to take forty pounds worth...but Stranguish refused. Deponent then delivered nineteen dozen and four skilletts at Mrs. Hanborough's house...(and made further deliveries of the products from Saugus).

⁹⁴ Littoral is used here in its topographical definition, American Heritage Dictionary of the English Language (Boston: Houghton Mifflin Company, 1970) p. 763. "*adj.* Of or existing on a shore. *n.* A shore or coastal region." This contrasts with the scientific definition of a zone below the high water mark.

were competing directly with contemporary received truths about colonial investment, but they had probably learned from the shortcomings of the Pilgrims' economic framework: several of their initial investors had earlier been investors in the Plymouth Plantation, and a few of those had actually removed to the Bay Colony after losing money in the Plymouth adventure.⁹⁵

One of the consequences of this competition between forms of capital investment was that the population in the annexed territories could discern some personal economic advantage in joining with Massachusetts, at the same time Massachusetts merchants were acquiring guarantees of access and legal consistency in their search for new resources for fish, timber, lumber and staves.

Immediate Consequences of Annexation

The merchants of Boston, growing in wealth and influence, must have seen where their next investments should go. In 1640, on the eve of New Hampshire's annexation, there had at most been one sawmill each at Exeter, Newichewannock, and York. By 1652, there was at least one sawmill on nearly every stream between the Merrimac River and the Kennebec. Many streams powered multiple mills, for the pint that is a pound provides the same amount of energy for every foot it falls in the length of the stream.

It happened this way. During the period 1639-1641, Exeter had passed several ordinances, similar to those of Salem, Boston, Cambridge and Dorchester,

⁹⁵ For an overview of the Pilgrims' financial mechanism, with accounts of financial backers in both colonies, see Ruth A. McIntyre, Debts Hopeful and Desperate, (Plymouth: Plimoth Plantation, 1963).

restricting access to timber on the commons to Exeter inhabitants, limiting the commons timber available annually to any one inhabitant, and forbidding "foreigners" to work up bolts in the town's precincts, or to be paid in timber or staves for their labor in the town. Clearly there was already a growing market for pipestaves and hogshhead staves around the Great Bay, and it couldn't have come solely from the few merchants in Dover and Strawberry Banke.

Then, in November 1641, Edward Gilman Jr. was admitted as a freeman, and granted liberty to erect a sawmill at the falls of the Exeter (Squamscot) River, with privilege of the river for the mills, and of the pines "or any other timber" on the commons for sawing or masts, provided he sell boards and planks to townsmen at 3d per hundred, country pay.⁹⁶ Within two years Exeter had capitulated to Massachusetts, and six years later, in April of 1649, liberties were granted to set up three more sawmills within the town, each with a hundred acres of adjacent forest to supply timber—one on the Lamprey at an upper falls "a little above the wigwams;" one on the Pascasoke River, a tributary of the Lamprey (in which Edward Hilton was a one-fifth owner); and one on the fresh river which joined the Squamscot above the falls in Exeter. Each of these mills also had timber rights on the commons, under the same conditions as Gilman. The fact that the mill sites were granted with just one hundred acres to keep them supplied indicates how fast a contemporary mill could saw, and how long it took to fell a large tree and haul it to the brow of the mill. This will be considered further in a later chapter.

⁹⁶ Exeter Town Records, Exeter Historical Society mss., pp. 7-53.

In April and May of 1652 four more sawmill liberties were granted, on the great fresh river and other tributaries, with the same privileges, but paying a £5 rent to the town after completion of the mill. One of these was a second mill liberty at the falls of the Squamscot, granted to Edward Gilman and his father, apparently below the original mill.⁹⁷ If the Gilmans were already prepared to set up a second mill, their first mill must have been quite successful. By this time, barely a decade after annexation, there were at least eight sawmills in Exeter.

That the stave industry had been flourishing all along is evident in the recurrent ordinances to regulate it, including at least two orders to cease cutting trees for the balance of the present year, and to finish working up all timber already felled. It is clear that most of this must have been for export, and equally clear that the men of Exeter were not exporting it in their own vessels, as yet. But the merchants of the Bay were already involved in Exeter. In 1647 William Aspinwall had gone with the attorney of Captain Thomas Hawkins of Boston to complain to Edward Gilman of Hingham about a non-delivery of masts which Gilman had contracted to provide to Hawkins, one of Boston's principal merchants and shipbuilders previously mentioned. Gilman protested that the masts had been ready ahead of schedule, but had burned, and that the replacements were now ready, but no one had come in Hawkins' name on the appointed day.⁹⁸ This must have been Edward Gilman senior, acting as agent for Edward Gilman Jr., who was in Exeter, and had liberty to fell mast trees as part of

⁹⁷ *Ibid.*, pp 42-57.

⁹⁸ Aspinwall Notarial Records, pp. 100-1.

his sawmill rights. Already a Boston merchant-shipowner had contracted with a Piscataqua woodsman to provide his ships with masts, and as we saw above, Maine masts from Kennebunk were brokered on the market in Boston by 1645.

But Exeter offered opportunities for others to become merchants as well, or to increase their property through capital enterprise. Samuel Dudley, who according to Aspinwall had been appraising property in Lynn in 1648,⁹⁹ had come to Exeter as a new orthodox minister approved by the Church in the Bay, but he was one of the mill grantees in 1652, exempted from his share of the £5 town rent for the millsite. Nor was Exeter the only place where mills went up soon after annexation, for the next decade or more sawmills were built, and shares in them traded, mortgaged or sold, throughout the Bay area. In 1649 James Wall, a carpenter of Exeter, bought from Richard Waldron of Cochecho (Dover)

all his right for erecting a sawmill at Quecheco, together with 60 acres of land at the falls of Quecheco & 1,500 trees, And all the work that hath been done (both timber & iron work) towards the erecting the said mill. And all the marsh at the upper end of Quecheco marsh as it is bounded & granted by the town of Dover; also three red oxen & one black bull, two two-year-old steers, five calves, & two year-old heifers & four calves, one brown bay mare. Also his dwelling house & fifty acres upland adjoyneing.¹⁰⁰

The same year he joined Edw. Hilton, John & Robert Smart & Thomas Biggs to set up a sawmill on the Pascasoke River which runs into the Lamprey river. A year later he appeared with Humphrey Wilson in an agreement with the town of Exeter "to pay the town 2s per thousand for every thousand of board or planks which they shall saw with their sawmill by the falls, of oak or pine which they

⁹⁹ Ibid., pp. 135-6.

¹⁰⁰ Suffolk Deeds, Vol. I, folio 109.

take off the commons," their third partner being the same Samuel Dudley, who was excused his share of payment, as previously mentioned.¹⁰¹

With eight sawmills in Exeter alone and others a-building around the tributaries of the Piscataqua, and capital flowing to build the mills, and wealthy Massachusetts Bay merchants contracting for forest products, it was inevitable that some shares of mills would eventually accrue to non-residents of the towns where the mills were. In March of 1653, Edward Colcord, most recently of Hampton, conveyed to Thos. Ruck, a Boston draper, one-third of a sawmill on Exeter falls, "which one-third I bought of James Wall of Hampton."¹⁰² In November 1654 Ruck in turn sold his third of the mill to Anthony Stanion, a planter of Hampton. Sawmills were in demand, and shares in them were a growth stock.

Meanwhile, in May of 1654 James Wall, now styling himself a "millwright of Hampton," conveyed to Mr. Joseph Mason of the river of Pascattoquack (Piscataqua) gent. one-fourth of a sawmill

upon the river of Exeter & the first sawmill built there all being within the River of Pascattoquack, [and land] on my point against my own dwelling house there, for him to build a dwelling house on, also 20 acres of meadow on fresh river, 20 acres on little fresh river granted to Nicolas Liscen, from whom I purchased it, 100 timber trees fit for sawing I bought of Thomas King in 1652, and commons granted to Edward Gilman by Exeter.¹⁰³

Clearly Wall had built a mill on the Squamscot River prior to Gilman's arrival in Exeter, but the Exeter properties did not rise to investment grade until Gilman

¹⁰¹ Exeter Town Records, p. 50.

¹⁰² Norfolk County Records, in "Essex Antiquarian," vol. 1, p. 117.

¹⁰³ *Ibid.*, p. 178.

began dealing with Boston merchants. In July of 1654 Wall sold his third of the mill on Wilson's creek, which he had built with Dudley and Wilson, along with "38 acres granted me by Exeter, also 19 acres more, also a debt due from Valentine Hill of Dover dwelling near Oyster, also a mare, pipestaves, ashen oars, cows (in hand of John Robinson) house, barn, etc. "to James Robie of Hampton."¹⁰⁴

Three Merchants:

1) A Merchant Deputy

Here let us remark that Valentine Hill was a peripatetic but very successful merchant, who had acquired some political power. In 1641 he had been a principal among the merchants who were given a temporary monopoly on wharfage on Boston harbor. In 1643 he was part of a merchant consortium which undertook to dredge part of Boston harbor to provide better access to the wharves. In 1644, then-Governor John Winthrop signed over to him his mansion house and adjacent lands in Boston in payment of a debt of £500, and moved into a house Hill provided for him, as described above. In 1646 he was a Deputy to the General Court from Charlestown. Recognizing the potential of the Piscataqua area, he wasted little time in moving there, while retaining his Boston properties. In 1649 he secured a debt to Simon Bradstreet with his house and 500 acres in Oyster River, among other assets, and two months later petitioned the General Court for another 300 acres on the Lamprey River. In 1651 he was a selectman of Dover, but his political status was not sufficient to

¹⁰⁴ Ibid., p. 116.

keep him from losing a court suit to a fisherman-entrepreneur who collected £160 from him for boat rental and repairs he or his men had incurred on a fishing voyage four years previously.¹⁰⁵ Loss of that suit didn't prevent him from being elected Deputy from Dover to the General Court in 1652. In 1653, when he sold a quarter of a sawmill on the Oyster River, he was again listed as a Boston merchant.¹⁰⁶ In 1662 his widow was granted one-third of his estate, which included 500 acres at the head of Oyster River, and a parcel of meadow at Wheelwright's Pond.¹⁰⁷ Valentine Hill had traded in fish, and owned Boston harbor frontage with valuable shipping access. John Winthrop had been first in his debt and then in his pocket. Hill's progressive acquisition of lands and valuable water rights around the Piscataqua is indicative of benefits enjoyed by the merchant factor in the opening of New Hampshire by the General Court, but there were others more powerful than he.

2) A Merchant Magistrate on the General Court

The act by which Massachusetts had annexed Dover and Strawberry Bank had specifically reserved to the inhabitants "all such lawful liberties of fishing, planting, felling timber, as formerly they have enjoyed in the said River." And it had stipulated that "Mr. Simon Bradstreet, Mr. Israel Stoughton, Mr. Saml. Simonds, Mr. Wm Tyng, Mr. Francis Williams, & Mr. Edw. Hilton or any four of them whereof Mr. Bradstreet or Mr. Stoughton to be one, to have the same

¹⁰⁵ Records and Files of the Quarterly Courts of Essex County, vol. 1, pp 215-16.

¹⁰⁶ Norfolk County Records, in "Essex Antiquarian," vol. 1, p. 179.

power as the quarterly courts."¹⁰⁸ It could not have been by coincidence that Simon Bradstreet was one of the two magistrates. He was also involved in the timber trade, and just three years previously the court had granted him a 500 acre farm on the Ipswich River, as well as another 300 acres not specifically located.¹⁰⁹ Apparently those 800 acres had not been sufficiently wooded, because in 1641 the Court had to remonstrate with him about cutting wood off of Boston common land: "And Mr. Bradstreet is to have such trees as he hath felled, not exceeding 120; but he is to fell no more."¹¹⁰

For Bradstreet, the assignment to be magistrate at the Dover courts must have been the next best thing to Christmas (which was itself forbidden). Twice a year he would be in the heart of the best forest reserves then known to the English, and all easily accessible by seagoing vessels at the time. An added attraction must have been that the same act that had divided up the lands around the Piscataqua had left most of the land without any clearly-defined local owners: "provided always that one of the said patents, that is to say, on the south side of the river Piscataqua, & in the other patent one-third of the land, with all improved land, continues to belong to the lords & gentlemen & other owners."¹¹¹

¹⁰⁷ NHHS State Papers vol. 31, Probate Records vol. 1, p. 56.

¹⁰⁸ *Ibid.*, pp. 342-3.

¹⁰⁹ Records of Massachusetts Bay in New England, vol. 1, pp. 262, 78.

¹¹⁰ *Ibid.*, p. 339.

¹¹¹ *Ibid.*, pp. 324-5.

The next year, at the first meeting of the General Court since annexation, Dover's deputies to the General Court were William Waldron and William Hilton. Seated with them on the Court were Richard Saltonstall, Esq. and Simon Bradstreet, both of them regularly Assistants, and William Tyngge, whom we have already met.¹¹² With the brothers of Dover merchants now sitting as Deputies at the gatherings of the Massachusetts General Court, and with Simon Bradstreet's apparent interest in timber, it was inevitable that Boston merchants among the deputies would become involved in the Piscataqua timber industry.

William Waldron, Thomas Wiggin, Edward Hilton and Mr. Wannerton were named assistants to try causes at Dover, under the guidance of Saltonstall and Stoughton. Now some of the oldest and biggest merchants at Piscataqua were, at the General Court's behest, sitting twice a year at Dover on the same bench with important merchants from the Bay, while they or their associates met as Deputies with those same merchants once a year in Boston. Bradstreet was in a position to acquire not only land, but established merchant subordinates as well.

3) A Frontier Merchant

Richard Waldron had been the boyhood friend of the Lord Brook, of Lords Say and Brook. His brother William had been a deputy to the General Court and recorder for Dover from 1642 to his death in 1646. Richard had been quick to make use of his brother's connections and position on the Dover court, as well as

¹¹² Ibid., vol.2, p. 5.

his own standing in Dover. In 1644 he and two others secured a life-tenure as weirsmen at Cocheco Falls in Dover. The rent was 6,000 alewives a year and the year's first salmon to go to the pastor, after which they could each take 6,000 alewives for themselves before satisfying the rest of the townsmen.¹¹³ That was merely the beginning of Richard Waldron's career in acquiring, brokering and promoting the natural resources of the Piscataqua, an ecotone rich in forests, salmon and cod fisheries, sawmill sites and protected anchorages.¹¹⁴ In June of the next year, Richard Waldron took back a mortgage on his brother William's house and land at Dover, as security for a bill the two of them signed for about £31 due to the Shrewsbury merchants who still held part of the Dover patent.¹¹⁵ Court records from the following November involve Richard with William Paine, Ipswich's premier merchant, and also Abraham Shurt, merchant of Pemaquid.¹¹⁶ A Paine case the next year mentioned Waldron's debt in connection with delivery of 10,000 pipestaves by a third party, suggesting that pipestaves may have been involved in the original contract.¹¹⁷ Waldron was learning to be a stave broker. When brother William died in 1646, Richard's future was already secure.

¹¹³ Alonzo Hall Quint, Historical Memoranda of Ancient Dover, NH, p. 33.

¹¹⁴ This ecotone encompasses the fisheries of the Isles of Shoals, the Great Bay, and its tributaries, the Salmon Falls, Oyster, Lamprey, Squamscot, and Winnicunit rivers. Forests on each of the rivers supplied masts and staves into the 18th century, and the fisheries of the Isles of Shoals lasted well into the 19th century.

¹¹⁵ Suffolk Deeds, Vol. I, Lib. 64, 79.

¹¹⁶ Records and Files of the Quarterly Courts of Essex County, vol. 1, pp. 87-8.

¹¹⁷ *Ibid.*, p.94.

In 1647 Hatevil Nutter "& company" (the "company" being Elder Starbuck, one of Richard Waldron's partners in the Cocheco weir) went before Richard Waldron and three other prominent men at Piscataqua for permission to build a sawmill on the Lamprey River. They obtained it that January, along with permission to fell pine and oak for their projected mill, provided they pay the town 6d per tree felled, in boards or plank, and obtain permission from the town before cutting beyond a specified area.¹¹⁸ The enormous financial potential of this didn't escape Richard Waldron; the following December he applied for and received permission to fell 1,500 oaks in Dover, "for the accomodation of a sawmill which he intendeth shortly by God's permission to set up at or upon the lower falls of the River Cocheco. The said Waldron to pay 3d per tree."¹¹⁹ It is not clear how he managed to get his trees for half the price of those sold to Nutter and Starbuck, but his political connections couldn't have hurt. But just ten months later, Waldron sold all his interest in the Cocheco sawmill to James Wall, the millwright from Exeter, in the transaction described above. Either Waldron found he could turn a handsome profit without investing any serious capital in improvements, or he found the potential debt too great. Once again James Wall acquired part of a sawmill by doing the construction.

Richard Waldron continued to broker forest products, and three years later, in 1652, he was again compelled by a court to repay a creditor, this time Edward Gilman of Exeter, to whom he owed £11 10s payable either in boards or

¹¹⁸ Alonzo Quint, Historical Memoranda, p. 34.

¹¹⁹ *Ibid.*, p. 35.

in cash within six days of the ruling. That did not stop his political rise in the Piscataqua area. In 1654 Richard was Dover's deputy to the General Court, an honor he shared with Valentine Hill in 1657. That year he was excused early from the Court to return to Dover "to dispatch a ship for the straits (of Gibraltar)."¹²⁰ Until at least 1666, Waldron remained Dover's Deputy to the General Court. In 1674, he was attempting to broker land on Sturgeon Creek, across the Piscataqua River in Maine, for Boston merchants who had acquired it.¹²¹ Nine years later, he had so cowed the residents of Dover that he had been able to disenfranchise the two-thirds of them who were non-Puritans. With other Puritan Council members in New Hampshire, Waldron had made so free with Masonian land that Richard Chamberlain and Robert Mason were stymied in their attempts to establish a Crown Council and regain Mason's inheritance.

Chamberlain wrote:

The quarrel with the Council is the fault of the Council. Mr. Mason has no difference with the inhabitants, they say, I am told, that they are ready to agree with him if the Council will order it. The objections of the dissentients to his title are too paltry and too readily changed to be worth notice. Now they pretend a grant from the Indians--now a pretended conquest from the Indians. The whole truth is that they have given each other great tracts of Mr. Mason's land, and sold it to divers persons without any legal title, and they therefore expect the purchasers to come upon them for the purchase money. At present they have made a law to confirm town grants.¹²²

Waldron was three decades developing that inclination to greed, theft, bullying and mendacity that was to make him a leading frontiersman. He had doubtless made liberal use of his connections to men more powerful than he, such as Saltonstall and other magnates from the General Court, to secure his flanks as

¹²⁰ Records of the Governor & Company of the Massachusetts Bay in New England, vol. IV, p. 303.

¹²¹ Saltonstall Papers, vol. I, 1607-1789, p. 162.

his acquisitiveness grew. Ten years after Chamberlain complained to the Lords of Trade, Waldron's accounts finally were straightened out, in a procedure to be described in the next chapter.

Saints and Downeasters

All of the preceding should have demonstrated the process whereby in the late 1640s sawmills in the vicinity of the Piscataqua were attracting capital much as promising but speculative stocks do today. Sadly for the absentee owners of Maine patents, capital recognized no geographical boundaries, and sought only judicial consistency. Maine was an obvious investment to the merchants of the Massachusetts Bay, who needed new sources of timber and fish even though they had not yet exhausted their own supplies except in the Boston area. Organized towns were constantly making new regulations restricting outside access to common forests, fishermen were claiming the best shoreline for their stages, shipbuilders increasingly had first refusal of the best timber, and merchants still had to make up their contracted shipments of fish, staves and sawn lumber. There was nothing they could add to salt or pickled fish, sawn lumber or roven pipestaves by way of value beyond catching and salting or felling, fabrication and packing; their only possibility for increased profit was an increased market and concomitant increased exports of their accessible staples. Therefore it behooved them to have some control over the fishing and forest industries wherever possible, as well as increased shipping capacity. Only in

¹²² CSP, Colonial Series vol. 11, America & W. Indies, 1681-1685, p. 49.

shipbuilding and millbuilding was there a chance of profit from the value added through pyramided labor, and a possible long-term return on investment.

Maine had been trading and exporting fish and forest products since the late 1620s. The General Court had quietly bought a position on the Maine side of the Piscataqua in 1639, purchasing Hansard Knolly's property for £30. This property lay just above Frank's Fort on the Piscataqua, and comprised 870 acres, mostly of prime pine forest. When Massachusetts annexed the Piscataqua grants, there were already sawmills at work at Newichewannock, York, Wells, and possibly Saco. Saco, when Dr. Robert Child bought it from Gorges' patentee Richard Vines in 1645, had possessed enormous undeveloped further potential for sawing timber, with sawmills, a fishing station and shipyard already up and going as well. Taking that into account perhaps facilitates an understanding of the tension between merchant capitalist and Puritan oligarch, or between the Scylla of Grace and the Charybdis of Mammon, that surfaced in the Child petition. Child, a non-Puritan, wanted to have a vote in the political processes that would ultimately control his use of his rich holdings--the deliberations of the General Court. In this he was joined by other non-Puritan merchants who resented being denied a vote in elections. The Puritan theocracy in 1639 had humiliated Boston's wealthiest Puritan merchant, Robert Keane, charging him with usury.¹²³ It still had power enough in 1646 to break Child and drive him into exile, but theocratic power could not long compete with merchant capital.

¹²³ The Apologia of Robert Keane, Bernard Bailyn, editor (New York: Harper Torchbooks, 1964).

Powerful merchants sided with Child against the theocracy, setting their course between Scylla and Charybdis.

In 1649 the town of Kittery granted Nicholas Shapleigh sawmill rights on Sturgeon creek, along with the pine and oak timber on the north side of the creek. The next year the Province of Maine granted Jonathan Wheelwright liberty to erect a sawmill on the Ogunquit River or elsewhere in Wells, and to cut timber for it.¹²⁴ That year Roger Spencer had a sawmill in Biddeford, on the Saco River, and the province of Maine granted John Davis liberty to build another near it. After annexation a few years later, shrewd Mainers saw the future, and began to build new mills, selling part interest to Bay merchants in exchange for the capital to finish them. This collaborative sawmill construction combining local entrepreneur and Boston merchant continued into the eighteenth century, as we shall see in a later chapter.

It is these mills on the lower Saco River that, combined with the Vines patent, make the Child case so interesting from a purely economic point of view. Theocrats on the General Court valued orthodoxy before merchant capital; they sided against economic progress. Child, having purchased the Vines patent, remonstrated with the General Court for denying non-orthodox inhabitants a voice in the legislative process.¹²⁵ Though Child himself was crushed for his temerity, and his allies among the Puritan merchants were temporarily stalled,

¹²⁴ York Deeds, court records, vol. I, Part 1, fol. 12.0.

¹²⁵ Records of Massachusetts Bay in New England vol.3, pp. 90-1. Nov. 4, 1646. Twelve points of Child's petition & remonstrance listed. Petitioners were: Dr. Child, Mr. Thomas Fowle, Mr. Samuel Maverick, Mr. David Yale, Mr. Thomas Burton, Mr. Jonothan Smith, Mr. Jonothan Dande (all wealthy merchants). General accusation was that the Puritans were depriving that two-

merchants alone had the capital to develop natural resources--the theocracy did not. Conflict between merchant and theocrat over access to natural wealth gradually resulted in virtual control of the General Court by the merchants, and the practices of Robert Keane and Robert Child triumphed in the end.

In 1651 the Court at York granted Edward Rishworth a mill liberty on the Cape Neddick River, charging him 6d per thousand for any boards he might saw. The same year William Ellingham and Hugh Gayle sold their half interest in a mill on Sturgeon Creek to Thomas Broughton of Boston, for £220. That was a substantial price, but it included 300 board logs already felled and cross-cut, 63 of them already drawn to the mill. They engaged with Broughton to keep the mill running until the first of December, 1651.¹²⁶ Broughton was a Boston merchant who at various times owned shares of the ship *Welcome*, 300 tons.¹²⁷ Also that year, the General Court gave the old Knollys purchase to Captain William Hawthorne, "for and in consideration of the twenty pounds due to him, as commissioner, for this year's service..."¹²⁸ By this grant Hawthorne, a regular on the General Court, received a potential several hundred pounds in timber trees in lieu of a twenty-pound salary, while the public treasury lost ten pounds of its original investment in the transaction. Hawthorne's new property wanted only the construction of a sawmill nearby to make it worth the greater sum, and sawmills were being built in ever-increasing numbers.

thirds of the population that was not of their religion of their hereditary English freedoms.

¹²⁶ York Deeds, Court Records, vol. I, part 1, folio 15.0.

¹²⁷ Aspinwall Notarial Records, p. 358.

¹²⁸ Records of the Massachusetts Bay in New England, vol. IV, p. 68.

At this time, Gayle and Ellingham were engaged in building several mills on Gorges Creek in York. Mills were going up all along the Maine coast, but they didn't have remarkable longevity. With luck they held up long enough to return a good profit before they washed out, but when they washed out, they changed the environment downstream, as we shall see in the next chapter. Already there was a deed reference to "that place where formerly the old mill stood" in York. One of the new Gayle and Ellingham mills replaced such a washout. In 1652 Ellingham sold one-third of those mills to Henry Webb of Boston for £250. A year later Gayle sold his interest in the mills on Gorges Creek, "Namely one Grist mill, one Tyde mill to goe with two saws, two ffretchett mills, being & standing aboue at ye ffalls of the sd Cricke" one half to Thomas Clark and the other half to Edward Rishworth.¹²⁹ Now Henry Webb owned two-sixths, William Ellingham one-sixth, and Thomas Clarke and Edward Rishworth three-twelfths each, of the new mills on Gorges Creek in York. The price of Webb's one-third share suggests that the York mill complex was worth £750, no small fortune for the time. If they were worth that much, they must have been enormously profitable.

Henry Webb was one of Governor Winthrop's merchant creditors who had shared in the foreclosures in 1644. Of those men who had held mortgages on Winthrop's property, at least three, Webb, Valentine Hill and Symon Bradstreet, owned shares in Maine sawmills within a year of Maine's annexation. Bradstreet was a Magistrate in the General Court, and Hill was an

¹²⁹ York Deeds, fol. 35.0.

occasional Deputy. In 1657 the General Court was so pleased with itself that the great men on it awarded each other tracts of land for their services, and granted two thousand acres to the widow and son of the recently-deceased Increase Nowell, who had served nearly every year as a Governor's Assistant on the General Court. The newly-claimed lands along the Piscataqua were ideal for such giving, since their former claimants were overseas and on the losing side in the recent civil war. Edward Rawson, erstwhile Secretary of the Court, received 100 acres along a tributary of the Cocheco River, above Dover. The widow Nowell and her son got their two thousand acres along the Cocheco also. William Hubbard of Ipswich, who had been granted a thousand acres the previous year, got 890 of those in a "pine swamp" along the Inochecha River beyond Exeter, about eight or nine miles from the mills thereon. Another 110 acres which Hubbard had been granted much closer to the mills were regranted to Rawson, who carried more seniority with the Court.¹³⁰ Such rich pine acreage would bring every grantee a substantial income if he managed it properly.

Once the Piscataqua area was firmly under General Court jurisdiction, capital poured into Maine from Boston merchants. Richard Russell, treasurer of the General Court after William Tyng, and another of Winthrop's creditors, bought 2,000 acres in Saco in 1666. A tax levied on mills in 1682 counted 24 mills between Casco and the Piscataqua, five of them at Wells alone.¹³¹ At that time, every damsite could fetch some merchant capital to help build a mill, and the

¹³⁰ Records of Massachusetts Bay in New England, vol. III, pp. 434-5.

¹³¹ MEHS Collections, Series 1, vol. I, pp. 268-9.

labor of a millwright in exchange for a share of the mill. Mills in Europe had (with ships) been the first joint-stock endeavors, as early as the thirteenth century. New England mills differed from those, in that they were created by a new organization of capital. Heretofore, in Europe millwrights had been hired by the stockowners; now they were still financed by combinations of capital, but the millwright traded his skilled labor for a share in his finished mill, thus greatly increasing his estate through his labor, and potentially becoming thereby a part of the maritime trading world of the merchants.

Many of the early mills were on streams that barely trickle in the summer now, such as the Cape Neddick, Merriland, Webhannet, Little and Josias Rivers, and Sturgeon Creeks, all in York County, Maine, and Fresh Creek, in Dover, New Hampshire. Slowly the forest receded from the riverbanks, the banks eroded, the rivers silted in, and the coastal ecotone began to change. But it did not happen quickly, or irreversibly, perhaps not even noticeably at the time. The next chapter will show why.

THE SHIP IN THE FOREST:
NEW ENGLAND MARITIME INDUSTRIES AND COASTAL ENVIRONMENT,
1630-1850

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DISSERTATION

Submitted to the University of New Hampshire
in Partial Fulfillment of
the Requirements for the Degree of

Doctor of Philosophy
in
History

May, 1999

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CHAPTER 5

CUPIDITY REAPS UNSUSPECTED BENEFITS: THE ENVIRONMENTAL EFFECTS OF WARFARE, 1675-1763

the difficulty of getting men, is beyond my former belief....except there be extreme necessity, I think (we) shall be able to afford them no more than the comfort of our presence for awhile, our parts as Topsfield & Andover being affrighted with the sight (as they say) of Indians... It is hardly imaginable the panic fear that is upon our upland plantations & scattered places deserting their habitations...¹

Recapitulation

We have traced the development of seventeenth-century maritime industries in New England, from Massachusetts Bay to the Kennebec River, and described how they might have affected the forest. We then described the early development of the coastline and salt marsh, and how that might have affected the fisheries. The last chapter showed how the merchant faction in the Bay, taking advantage of Governor Winthrop's indebtedness and New England's first economic depression (a consequence of Puritan victories in the Civil War) usurped much of the General Court's power in the two decades of the Civil War and the Protectorate, and used that power to acquire access to previously unexploited forest resources and fishing grounds in New Hampshire and Maine.

¹ MEHS Collections, second series, vol. 6, p. 48. Major General Daniel Dennison's letter, addressee unknown, written 1675, referring to a march to relieve Major Pike at Salisbury, on the Merrimac.

By acquiring a dominant voice in the General Court and then moving the Court to buy or seize many of the previous grants in neighboring territory, the principal merchants in the Bay brought vast new resources under Massachusetts' control. They then made sure that the Court regranted those new lands to them, or otherwise made the new resources available for their growing maritime commerce. Often the Court gave land to its own officers in payment for past services or to the heirs of late officers as a gesture of gratitude for services done over time by the recently deceased. Whenever possible, these lands included abandoned or expropriated Indian planting grounds, to make settling and development easier.²

² For instance, in June of 1639, ten prominent members of the General Court or their wealthy supporters received land as follows:

Hugh Peters	500 acres
Simon Bradstreet	300 acres
John Endecott, Esq.,	500 acres
Thomas Weld	200 acres
Various additional grants	100 to 600 acres
Capt. Edward Gibbons	300 acres in regard of old & long service
Capt. Robert Sedgwick	200 acres
Increase Nowell	500 acres
Capt. Robert Keane	400 acres
Wm. Pierce	200 acres
Nath. Eaton	500 acres if he continue.

Records of the Governor & Company of the Massachusetts Bay in New England, vol. I, 1628-1641, p. 262.

The following November, Increase Nowell and Thomas Allen each received 500 acres on the Concord River, next to land recently given to John Winthrop and Thomas Dudley, both "life members" of the Standing Council for the Governor. *Ibid.*, p. 278. In 1656 the General Court awarded 2,000 acres to Increase Nowell's widow and son, and in 1657 that acreage was surveyed out by Thomas Danforth (of whom more later). He reported back that the 2,000 acres granted by the General Court to the widow and son of Increase Nowell had been laid out on October 14, 1656, and lay: 1,000 acres on the Cocheco River [which flows through Dover, NH, into the Great Bay of the Piscataqua] beginning on the north side of a brook that runs into the Cocheco "on the northwest side of Shohomogomocke Hill, lately planted by the Indians, & lying two miles in length upstream upon the said River"...the other 1,000 acres lying on the southeast side of Shohomogomocke Hill, bounded by "the wilderness land anent the great pine swamp on the northeast side thereof..." Reported by THOS DANFORTH & ROBERT HALE. *Ibid.*, vol. III, pp. 434-5.

We have seen in the previous chapter how the Court also extended its merchants' dominion by purchasing old grants along the coast eastward of the Merrimac River, including the Dover patent, purchased from the Bristol merchants in 1633, and the Pejepscot patent, bought from Thomas Purchase in 1639. Where the Court did not act as their cat's paw, merchants operated independently to acquire access to undeveloped resources, by buying grants piecemeal along the coast. Many of these grants were far beyond what the merchants needed or could even use at the time for timber and fishing resources, but in acquiring them the merchants engrossed control over the growth of the fishing industry from Pemaquid to the borders of French claims in Nova Scotia/Acadia, and beyond. They also acquired nominal control, within that region, of lands beyond the fall line of virtually every stream large enough to drive a sawmill, with appurtenant seasonal millsites and forested watershed. It was apparently very important to forestall hypothetical rivals and "enemies," who would not recognize the authority of the Bay.

But that control was not yet real. As a byproduct of their acquisitiveness, they precipitated such a reaction from the Indians and scattered French upon whose lands they encroached that the French had no trouble enlisting the tribes from Nova Scotia, Maine and New Hampshire to create a second front in the coming wars with England. In a long *guerre de course*, the English were driven out of the eastern settlements, even from those places where they had long been established in Maine. New England towns all the way from Pemaquid to southern Massachusetts found their dooryards had become the front lines. By

design, the towns that suffered most were those that were most crucial to the masting and lumber trades, and the fishing stations. That is, as a part of French and Indian strategy, towns whose maritime industries were crucial to English naval superiority and to English trade with the Caribbean Islands took the brunt of the attacks.

Here we will describe the pattern of the merchants' final acquisition of those new resources, against the backdrop of nearly continuous warfare. We will show that control of the coastal maritime resources was a principal prize for which all competing groups, even the Indians, fought from 1676 until 1763, and which remained a goal for Massachusetts merchants even beyond the eighteenth century, until Maine acquired independence from Massachusetts. We will show that many of the major political events of the colonial period focused on those resources of the northern New England littoral, which were central to the international, political and internecine struggles in New England from 1676 to 1724. The wars against the French and Indians, the struggle with the Royal Government, the rivalries between urban merchant and frontier woodsman, fisherman and settler, and the bitter infighting among frontier merchants, old-guard urban Puritan merchants of modest estate, and the rising class of urban merchant-princes--all contested control of the coastal resources. When all other rivals had been eliminated, there was the competition between home-grown merchant princes and their colleagues from the mother country. At stake were New England's fisheries, mast and spar sources, shipbuilding facilities,

lumbering potential, and clandestine access to out-of-the-way harbors for extra-legal maritime enterprises.

For the Dutch, French and British crowns, control of those resources would be the factor that determined who dominated the rich islands of the Caribbean, and in fact the western North Atlantic and its littoral. Few of the principals in London or Paris understood the strategic value of these maritime resources, but some of the British colonial administrators, and certainly the Dutch and French navies, understood it well.³ Those ambitious men in New England, whose politics favored Mammon or Jehovah (or both) over the King, knew that their only hope for economic and political independence lay in their unfettered domination of coastal resources, and in autonomy for their maritime industries. The Indians, who had learned something about European strategy over the last several decades, and particularly during Metacomet's (King Philip's) War, realized that while Boston was the brain of the English encroachment on their land, its mouth was along the eastern coast. They concluded a strategy which they expressed in a picturesque exhortation: "Drive the pigs to the great sows Boston and New York, and they will suck her to death."⁴ They too sought domination of the coastal resources, in order to starve the English economy and regain their hereditary lands.

³ CSP. Colonial Papers, vol. 11, pp. 34-6. This was methodically explained by Edward Randolph in a letter to Sir Leoline Jenkins, dated April 30, 1681, in which he pointed out that the French and Spanish both supplied their Carribean islands from Europe, while England supplied hers from her mainland colonies, which were much closer. England also had the advantage of being able to refit her navy in New England, while her rivals had to send their ships home for refitting. The French tried to bribe at least one English mast agent to bring masts to France; see *Ibid.*, vol. 13, p. 215.

⁴ *Ibid.*, vol. 13, pp. 376-7.

Merchant Hegemony and the End of Peace

By 1670, Massachusetts merchants had gained access to most of the New England coast, from the Connecticut River to the Canso Straits. Although France periodically claimed most of the coast east of the Penobscot River, it seems to have been trade with Massachusetts that made the French settlements habitable, for the early French Royal policy toward the settlements in Canada and Acadia was one of benign neglect. Nova Scotia and the Bay of Fundy westward to Penobscot, which had belonged to a Scot under a charter from James I, was regranted by Cromwell, and passed back and forth between purchasers and claimants until James II, disregarding the current claims of his own subjects, gave it to Louis XIV in a fit of papist sycophancy.

Boston merchants knew Nova Scotia as a coast with many excellent fishing prospects, fine rivers, and a heavily forested interior, and they wanted it. Cape Breton and Newfoundland also remained in dispute. Cape Breton had good access to rich fisheries from its coast to the Banks. It also controlled the route to Newfoundland, and from the very beginning New England merchants had, through trade, acquired access to Newfoundland's fisheries.⁵ They coincidentally discovered that Newfoundland was a good source of sailors and fishermen; their trading vessels often brought back a supercargo of ambitious

⁵ Aspinwall Notarial Records, p. 69: A transaction between two Boston merchants to be settled in Newfoundland at the next fishing season (1641). Also, thirty-two years later, CSP, Colonial Papers vol. 7, pp. 524-5: "...some of the (Dutch) ships that went from New York have been in Newfoundland and taken all the English vessels in the country, five or six belonging to Massachusetts..."

seafarers who had broken their contracts with English employers to seek better opportunities in New England.⁶ Newfoundland was subject to constant environmental abuse by indifferent seasonal employees from both France and England who, in contrast to the scattered planters there, had no long-term interest in the country. There were regular calls for the Royal Navy or some established government to maintain a post and impose environmental regulations there.⁷ By the mid-seventeenth century it was clear to contemporaries that in Newfoundland's delicate ecosystem, unregulated use of the littoral by two competing commercial factions, the seasonal European fishing crews and the immigrant planters, had led to widespread environmental destruction.

⁶ *CSP* vol. 11, pp. 294-5: "Sept. 12, 1682, HMS Diamond, Bay of Bulls, Newfoundland. I arrived on 23rd August, and my orders are to sail on the 1st September, so I have not had time to give so full an account as I could have wished. I enclose your bonds. None violate the rules of the Western Charter so much as the New England traders, who spirit away the inhabitants, to the mischief both of adventurers and planters. I mayself saw one who came into St. John's with eleven hands and was sailing out with twenty. I forced him to put the extra men ashore, and took bonds from the New England traders...."

⁷ *Ibid.*, vol. 9, pp. 156, 159: "...the boatmen who now live on Newfoundland destroy all that is left there by the ships, so that the ships must reconstruct their stages, etc., every year. The ships admirals themselves destroy their stages, as well. Results in the destruction of nearly 150,000 young trees every year. An additional 50,000 young trees destroyed yearly by being barked for the stage coverings. 1,700 planters there now take 70,000 quintals of fish, or 1/3 the total. The ships throw their ballast stones overboard, filling the harbor. The planters can undercut the prices of the English ship-fishermen who go there annually. Private boatkeepers buy their provisions from New England." (Reported in 1675). See also *Ibid.*, p. 185, same year, George Pley's *Reasons For A Settled Government in Newfoundland*: "...for prevention of several abuses and for security and encouragement of trade. The yearly destruction of 250,000 young trees and 50,000 bigger trees, the burning of the woods and throwing overboard press-stones into the harbours. After the capelin (caplew-skull) used for bait is gone, the fishermen shoot their lance seines for bait, and take an infinite number of young cod, which are of no use, enough to load all the ships in the land... That no fires be made in the woods in summer time when they go to fetch 'dinnidge' for their ships, in regard the grass and moss is then so dry that many miles of woods have been burnt, so that in some harbors they are forced to go many miles for timber..."

The problem facing New England's merchants was that by 1670, in most places along the coast as far as the Penobscot, and even to the Canso Straits, there were already (in addition to the indigenous inhabitants of the land and French settlers) nominal English claimants to forest reserves, many of them long settled on their grants or simply squatting. Fishing grounds were occupied all the way to the Canso Straits or beyond by local inhabitants, under various prior patents from the Plymouth Council and Sir Ferdinando Gorges, or under patents from allies of the General Court. Merchants scrambled to acquire land with fresh water, sheltered anchorages and timbered hinterlands on the coast near good fishing grounds, and with sawmill sites just upstream at the fall line. The Indian wars began in earnest after the first generation of expansionist merchants had secured to themselves virtual hegemony over much of the coastal ecotone, and had begun to extend their grasp inland toward territories still occupied by active Indian nations.

The Insatiable Merchants of Boston

The previous chapter recounted the growth of Massachusetts claims to include the entire Merrimac River and southern Maine. Once the General Court had claimed the lands along the Merrimac, its members wasted little time in granting them to one another. Some of the grants bordered or straddled brooks which must have been former Indian fishing areas, known for shad, salmon, bass and alewives (at least one grant straddled "Alewife Brook"). This would

have repercussions in later years, when Indians targeted for particular revenge the English intruders on their ancestral fishing grounds .

The acquisitiveness of the General Court knew no bounds. In 1659, the General Court imprisoned the son of Passaconaway, the principal New Hampshire Sagamore in the Merrimac drainage, for debt. They then "permitted" some of his Indian retainers to bail him out of prison by selling a sixty-acre island in the Merrimac River, half of it already in Indian fields, to English interlopers.⁸ Eventually, following a petition from Passaconaway, the Court allowed the Indians to recover the island, and gave its English recipient 500 acres elsewhere as a consolation. The General Court had no legal title to *those* 500 acres either, beyond its own interpretation of its charter. Less than three years later the General Court "granted" Passaconaway a strip of his own land along the Merrimac, three miles long by a mile and a half on either side, above the furthest English grant, with the proviso that he not be able to alienate it without permission of the Court.⁹ This was one of a number of similar grants, and such usurpation of Indian fishing resources was a principal cause of the bitterness the eastern Indians felt toward the English. The presumptuousness of the Court in "granting" Indians bits and pieces of their own hereditary lands did not incline Indians to sympathize overly with Englishmen, particularly when they knew that the French came as traders, and in New England, at least, did not encroach

⁸ Records of the Governor & Company of the Massachusetts Bay in New England, vol. IV, part 1, pp. 403-4.

⁹ *Ibid.*, part 2, p. 51.

on Indian territory or attempt to fix Indian tribal boundaries after the European tribal fashion.

Nor did the English merchants confine their attentions solely to Indian land. A more circumspect form of encroachment involved displacing those Englishmen already occupying the land under former grants or purchases. The town of Braintree, for example, was simply occupied by the Boston Government even though it lay outside the bounds of their patent, and when one of the original purchasers contested the confiscation of his land by two Boston merchants, the General Court refused to let him take his case to the King and Council. When he went to England anyway, the Massachusetts agents in England persuaded him that the General Court would make things right if he would just come home and forbear pleading before the King. He couldn't afford two trips across the Atlantic, but he foolishly believed the agents, returned to Braintree, and was there dispossessed of all he had.¹⁰

Urban Merchant Versus Frontier Locals: Joshua Scottow and Spurwink

Given this kind of merchant acquisitiveness, tensions developed not just between English and Indians, but also between Boston merchants and local English fishermen, planters and woodsmen. Scarborough, Maine, was a case in point. The lands around Scarborough, Black Point and Spurwink had been granted under Gorges' patent to various tenants, who had further sold them or let them out for long periods (some deeds stipulated one thousand year leases) to

¹⁰ CSP, Colonial Papers, vol. 11, p. 347. Petition of Richard Thayre of Braintree, New England, to

small planters and fishermen. Since the second decade of the century, at least, this area had been known for its strategic location near good fishing grounds. It formed the bay in which fishing vessels anchored when operating from Richmond Island. The small planters there were part-time fishermen, using their own shallops in the winter fishery near the coast. Their potentially rich holdings were attractive to Boston merchants, who wanted to provide their bigger ships with cargoes of fish from their own stations without having to go more than a two-days' sail from Boston. There were equally rich fishing grounds all the way from Casco to the Canso Straits, but the further they were from Boston, the more likely they were to be under conflicting grants, or already established under another powerful claimant, or simply too difficult and expensive to develop and hold. Beyond Spurwink were the settlements of Falmouth, Maquoit, New Town, New Dartmouth, Sagadahock, Woolwich, Pejepscot, Sheepscot, Pemaquid, Saint George and Penobscot, and several scattered farmers and fishermen around the harbors in between. Beyond Penobscot, proprietary rights to the coast were even more in dispute, up to the Annapolis Basin of Nova Scotia, although isolated English and French squatters engaged peacefully here and there in fishing and subsistence farming.

Joshua Scottow, a rising merchant of Boston, was particularly interested in Spurwink. He had first appeared in Boston in a commercial capacity when he negotiated for some wharf space from Valentine Hill, William Franklin and

the Lords of Trade and Plantations.

Edward Bendall, as the harbor was first being developed, back in 1645.¹¹ In 1653 Scottow was one of the Boston merchants who gambled on backing the Huguenot De La Tour in an attempt to recover his grant in Nova Scotia from the Catholic interloper, D'Aulney. Apparently attracted by the resources of the eastern country, Scottow didn't want to go so far as Nova Scotia to benefit from the eastern fisheries. But his experiences trading with the French, as well as the natural resources of the eastward country, must have inspired him to turn his attention eastward. In 1660 he began buying land in Scarborough from the original grantees, starting with a 200-acre lot from Abraham Jocelyn. He also used his connections further down east to maintain contact with the French, as we find in an entry in the General Court Records, answering a charge from the Royal Commissioners about the ship *Charles of Overroone*.¹²

But Spurwink and the area around Richmond Island kept Scottow's attention. It was not quite half-way between Boston and the French settlement at

¹¹ Suffolk Deeds, Vol. I, Lib. 71, 72.

¹² Records of the Governor & Company of the Massachusetts Bay in New England, vol. IV, part 2, pp. 218-19. "In the year 1661, about the month of July or August, there arrived in the port of Boston Jaques Pepin, merchant, in the ship Charles of Overroone, who desired to trade, but was denied it, in compliance with the act of Parliament of England, though at that time not in force as to execution. The said Pepin therefore departed this harbor, with his ship & goods, out of the aforesaid port, & so out of this jurisdiction. Some certain weeks after, a small vessel belonging to Boston, Richard Pattishall, master, his company all Englishmen, arrived in Boston from Monhegan with several sorts of European merchandise, the which vessel was boarded by one Thos. Kirke, mariner, & other seamen, by means whereof there was like to have been a disturbance of the peace, the said Kirke having no commission or warrant for the same, nor had he (or any) desired a warrant of the Governor, nor any other authority here; but afterwards some of them repaired to the Governor, who, upon the allegations they made, there being a question made by them concerning the goods, though so brought in & challenged by the wife of Joshua Scottow, who had consigned them to her."

Kirke & Mr. Thos. Deane charged the vessel with violation of navigation act., couldn't make it stick because they didn't appear at the next General Court session, whereas the defendant did appear.

Pentagoet, (now Castine) on Penobscot Bay, and therefore well-suited to be an entrepôt for importing enumerated goods without paying duties. In 1663 Henry Jocelyn, an original settler and principal landowner in the Black Point area, mortgaged to Scottow all his holdings at Scarborough, which amounted to 2,250 acres, with a dwelling, cattle, an orchard, fish house and stages.¹³ Four years after that, in 1667, Scottow bought land in Black Point from two other planters. By the time the first war started with the eastern Indians in 1676, Scottow was heavily invested in the Scarborough area. Here he was beyond the regular purview of both the King's law and Boston's, and had a convenient base from which to transship goods smuggled from the eastward, as well as a rich fishing resource just offshore.

Boston had by this time reasserted its jurisdiction over Maine at gunpoint. When the King's commissioners came through Maine in 1665 and appointed locals to positions of authority, Boston responded by sending an armed troop of horse, led by three principal Puritan merchant-magistrates, Captain John Leverett, Edward Tyng, and Captain Robert Pike, to unseat them and install men picked by the Massachusetts General Court. (We will hear of Edward Tyng again).¹⁴ Scottow was part of the merchant circle in the Bay. When Metacomet's War began, he took a captain's commission in the Massachusetts militia, and

¹³ York Deeds, vol. 2, Part I, fol. 7.

¹⁴ CSP, vol. 10, p. 55: Typical is the affidavit of Edmond Pattishall. There are many accounts of this. Of real significance is the fact that Edward Tyng had since 1661 been one of the Kennebec Proprietors, the group of four Boston merchants who had bought out the Plymouth patent to the Kennebec River lands. The others were Antipas Boyse, John Winslow, and Captain Thomas Brattle. Boyse had invested in Oyster River, New Hampshire, with his brother-in-law Valentine Hill, in 1661, the same year he bought his share of the Kennebec Proprietorship. See Gordon E.

went with his troops to garrison the fort at Black Point. Black Point divides the Spurwink river from the Nonesuch river that drains Scarborough Marsh, and at that time Black Point fort controlled access to the fisheries on both sides. In his capacity as Captain of the fort, Scottow refused to provide powder on credit to the locals so they could defend themselves. If the locals couldn't afford to buy ammunition with cash, he left them disarmed to face imminent annihilation, which soon happened. On two occasions in 1676, Scottow refused to allow his troops to go to the aid of local men who had come under Indian attack. Both times the parties attacked were destroyed with terrible losses, on one occasion an entire family was annihilated, on the other a troop of local men was wiped out in plain view of the fort. Scottow watched this massacre of his neighbors, dismissing pleas from a lieutenant to allow him to go to their aid. He then refused the offer of a local fisherman to go rescue them in his own shallop if Scottow would send some troops with him for reinforcements, and watched further as fishermen from Saco attempted a rescue and were themselves massacred.¹⁵ When that war was over, Scottow was the principal landowner at Scarborough, (according to Hubbard, his contemporary) and presumably had all the fishing stages he needed. It must have been much easier to buy homesteads and fishing stages from the widows and orphans of the fishermen whose deaths he had passively facilitated than it would have been to acquire them from the fishermen themselves. Scottow left a diary of the events, written after the facts,

Kershaw, The Kennebec Proprietors (Portland, ME: Maine Historical Society, 1975, pp. 13-15.

¹⁵ Hubbard, History of the Indian Wars of New England (Boston: 1676; Drake, ed., subtitled From Piscataqua to Pemaquid: 1865), vol. 2, Fn, pp. 126-7.

which tells another story.¹⁶ Nothing in the diary is supported by the testimony of any other person involved in the proceedings of that war around Black Point, and contemporary testimony is even more damning, stating that Scottow used the soldiers to work on his own projects. This last occurred in protest when in 1679 Scottow attempted to persuade the General Court to levy a tax on the men of Black Point to reimburse himself for expenses incurred while he was at the fort.¹⁷

Although the General Court censured Scottow for his apparent cowardly negligence, their disapproval was short-lived, for when Falmouth was resettled in 1681 they made him one of the three commissioners for that area, which included his Scarborough lands.¹⁸ It's unlikely that the Scottow experience was not lost on up-and-coming Boston merchants: Indians could be unwitting allies in their acquisition of lucrative properties. Small-holders were doubtless a stumbling block to great ambitions, resisting the encroachment of any merchant seeking hegemony in their area; when war came, whole families sometimes felicitously disappeared without any heirs to their farms. Moreover, starving refugees driven in to Boston might let their frontier homes and lands go at fire-sale prices, just to feed and shelter themselves. War held some promise for

¹⁶ MEHS Collections, series 1, vol. 3, pp. 117-23.

¹⁷ *Ibid.*, p. 125: "We whose names we have underwritten do declare that we were never in the least privy to the sending for the soldiers which came from Boston to Black Point, neither during the time of their stay did we in any sort receive advantage by them; but that they were maintained upon the account of Mr. Scottow: for all the while his fishermen were thereby capacitated to keep at sea for the whole season; and much work was done by them which was greatly turned to his profit..."

¹⁸ Maine Province and Court Records, (Portland: MEHS, 1928), vol. 3, p. xxvi.

enterprising merchants, provided it happened at a distance on someone else's land.

Local Merchant versus Boston Merchant

Scottow made a mistake in moving his family seat to Scarborough, because in the next war, his son Thomas had none of the crucial personal attachments to the Massachusetts Council and Assembly that had brought such wealth to Joshua. In January of 1690, Thomas Scottow was a signatory to the "Petition and address of the inhabitants of Maine and the County of Cornwall in New England" to the General Court, asking for help against the Indians.¹⁹ No help was forthcoming. In fact, the Boston-based president-designate of the Province of Maine, Thomas Danforth, had already set himself up to become the principal magnate and merchant in the area. Danforth, who had first appeared on the political scene as surveyor, and then as a deputy to the General Court for Cambridge in 1657, became an Assistant in 1659. Appointed that year to keep court at the eastward, and already familiar with the land around Dover, NH, from his surveying work (mentioned earlier in this chapter, footnote 1), he developed an acquisitive interest in the eastern coastal area. By 1662 he was one of the Commissioners for the United Colonies. Later, in company with three

¹⁹ CSP, Colonial Papers vol. 13, p. 212. Petition and address of the inhabitants of Maine and the County of Cornwall in New England: "...in April, to our great grief and loss, the people of Boston rose in insurrection, drew off all the garrisons and posts and left us without any succour or defence. Shortly afterwards the Indians were supplied with arms and ammunition by vessels sent from Boston, whereupon they attacked the fortifications which the forces had deserted, and overran a great part of Maine before any assistance was sent from Boston. We have suffered losses to £40,000 value, besides to loss of 300 inhabitants...."

other ardent Puritan merchants--Samuel Nowell, Nathaniel Saltonstall and Bartholomew Gedney--Danforth led an outright military invasion of Falmouth, Maine, during which they overthrew the King's commissioners.²⁰ This Puritan *reconquista* of 1680 came in defiance of the Royal order for Massachusetts to get out of Maine and relinquish political control there. The following year, while he was also Deputy Governor of Massachusetts under Bradstreet, he set himself up as the "president" of Maine, incurring charges of high misdemeanor against the Royal prerogative.²¹ In 1683 Danforth expropriated much of the land on Falmouth neck from the survivors of the last Indian massacre, and built Fort Loyal there, laying out a settlement around the fort on land belonging to previous settlers. Mary Munjoy, widow of the former principal owner of that land, was given the balance of today's Munjoy Hill, House Island just offshore (deserted then and now), and two hundred unclaimed acres on another island in Casco Bay, "for the final ending of all present disputes or after controversies," that is, to shut her up.²² After the events of April 18, 1689, when the extreme Puritan faction, backed by local farmers and small merchants staged a coup d'état in Boston, Danforth again became Deputy Governor under the aging Bradstreet. When hostilities began to the eastward the inhabitants of Falmouth, including

²⁰ CSP, Colonial Papers, vol. 11, pp. 34-6. Edward Randolph to Sir Leoline Jenkins: "Besides these charges there is the growing expense of Mr. Danforth's expedition, and of maintaining a garrison to secure those allotments of land which Mr. Danforth and others of the magistracy have secured to themselves out of the province of Maine. Neither they nor any persons now in public office in the Colony have paid a penny towards the purchase thereof, and this, together with the imposition of an excise on all live-stock imported from other Colonies into Massachusetts, has so incensed the people that at my coming they were in high discontent."

²¹ *Ibid.*, pp. 19-20.

²² Records of the Governor & Company of the Massachusetts Bay in New England, vol. V, pp. 395-6.

Scottow's son Thomas, appealed to the General Court for help. Danforth replied "that Jesus Christ was king of earth as well as heaven, and that if Jesus Christ did not help them, he could not."²³ Aided neither by Christ nor by the General Court, Falmouth was utterly destroyed by the Indians, who took the survivors to Canada, and left the place desolate until peace was declared seven years later.²⁴ At the end of the war, Danforth appeared in the ruins of Falmouth to pick up the pieces of the Casco Bay settlements and put them in his pocket. He became one of the principal proprietors of the Falmouth area, and is today memorialized in one of the streets that runs parallel to Portland's harbor.

Boston Merchants versus Old Planters:

The Judicious Use of Censure, Exile, Debt and Forced Sale.

Other Boston merchants acquired access to Saco by less violent but equally devious means. The original principal landowner in Saco, Richard Vines, had acquired title to most of the land there from Sir Ferdinando Gorges, and had frequented the area since 1616. Vines sold most of his interest to Dr. Robert Childs, Esq., in 1645. But in 1646 the General Court censured Childs for being among the merchant-petitioners who remonstrated with it for depriving non-

²³ CSP, Colonial Papers, vol. 13, pp. 272-3.

²⁴ MEHS Series 2, vol. V, p. 145, the testimony of Sylvanus Davis: "myself having command of a garrison in Falmouth for the defense of the same, a party of French from Canada joined with a company of Indians, to the number of betwixt 4 or 500 French and Indians, set upon our fort the 16th of May 1690, about dawn began our fight. The 20th about 3 o'clock (in the) afternoon we were taken. They fought us 5 days and 4 nights, in which time they killed and wounded the greatest part of our men, burned all the houses, and at last we were forced to parley with them...(after surrendering on a guarantee of safe withdrawal) they broke their articles, suffered our women and children and our men to be made captives in the hands of the heathen, to be cruelly murdered & destroyed, many of them, & especially our wounded men, only the French kept myself & 3 or 4 more...."

Puritan Englishmen of their hereditary legal rights. Childs was forced out of New England, but before he left he sold his Saco land to Beex & Co., the proprietors of the Saugus Iron Works, who also owned an interest in some of the mills at Newichewannock. When Beex & Co. fell on hard times (perhaps because of rampant embezzlement from the Saugus Iron works--see chapter 4, Fn. 93), Major William Phillips, a Boston merchant, purchased their patent for the bargain price of £90. But he transferred his full interest to Saco, and that was a mistake. As a principal landowner under a deed descended from Gorges, he refused to acknowledge Massachusetts' jurisdiction there, whereupon the General Court clapped him in prison in Boston. Richard Russell, the treasurer of the Court, posted his £500 bail and thereby acquired at least a thousand acres in Saco for himself.²⁵

The Case of John Bonython

Another old planter in Saco was John Bonython, who had landed there in 1631, and had since acquired extensive landholdings, some of which must have harbored fishing stages. John Bonython, Henry Jocelyn and Robert Jordan all held patents under Sir Ferdinando Gorges or the Plymouth Company to large tracts of land at Saco, Black Point and Spurwink. When Massachusetts siezed the lower part of Maine in 1653, these three justifiably defied the Bay Colony's claim. The Massachusetts General Court then went after them with arrest warrants. Jocelyn and Jordan quickly gave bonds for their submission, but Bonython

²⁵ Collections of the MEHS. Documentary History, second Series, vol. 6, pp. 22-31. Also, for

refused, and eluded the Court's officers, threatening to kill any who tried to take him. Charging him with molesting "both his neighbors, and others that occasionally traffic or fish in those parts," the General Court then issued a warrant of outlawry on Bonython, offering a bounty of £20 to any who would bring him in, dead or alive.²⁶ This was a very real threat, because the Massachusetts General Court refused to allow appeals to the King in Council, and treated any attempt to make such an appeal as an act of treason against the Commonwealth--itself a capital offense under their own code. In effect they made themselves prosecutors, judges and the highest court of appeal. By 1658 Bonython had submitted, to save his neck from bounty hunters.²⁷ Now three major patent-holders under the prior grantor, who together had controlled much of the best coastal land and fishing ground between Saco and Cape Elizabeth, were subjects of the General Court, and their lands were accessible to Boston merchants.

The Phillips and Bonython experience would be repeated often. When someone outside the inner circle of the Massachusetts General Court held a desirable property, he might find himself in violation of a new law, the penalty for which involved opening his property to the Puritan oligarchy. Or, following the unhappy example of Governor Winthrop, he might find himself in debt to a Boston merchant, mortgage his property, and be forced by economic circumstances (circumstances partly controlled by the Boston merchants) to

Russell, see Saltonstall Papers, vol. 1, 1607-1789, p. 339.

²⁶ Records of the Governor & Company of the Massachusetts Bay in New England, vol. IV, p. 343.

default on the mortgage. By these means Christopher Lawson lost the finest planting and fishing location on the Kennebec River to Humphrey Davy, a merchant of Boston. In 1668 he mortgaged Swan Island, in Merrymeeting Bay, at the confluence of the Kennebec and Androscoggin rivers, to Davy for a bit over £110. In 1672, Lawson deposed that

for want of payment and satisfaction the premises are justly become forfeited unto, & possessed of, the said Davy, who notwithstanding, since offered me the premises again upon payment of what is due him, which I am incapable to perform or procure to be performed, so that it remains firmly to him...²⁸

If Bay merchants quickly learned how to manipulate hostilities with the French and Indians to acquire the coastal resources they coveted, they seldom paid with personal sacrifice. One exception was Capt. Thomas Lake. Lake, along with Thomas Clarke, had bought Arrowsic Island from the Indians, and established an extensive trading and fishing station there, with a fort and warehouse, possibly a shipyard,²⁹ and a substantial number of tenants. He was well on his way to realizing the 17th-century colonial merchant's dream of a vertical local monopoly, until lesser merchants precipitated the opening of an Eastern front in Metacomet's War. Tensions with the Abenaki had already been rising because of ceaseless English encroachment on Indian land, thoughtless English provocations such as a prank which led to the drowning of a Sagamore's child, and frequent English interference with centuries-old Indian riparian

²⁷ Folsom, George, History of Saco and Biddeford, (Saco, Maine: 1830; 1975 reprint), pp. 87-89.

²⁸ Records of the Governor & Company of the Massachusetts Bay in New England, vol.V, pp. 400-1.

²⁹ Baker, Emerson W., The Clark and Lake Company: The Historical Archaeology of a Seventeenth-Century Maine Settlement, (Augusta, ME: Maine Historic Preservation Committee, 1985), p. 12.

fisheries. Then a ketch from Boston sailed to the eastward and captured several Indians, taking them to the slave market in Fayal.³⁰ This ketch was armed with a warrant from Richard Waldron of the New Hampshire Council to take Indians or destroy them--he had received orders to that end from Major General Denison of Massachusetts.³¹ In a retaliatory attack in August, 1676, enraged Indians struck at English settlements along the Kennebec, and Lake was killed while trying to escape from his fort. His body was not recovered until the next spring. Lake's timing was poor; he had not originally intended to be there, and other principal merchants arranged to be safely in Boston when hostilities began.

Anglo-Dutch Wars and the Maritime Industries

The full range of relationships between the Boston merchants and the coastal resources on the eve of the first Indian War has not been sufficiently examined. It is safe to say that among themselves the merchants seem to have

³⁰ Hubbard, William, History of the Indian Wars of New England, Drake ed., 1865, vol. 2, "From Piscataqua to Pemaquid." pp. 93-5 & Drake's fn:

On the 13th of November, 1676, Thomas Miller, aged about 42, deposed before Commissioner Elias Stileman, at Strawberry Bank, that being at Feall (Fayal, one of the Azores) he met with a vessel which had come in some seven or eight days before, which, on enquiry he learned was from "Bosting," having sailed thence about "Cresmas" or before. Saw Indians on board, but how many he could not tell, but being on shore next day, and in discourse with "Mr. Fisher about the ketch and the Indians, he told me that he had proffered the merchant 37 or 38 pipes of Cong wines for his Indians. He said to me there were seventeen. He further learned they were gotten at the eastward, and that the vessel (ketch) belonged to Mr. 'Lines.'"

At the same time "John Sherburn, aged about 26, and William Rackliffe, aged about 46" testified, "that sometime the last April, being in Fayal, they saw a small ketch there which came from New England, and had several Indians aboard. One of us saw about five or six, the other about half a score, and some of the company said they brought said Indians from New England, and got them to the eastward. They said the said ketch was Mr. Lines's and belonged to Boston; but we remember not the name of either of ketch or master or merchant. The Indians were landed the day before we came away. We askt the company what particulary place they had them from at the eastward, but they would not tell us." See also The Affidavit of Edmond Pateshall (Pattishall), CSP, Colonial Papers, vol. 10, p. 55. See also MEHS Collections, second series, vol. 6, pp. 118-19.

had quite a few irons in the fire. One factor not yet properly examined was that between 1653 and 1674 the Anglo-Dutch wars had brought Boston a boon in seamen--one captain who visited Boston reported that 4,000 deserters from His Majesty's Navy had fled to New England, where they were protected by the Boston magistrates. This sudden influx in sailors must have disrupted the economic balance between fisherman and merchant, and such potential competition certainly put the fisherman at a distinct disadvantage when he negotiated terms with a merchant. The merchants and the General Court were delighted to find themselves with such a large maritime labor pool--when the captain requested that the Governor aid him in recovering deserters from his own ship, he had barely escaped with his life.³² London had its hands full with Dutch naval threats and Stuart instabilities, and both Parliament and the House of Lords had a substantial number of New England sympathizers and investors, so the Royal government was in no condition to bring Massachusetts Bay to heel.

The wave of immigrant seamen combined with New England's already-substantial shipbuilding capacity to generate a new industry: piracy. Privateering had gone on since Hollingsworth built a privateer for Winthrop and the first General Court, but piracy was more lucrative. Some of the escaped tars went cruising under letters of marque for the Dutch, who between wars with England were at war with France.³³ Acting as Dutch privateers, one Boston

³¹ MEHS Collections, second series, vol. 6, pp. 88-90.

³² Calendar of State Papers, Colonial Papers, vol. 9, pp. 306-7.

³³ In August and September of 1666, John Hull noted four French prizes brought into Boston by English privateers. Diary of John Hull (Boston: J. Wilson and Son, 1857; New York: AMS Press,

vessel sailed to Nova Scotia and there robbed a Piscataqua bark and siezed another Boston vessel for trading with the French.³⁴ For this they got into serious trouble, because the bark from Piscataqua belonged to a New Hampshire oligarch, and the other vessel belonged to someone with influence in Boston. They barely escaped with their lives after a capital trial in Boston. Piracy was safer conducted at a distance, and that distance was quickly found.

Maritime Warfare and Creative Use of Outport Shipyards

In times of peace, merchants in Boston and other New England cities contracted with shipbuilders in the outports to provide them with new vessels. Apparently, toward the end of the seventeenth century, some of these vessels were never registered, or sailed on papers bought from other colonial governors. Several times crews of New England mariners, probably augmented by deserters from the Dutch Wars, sailed to the Indian ocean, where they preyed on passing merchant vessels. Operating from the renowned pirate base at St. Mary's, just north of Madagascar, they on one occasion took a ship transporting cargo for the Mogul.³⁵ Crewshares on these voyages could be remarkable; all the colonies talked about one crew that returned with shares amounting to more than £1,000 each.³⁶

1982 reprint), pp. 222-3.

³⁴ Collections of the Maine Historical Society. Documentary History, second series, vol. 6, pp. 46-7.

³⁵ CSP. Colonial Papers, vol. 15, pp. 259-64.

³⁶ *Ibid.*

These unregistered ships returned a tidy profit to their investors. After a successful voyage they were sold in the Caribbean, abandoned or traded, some of the booty being used to buy legitimate smaller vessels in which the crew made their way back to their home ports.³⁷ The General Court was happy to overlook piratical escapades because they brought substantial amounts of gold and silver into New England, some of which ended up in the Boston mint, providing the Bay merchants with their own solid currency.³⁸ Using this loot, Massachusetts Bay coined its own money without Royal permission, the first mintmaster being John Hull, a goldsmith.³⁹ (It was perhaps no coincidence that Hull and Joshua Scottow were both parishioners of the Third Church, and Hull addressed Scottow as "my loving brother."⁴⁰ Hull was also an active merchant, and part owner of at least 15 vessels, from ships to ketches. His vessels were built in the

³⁷ *Ibid.* See also CSP, Colonial Papers, vol. 14, p. 295, Nathaniel Byfield to Joseph Dudley in 1694: "A ship lately came in to Rhode Island with great quantities of gold and silver, most likely obtained by wickedness. The people belonging to her were in Boston, and the Lieutenant-Governor issued a warrant against the captain and others, but when the Governor (Sir Wm. Phips) came back from Pemaquid, he called the warrant in."

³⁸ CSP, vol. 13, pp. 45-7. "...Notwithstanding all the pretence of grievances and the cry of the Governor's oppression, it is not the person of Sir Edmund Andros but the Government that they design to have removed, that they may freely trade; and therefore they urge the necessity for a new charter. Their reasons are: 1) Because since the vacation of their charter they have been kept from breaches of the Navigation Acts, which they used to violate with great profit to themselves; and they are also restrained from fitting out privateers which used to rob the Spanish West Indies. They durst not harbor pirates in Sir Edmund's time. 2) Mr. Richard Wharton was a great undertaker for pirates and promoter of irregular trade. 3) The people have been restrained from trading with the French in Newfoundland, which enrages the merchants much. 4) Their liberty of coining money is taken away, which used to encourage pirates to bring their plate to be minted. Mr. Sewell, (Sewall) who, as well as Mr. Wharton, is now an agent in England, was master of the mint, and a great loser by its abolition." Edward Randolph to the Lords of Trade and Plantations, May 29, 1689. (Written from his jail cell.)

³⁹ See the order of the Massachusetts General Court, June 10, 1652, and Thomas Hutchinson, History of Massachusetts Bay, (Boston: Thomas and John Fleet, 1764. New York: Arno Press reprint, 1972) vol. 1, pp. 177-8.

⁴⁰ Diary of John Hull, p. 139.

Massachusetts' jurisdiction, and traded as far as Spain, the West Indies and England. He seems to have been followed in his office of mintmaster by his son-in-law Samuel Sewall, although Sewall makes no mention of it in his diary).

At least one established Boston merchant was well-known for having acquired his start-up capital on a pirate voyage.⁴¹ No less a merchant prince than Samuel Shrimpton consorted openly with pirates in defiance of the King's customs agent.⁴² Vessels might be built in New England, sent out as nominal merchantmen, and armed with guns found elsewhere, as we gather from the case of Samuel Hanson, who had a ship built for himself in New England, but went to the Caribbean to find guns for her. Discovering some cannon on a wharf in Barbados, he conspired with a local to steal them while the guns' custodian, a Portuguese Jew, was engaged in religious observances. The custodian, Anthony Rodriguez, feared that he would be punished for losing the King's cannon, and complained to the governor, who after a search found them in the hold of a New England ship in the harbor. He subsequently brought charges against Hanson, and found other reasons to suspect him of plotting a piratical voyage.⁴³

⁴¹ CSP, Colonial Papers, vol. 15, pp. 259-76.

⁴² CSP, Colonial Papers, vol. 11, pp. 684-6. Wm. Dyre to Sir Leoline Jenkins: Sept. 12, 1684, In obedience to the royal proclamation of 12th March and letter of 13th April, 1684, I have made seizure of a privateer "of the first magnitude, famous in bloodshed and robberies," called La Trompeuse, (commanded by one Michel Andreson, Bhra, or Lavanza, a reputed Frenchman). I have moved for justice against him but have been delayed, and much discouraged and severely threatened by many, and more especially by one Mr. Samuel Shrimpton, a merchant of this place, to have my brains beat out or a stab for seizing the said ship. He has supplied, succoured, countenanced and encouraged her, and taken her into his custody and keeping at Noddles Island, the place and receptacle of all piratical and uncustomed goods, also the guns, ammunition and all, though under seizure by myself for the King's use, resolving and boasting to defend the same and fit the ship out again. He has also received clandestinely great quantities of their gold, silver, jewels, and cacao within the compass of my seizure and claim.

⁴³ *Ibid.*, pp. 328-31.

Smuggling was another likely maritime industry for venture capital. Any merchant who had access to an outport could load a ship there, send her into the Mediterranean or to mainland Europe, trade masts, spars, ship-timber and fish for contraband goods,⁴⁴ bring her back to the outport, and from there gradually unload this contraband on the urban market via the innumerable shallops and ketches that plied the coast without ever clearing customs.⁴⁵ Once in the metropolitan area, illicitly imported goods could be sold for cash to returning pirates who coveted European fineries, but couldn't touch at European ports except at the risk of being hanged. Truly powerful members of the oligarchy didn't trouble themselves with such complicated ruses; they pulled rank. When a customs officer appointed by the Massachusetts government tried to arrest the

⁴⁴ Although there is ample evidence in New England correspondence of ship timbers exported to the Iberian Peninsula at the end of the seventeenth century, personal correspondence from Dr. Carla Rahn Phillips (author of Six Galleons For the King of Spain) and Prof.^a Doutora Manuela Mendonça (Portuguese National Archives) in 1994, suggests that there are no official records of this trade from the Iberian side of the transactions. For Colonial Records, see the report of Lord Bellomont to the Council of Trade and Plantations, CSP, Colonial Papers vol. 18, pp. 568-600. See also *Ibid.*, pp. 191-201, Bellomont to the same, 1700: "I heard not the least syllable of their loading this ship with ship-timber at Piscataqua till Mr Sheafe, the Deputy Collector there, writ me word of it...Mr. Daniel Oliver and Mr. Wm Welstead, merchants in this town (Boston) are freighters of this ship, and own to me her lading is to be pipe-staves, plank for ships and eight masts of 16 inches diameter. They say, too, she is almost quite loaden and designed for Portugal." Also Bellomont to the same, 1700: "Mr. Partridge told me last year, when I was at Piscataqua, that he had built as many ships since the war at that place as he was paid £22,000 for in England. [author's note: according to Partridge's own price list, at £7.5 -11 per ton, this came to between 2,200 and 2,900 tons of shipping--it could easily have amounted to 20 or more ships.] He had then a great ship on the stocks. I was then told, I think by Mr Partridge, that he and some others were going to build a vessel of 600 ton. I am in no manner of doubt but if such a vessel were suffered to be built there, these people would adventure it to make a trip to Portugal with a load of masts. I suspect this design, because Mr. Partridge told me, if I could have leave to send a ship's loading of masts for men-of-war to Lisbon, I could have any money for 'em that I would ask. I find that besides the timber exported from Piscataqua to Spain, Portugal and the West Indies for the account of the merchants and inhabitants of the place, the merchants of this town (Boston) also are furnished from thence with almost all the timber they send to the forementioned countries..."

⁴⁵ See the many letters of Edward Randolph during his tenure as Customs Officer in New England, in volumes 10-14 of the Calendar of State Papers, Colonial Papers.

cargo of a ship belonging to the Governor's son, he was threatened, and "the Governor said that if he had been there he would have thrown me overboard." The account here mentioned is so illustrative of the methods of Boston's Puritan Oligarchy that it warrants inclusion in the footnotes.⁴⁶ That few of their exports were intended for England is reflected in the customs report for London imports, October 1 to November 1, 1681. All of the goods listed, except skins and walrus tusks ('elephant teeth') had come from the Caribbean area, not from New England. Much of New England's export trade went either to the Caribbean or directly to Europe, whence a great percentage eventually returned to New England as contraband.⁴⁷ In fact, Europeans came directly to New England ports

⁴⁶ *Ibid.*, vol. 11, p. 222. April 19, 1682: Petition of Robert Orchard, of Boston, New England, to the King and Privy Council. "My father spent his life and fortune in the late King's service, and I was forced to enlist as a private soldier on one of the King's ships then engaged in reducing New York. I then settled in Boston, but being observed to be averse to the principles of the people many abuses were put on me, notwithstanding that I had done them good service and suffered much in the Indian war. Instead of rewarding me they ordered me, when I was extremely ill, and all my servants to watch. I complied as far as I could, and sent all my servants, but was presently fined for not watching, and the fine was levied on my goods by officers and files of musketeers. Again, having imported divers goods from England, I was required to pay duty again in Boston, and not paying forthwith was fined ten pounds, for which goods to much greater value were levied. I was afterward appointed an inspector under the law for prohibiting the exportation of wool, but the Governor's son being owner of the first ship that I boarded I was discountenanced and threatened, and the Governor said that if he had been there he would have thrown me overboard. I then resolved to go home and appeal to the King, but this becoming known a fine was levied on my goods for not serving in the trained bands, and while I came ashore to settle it the ship sailed without me. The authorities then took such measures to prevent my sailing that I was forced to travel to Virginia and sail thence. Further, the authorities prohibit all but certain persons to trade with the Indians. I beg for redress and compensation for injury, and for an order throwing open the Indian trade to all."

⁴⁷ *CSP, Colonial Papers* vol. 11, p. 135. Abstracted from the account of the Commissioners of Customs. White sugar 830 cwt., Brown sugar 24,650 cwt., Ginger 122.5 cwt., Molasses 91.5 cwt., Aloes 35 lbs., Casticorum 49 lbs., Indigo 10,360 lbs., Annetto 350 lbs., Tobacco 109,550 lbs., Cow hides 69, Catskins 141, Buff hides 768, Bearskins 3, Vizer skins (sic) 1,246, Tortoise shell 632 lbs., Elephants' teeth (walrus tusks, presumably) 28 cwt., Old Shruff (sic) 18.5 cwt., Cacao 52 cwt., Logwood 725 cwt., Brazelette 459 cwt., Pimento 7,357 lbs. Fustic 60 cwt., Nicaragua wood 14 tons, Lignum vitae 63 cwt., Hand baskets 100 dozen, Bast hats (sic) 4 dozen, Aqua vitae 944 gallons, Lime juice 1,512 gallons, Cotton wool 221 bags. Exports from the Port of London to the Colonies in the same period went in thirty ships, sixteen of them bound to Virginia...

to trade directly for local products--John Hull mentions a merchant of a Portuguese ship from Lisbon who drowned while sailing for pleasure in the Bay, as he was waiting for his ship to be loaded.⁴⁸

Trading New England products directly into England was only for the blindly loyal and the timid. Whenever it was possible, New England merchants sought ways to turn their coastal resources first into European merchandise, then into gold and silver, and finally into coins or plate. In the absence of a reliable and durable banking industry, and given the tenuousness of a world trade system built on letters of credit, it was the only way to insure their profits in an untraceable manner.

Because Massachusetts' wealth came directly or indirectly from the eastern frontier, and depended on their control of the coast, the General Court itself was ambiguous about war with the Indians. Officially the government tried to curb English encroachment on Indian lands down east; unofficially it wanted Indians out of the way. Those rising merchant princes who were already heavily invested in developing the eastern coast knew that war might ruin their nascent empires. Many little merchants, however, were motivated by envy and greed; they had nothing to lose from a war more than a hundred miles away, which might bring down their more powerful colleagues, eliminate local landowners, and open those lands to smaller entrepreneurs.

At the beginning of Metacomet's war, those English who attempted to mediate for the Indians were censured in the Assembly. When Lieutenant

⁴⁸ Diary of John Hull, p. 240.

Gardiner, at Pemaquid, wrote to Governor Leverett that the Indians thereabouts did not seem to be hostile except after provocation, local fishermen denounced him for trading with the enemy, and the Court issued a warrant for his arrest.⁴⁹ With his removal, Pemaquid was made vulnerable to the Indians. Smaller Boston merchants actually made voyages to the eastward to trade guns to the French and Indians for furs, even when they were at war with New England.⁵⁰ This sort of internecine confusion prevailed until after the Glorious Revolution and King William's war. Local fishermen, farmers and lumbermen resented any regimentation imposed by professional officers, or by militia officers from away, even when their own lives depended on it. Their hyperbolic freedom reached its culmination in the Glorious Revolution, when Boston dissolved in near-anarchy, the most radical Puritans, led by Thomas Danforth, seized and imprisoned the regular Army and Navy officers stationed in New England, disabled the frigate on the New England station, and withdrew the troops from all the forts to the eastward.

In New England, the Glorious Revolution had all the earmarks of a coup d'état. The Government itself was taken over by the most extreme faction of the former Massachusetts Assembly, at Danforth's urging, and with local militia demonstrating in force.⁵¹ The King's frigate *Rose*, on the Boston Station, was

⁴⁹ MEHS Collections, Second Series, vol. 6, pp. 91-3, 96-7.

⁵⁰ CSP, Colonial Papers, vol. 13, pp. 301, 592.

⁵¹ *Ibid.*, pp. 92-5. "On the 18th of April, 1689, about 8 o'clock in the morning, Governor Sir Edmund Andros, hearing that some numbers of men were gathering together at Charlestown, sent for the sheriff, who assured him that the report was false. About two hours later, Captain George, of one of the King's frigates, coming on shore was seized by the inhabitants. He asked their authority, and they shewed him a sword and said that was their authority. By the time this reached the

tied up and stripped of her sails. Her officers were imprisoned, and the vessel put under command of her own ship's carpenter.⁵² Then New England watched as the French and Indians drove their countrymen out of Maine all the way to Wells, and put an end to the regular mast trade. At the same time the French navy and French and Indian privateers swept the coast nearly clean of English fishing vessels, and Indian guerillas, often with French reinforcements, put a temporary end to the naval stores trade and the lumber industry.⁵³ The resulting

Governor's ears there were at least a thousand people in arms, seizing and carrying to prison all whom they suspected to oppose or disapprove their designs. About noon they called a Council, made Bradstreet, formerly Governor, president, and then drew up a paper explaining why they took up arms." A full description of the events of April 18, 1689 is followed by a protestation of innocence from the leaders of the insurgents. "Ourselves as well as many others the inhabitants of this town and places adjacent, being surprised with the people's sudden taking to arms, in the prior motion whereof we were wholly ignorant,' do now call upon you to surrender the Government and fortifications..."

⁵² Ibid., pp. 66-8.

⁵³ Ibid., pp. 140-1, Randolph to Lords of Trade & Plantations: "The fisheries and lumber (our principal commodities) are quite destroyed, besides the loss of a fruitful country; all the great masts for the Royal Navy are in the hands of the French or Indians. This is but the beginning of the desolation brought on this country by an anti-monarchical faction. Three days after they had subverted the Government the Council gave orders to Captain Savage to dismiss all officers and draw off all the soldiers settled by Sir Edmund Andros in the forts above named, by which the whole country was until recently so well secured that the Indians were about to bring in their chief rebels and submit to mercy. But by this success and extraordinary booty their numbers are increased, several nations have joined them and made them up to five or six hundred fighting men. In March last they were supplied with ammunition by some merchants of Boston, and since then by the French from Canada. The inhabitants of Cape Cod are apprehensive of a rising of Indians there also."

See also Ibid., p. 120. 15 July, 1689, Francis Brinley to Thomas Brinley, Newport, Rhode Island: "The Indians have destroyed thirty families on the Piscataqua. We are in great confusion and without any government but what some have assumed by the help of the mobile. Do what you can to get us a good settled Government, for if the Government of old times be restored there can be no living here for sober men. To be governed among ourselves by some chosen from among us is nearly anarchy." See also Ibid., Boston, 31 July, 1689, Benjamin Davis to Edward Hull: "We have only rumors of a war with France or of an action of Admiral Herbert against her fleet. All is confusion here. I am afraid that his people is so unruly that nothing but an immediate Governor from the King can rule them. They expect Mather with a charter. If it pleases them--well; if not, they will despair, for they are not afraid to say that the Crown of England has nothing to do with them. I wish my country as well as any of them, but I hate rebellious actions. The pulling down of Sir E. Andros's Government has done no good, but the contrary, since they called home the army; and the Indians have since made great slaughter and destruction."

disaster created such a backlash that the smaller merchants and their extremist supporters were politically marginalized, and the great merchants were swayed to support a Royal Governor just to restore stability.

By the end of King William's War (The War of the League of Augsburg) in 1697, the ownership of the eastern coastal resources as far as Nova Scotia had been decided in favor of various rising merchant princes of Boston. There was still the question of Boston merchant versus the King's prerogative, however, and the first Royal Governor to replace the insurrectionist Danforth government was careful to restore many of the same institutions that had previously incurred Royal displeasure. William Phips was violently offensive to the captains of Royal Navy frigates on the Boston station, and made it nearly impossible for them to fulfill their duties. He knew where his bread was best buttered, and it was not in Whitehall. A King's frigate on the Boston station would put much of the contraband trade out of business, and certainly dilute or obviate the Governor's sub-rosa profit from locally-built and locally-manned privateers. Byfield, in his letter mentioned in the footnote above, informed Joseph Dudley that since the Royal frigates *Nonsuch* and *Conception* had been off the Boston station,

a French privateer has recently taken five of our fishing boats, and...we have nothing to attack the French or to convoy our merchant vessels except a small vessel of about 70 tons, built by order of the last Assembly. She may do service against small privateers but is not comparable to the transport of near 200 tons taken by the *Nonsuch* last year, which was sold by the Governor, for reasons known to himself, for £500.⁵⁴

⁵⁴ Ibid., vol. 14, p. 294.

Byfield neglected to note that anything taken by Royal Navy frigates was on record; local privateers could work "off the books," and make a better return on investments of local timber and their own sweat equity.

Maritime Hostilities Affect the Industries

It is useful to review the rôle of war in the relationship between the maritime industries and the coastal environment. Massachusetts had barely extended its control over Southern Maine when Cromwell's foreign policy provoked the Dutch to open hostilities with England. The First Dutch War began in 1653, and lasted until 1654, during which time New England voluntarily contributed shipping to the Puritan cause, as we have seen in a previous chapter. There was then a war with Spain which affected New England's maritime trade with the Caribbean, from 1655 to 1660. The second Dutch War began in 1664 and lasted until 1667, and the Third Dutch War went from 1672 to 1674. We have seen earlier that the deserters from these wars undoubtably affected New England's maritime economy, its fisheries and its trade. Additionally, these wars had other effects on New England merchants and shipbuilders. During the Dutch Wars, Dutch fleets occasionally threatened parts of the coast.⁵⁵ At the end of the first Dutch War, England had captured an estimated 1,500 prizes.⁵⁶ On the whole the Dutch Wars probably slowed the

⁵⁵ For an account of the Third Anglo-Dutch War and the Colonies, see Donald G. Shomette and Robert D. Haslach, Raid On America: The Dutch Naval Campaign of 1672-1674. (Columbia, SC: University of South Carolina Press, 1988).

⁵⁶ G. J. Marcus, A Naval History of England. (Boston: Little, Brown and Company, 1961), p. 140 fn.

home market for New England-built ships by flooding it with Dutch prizes, but Albion asserts that by cutting off the Baltic mast supplies, the Dutch forced England to obtain most of her masts from New Hampshire and Maine.⁵⁷ The New England mast trade in turn attracted Dutch naval interest, and John Hull records two loaded mast ships that were taken by the Dutch while en route back to England in 1653, and another taken in 1666.⁵⁸ Some English merchants continued to have ships built for them in New England in spite of the flood of Dutch prizes on the home market, for Hubbard refers to one that was built at Piscataqua for a Bristol merchant in 1669, and lost on her first voyage.⁵⁹ The chief effect of the Dutch wars was probably to create a demand for New England-built privateers, and this would bear further research.

New England Merchants, British Merchants, and Strategic Resources.

Certainly by King William's War, New England was home to a great number of privateers, as well as the source of many strategic goods and ships.⁶⁰ The potential for New England's naval stores now attracted wealthy and powerful British merchants. On January 25, 1694, John Taylor sent a memorial to

⁵⁷ Albion, Robert G., Forests and Sea Power, pp. 205-10.

⁵⁸ Diary of John Hull, pp. 146, 221.

⁵⁹ Rev. William Hubbard, General History of New England (Boston: MAHS, 1815; MAHS Reprint, 1848; NY: Arno Press reprint, 1972), p. 647.

⁶⁰ There is a need for a study of early Colonial Privateering. Carl E. Swanson Predators and Prizes. American Privateering and Imperial Warfare, 1739-1748 (Columbia, SC: University of South Carolina Press, 1991) covers King George's War, and others have examined later privateering in great depth, but no one, to my knowledge, has yet dug through the seventeenth-century evidence for Colonial privateering campaigns. My research suggests that privateers were a part of New England's maritime world from the very beginning.

the Lords of Trade and Navigation seeking military support for his New England operations, because his shipbuilders and woodsmen at Piscataqua had been drafted for military duty there, to the neglect of his projects.⁶¹ He claimed to have brought back "15 tons of rosin and samples of pitch and tar," and promised in the next year to supply the King's Navy with all the rosin that it wanted, and build another man-of-war as well. Other English merchants petitioned the King to be allowed to purchase large tracts in New England, promising a regular delivery to the Royal Navy of masts, tar, pitch and planking in return for a monopoly on the trade. They had considerable sums to invest, and their attempts to acquire coastal lands and corner the naval stores market presented a serious threat to New England's merchant princes. On January 27, 1694, Sir Matthew Dudley offered

Immediately on obtaining our charter...to send out from five to ten thousand pounds to New England to procure men and material for our intended copper works," and promised "to invest £40,000 to purchase land "for timber and naval stores, of which we contract to deliver 50 to 100 tons each of pitch, tar and rosin within twenty months, double the quantity in the year following, and 600 to 1,000 tons in the third year. For masts, yards, etc., we engage to have three ships loading in twenty months, double the number in the following year, and eight or ten ships the year after.⁶²

This would have wrested much of the profit from the coastal resources out of the Massachusetts merchants' hands--profit they had worked and schemed for for two generations--and they immediately protested, in a letter signed by Sir William Phips and Nehemiah Jewett, Speaker of the Assembly.

⁶¹ CSP, Colonial Papers, vol. 14, p. 241: Memorial of John Taylor to Lords of Trade and Plantations, January, 1694: "I...with much difficulty accomplished the building of one ship at Piscataqua. My agent informs me that the work is much interrupted by the Governor of Massachusetts (Sir Wm. Phips) and the Lieutenant-Governor of New Hampshire who try to impress my carpenters and force them to bear arms for days together..."

⁶² CSP, Colonial Papers, vol. 14, p. 242.

We thank you for the opportunity of suggesting our objections to the incorporation of a company to work minerals, raise hemp and naval stores and purchase lands in New England, as is prayed for by Sir Matthew Dudley and others...All British subjects, singly or in company, have always had free liberty of shipbuilding, fishing, and working and trading in such commodities as they think fit, subject to the Acts of Trade and Navigation. For the gaining of such commodities as are named by the Company at easier rates, we think that the Company should be on an equal footing with all other traders, otherwise with so great a stock it will engross the trade to the ruin of the first planters, who settled this country at their own expense and defended it against all enemies. Should the Company be incorporated, it can make no settlement but by acquiring large tracts of land. Many of the people here have little better title than bare possession; so if the corporation make strict and narrow inquisition by law, the settlers will not be able to uphold themselves against so wealthy a body...⁶³

Clearly, even in a wartime emergency the Boston merchants wanted no competition from the mother country as they proceeded to acquire the coastal lands and forests for themselves, and keep the profits.

It would take one more war to decide the fate of the coast and its hinterland. Queen Anne's war did that. When it ended with a treaty in Portsmouth in July, 1714, the great merchant princes who had previously acquired title to, but not control of, the eastern coastal resources, now could claim nominal control as well. They offered 100 acres each to any who would go there and settle, and those offers persisted in one form or another up until the eve of the Revolutionary War.⁶⁴ Although further wars would hamper settlement on the frontier, and keep men out of the forest and off the fishing grounds for whole seasons at a time,⁶⁵ the demographic vector had now been established.

⁶³ Ibid., p. 297.

⁶⁴ See ad in Boston Gazette Journal, March 6, 1770, the day after the Boston Massacre, printed by Edes and Gill: "Notice is hereby given that a valuable tract of land being partly in Bowdoinham, and near to Kennebec River, in the County of Lincoln, is now settling; and there still remain about twenty lots to be disposed of to settlers. The said lots are very commodiously laid out, and contain 150 acres each, which on easy conditions of settlement will be given away to good settlers that shall be well recommended for their honesty and industry."

⁶⁵ See Gordon E. Kershaw, The Kennebec Proprietors, (Portland, ME: Maine Historical Society, 1975), pp. 105-7.

The Indians had been better fighters, and had proportionately inflicted far greater losses in dead and wounded on the English than they had suffered themselves, but they had lost the decisive campaign on the demographic front. The English were either more sexually active or more fertile; perhaps aided by immigration, they made up their losses much faster than the Indians. No matter how many settlers the Indians killed, more would appear, and now there were no more Indians to take the places of their fallen.⁶⁶ The French could not supply them with sufficient men; they could only offer them refuge in Canada. Sooner or later, the maritime resources of the eastern frontier would go into the pockets of urban merchant princes or their assigns, and those merchants would be English.

A Century Of War

Thus far this chapter has discussed the various tensions among Englishmen, merchants or otherwise, who sought control of New England's maritime resources. It has mentioned wars only in the context of the struggle to control resources for profit, but now we shall consider the wars themselves, and their effects on the coastal environment.⁶⁷ Charles Clark has suggested that the

⁶⁶ Evarts B. Greene and Virginia D. Harrington, American Population Before the Federal Census of 1790, (New York: Columbia University Press, 1932; Gloucester, MA: Peter Smith reprint, 1966), pp. 8-85. The numbers vary so wildly that no accurate estimate can be made. Immigration slowed after 1642, and actually reversed itself for a few years during the English Civil War.

⁶⁷ Much has been written about these wars, as they were the defining events of New England's infancy and adolescence. Among contemporary accounts are William Hubbard's Narrative of the Troubles with the Indians in New England (Boston: 1677), and Cotton Mather's Decennium Luctuosum (Boston: 1699) both republished along with shorter accounts in the *Original narratives of Early American History Series*, (NY: Charles Scribner's Sons, 1913, reprinted NY: Barnes and Noble, 1952). Others are Samuel Penhallow's History of the Wars of New England With the

first four of these wars helped prepare New England psychologically for the Great Awakening, and Jill Lepore has shown that King Philip's War was so traumatic for both sides that it set the tenor for Anglo-Indian relationships into the next three centuries. This study adds an environmental perspective to that century of war.⁶⁸

A Prosperous Calm Before the Storm

In 1671, Robert Tufton Mason reported that Portsmouth annually exported 20,000 tons of deals and pipe staves, 10,000 quintals of fish, 10 shiploads of masts and several thousand of beaver and otter skins.⁶⁹ His figures are consistent with contemporary records, but he mentioned no shipbuilding. Nonetheless shipbuilding had been going on apace in the Piscataqua since earlier days.

In 1632 Walter Neale had visited the Bay in his Piscataqua-built pinnace. In 1649 Sampson Lane had put up a hundred-ton ship in the stocks at Strawberry

Eastern Indians (Boston: S. Gerrish, 1726. Reprinted Boston: 1924, and again NY: 1971). The latter reprints contain notes and an index. For King Philip's War there is also the diary of Benjamin Church, Printed as Entertaining Passages Relating to Philip's War, Which Began in the Month of June, 1675. As Also of Expeditions More Lately Made Against the Common Enemy, and Indian Rebels in the Eastern Parts of New England. (Boston: B. Green, 1716). This was reprinted as The Entertaining History of King Philip's War (Newport, RI: Solomon Southwick, 1772). More recently it has been reprinted on its tercentenary as Diary of King Philip's War, by Benjamin Church, Alan and Mary Simpson, editors, (Chester, CT: Pequot Press, 1975).

Nineteenth-century histories include John Frost, Indian Wars of the United States, From the Earliest Period to the Present Time, (New York: C. M. Saxton, Barker & Co., 1860); and E. Hoyt, Esq., Antiquarian Researches, or Indian Wars, (Greenfield, MA: 1824). Modern investigations of the wars include Russell Bourne, The Red King's Rebellion, (NY: Oxford University Press, 1990); Kenneth M. Morrison, The Embattled Northeast, (Berkeley: University of California Press, 1984); Colin Calloway, After King Philip's War: Presence and Persistence in Indian New England (Hanover: University Press of New England, 1991).

⁶⁸ Charles Clark, The Eastern Frontier, p. 271. Jill Lepore, The Name of War: King Philip's War and the Origins of American Identity, (New York: Alfred A. Knopf, Inc., 1998).

⁶⁹ NH State Papers, vol. XVII, p. 515. From William G. Saltonstall, Ports of Piscataqua,

Bank as part of a bond for Ambrose Lane's estate.⁷⁰ A deed of Dover property in 1658 referred to the site where a frigate had been built some years prior. When Mark Hunking of Portsmouth died in 1669, he divided equally among his children his "shipp now on the stocks & all the planks boards & tymber belonging to her."⁷¹ In 1674, two fishermen of York contracted with John Bray, a shipbuilder of Kittery, to build them a ship of "80 tons upwards, not under...50 foot per keel and by beam 17 foot and in hold 9 foot." The price was to be "£3 5s per ton, to be paid one-quarter in money and the remainder in 'fish, provisions, and Barbados goods, and English goods.'"⁷² They must have planned to make speculative voyages to the Islands and to Europe in the off season. Eighty tons was a substantial vessel by colonial standards--many successful New England merchants owned no larger vessels at the time. Bray and John Diamond both had yards on the Piscataqua River for several years before the first war began, and other builders are mentioned. Robert Cutt, Gabriel Tetherly and John Alcock of Kittery⁷³, John Hart of Portsmouth,⁷⁴ and Isaac Nash of Dover⁷⁵ all appear to have practiced the shipbuilding trade there before 1681. We must conclude one of two things: either a substantial number of vessels were built in the Piscataqua that

(Cambridge: Harvard University Press, 1941).

⁷⁰ NHHS, vol. 40, pp. 64-5. From NH Court Records, 1640-1692.

⁷¹ NHHS State Papers vol. XXXI, Probate records vol. 1, pp. 102-3.

⁷² York Deeds, vol. III, fol. 23. From Byron Fairchild, Mssrs. William Pepperell, Merchants at Piscataqua. (Ithaca: Cornell University Press, 1954).

⁷³ Eduard S. Stackpole, Old Kittery and Her Families (Lewiston, ME: Lewiston Journal Press, 1903), pp. 83-94.

⁷⁴ NHHS State Papers, vol. XXXI, Probate records, vol. 1, pp. 81-2.

⁷⁵ York Deeds, court records, vol. 1, Part I, fol. 75.0-76.0.

never were registered, or there a substantial number of shipyards there were frequently idle in the 17th century. Circumstantial evidence favors the case for unregistered shipping.

A grandson of the Captain Lake who was killed at Arrowsic in 1676 stated that Clarke and Lake had built "several ships, boats and vessels" at their settlement. When William Phips and his neighbors evacuated Sheepscot in 1676, they went in a vessel that had been a-building in Phips's shipyard there.⁷⁶ It would seem that the maritime industries were thriving from Piscataqua eastward in the last few years before the wars, particularly if two mere fishermen from York could contract for a sizeable ship on speculation. In 1674 fishermen further to the westward were already falling under the economic control of Boston and Salem merchants, and most were hardly in a position to finance an 80-ton vessel.

Four Generations of Coastal Warfare

Then in 1675, just as merchants from the Bay had brought the regional resources under their control, another problem arose. The original owners of the property, having acquired familiarity with European technology, and being consistently offended by English encroachment and arrogance, found a generation of leaders who would organize resistance. In Massachusetts, the chief

⁷⁶ Baker, William A., Amaritime History of Bath, Maine, and the Kennebec River Region. (Bath: Marine Research Society of Bath, 1973), pp. 32, 37.

of those leaders was Metacomet, or King Philip, but there were competent war leaders in New Hampshire and Maine as well.⁷⁷

It is not the purpose of this study to examine closely the political origins of King Philip's and the other French and Indian Wars; rather it will consider the ecotone as a protagonist in that war and the hundred-year series of wars that followed it. Along the Northern New England Coast, the Indian War that corresponded to King Philip's War affected not only the forest industries, but the fishing and shipbuilding industries as well. (See Maps 4 and 5. See also Appendix E which is correlated with the maps.)

It would appear that the New England merchants on the General Court had long been uneasy about the prospect of an Indian navy. In his exploration between 1604 and 1609, Marc Lescarbot had seen Indians operating longboats under sail.⁷⁸ Other explorers had observed similar occurrences, and it was assumed that the Indians had learned to sail from visiting fishermen, who usually left their shallops in Newfoundland, Nova Scotia or New England when they went back to Europe for the winter. It is clear from Hubbard's History of New England that by 1648 some Indians were sailing as crew in fishing shallops, for he recounts the loss that year of an Ipswich shallop that was becalmed en route from Monhegan to Damariscove. It missed Damariscove harbor in the dark, and went ashore in the breakers losing all hands, one of whom was an

⁷⁷ King Philip's War has been the subject of numerous studies, beginning with historians who took part in it. For more recent studies, see fn 67.

⁷⁸ Lescarbot, History of New France, vol III, p. 309.

Indian.⁷⁹ In 1656 the General Court passed a law prohibiting any Englishman from conveying any European vessel, large or small, to any Indian. The blanket prohibition of such transactions indicates that they had already begun to fear the possibility of rival Indian fisheries or a hostile Indian naval power.⁸⁰

Twenty years later their fears were realized when the leader of an Abenaki tribe began hostilities against the fishing industry, siezing shallops and a few larger vessels, and extending a second front all along the coast in King Philip's War, with assistance from the French in Acadia. In September, 1676, Indians on the Androscoggin siezed a shallop belonging to a raiding party of English. The English had come from Falmouth to steal the Indians' corn in retaliation for prior non-violent Indian predations. Two months later the English reported retaking a shallop from Indians near Piscataqua, suggesting that the Indians had already begun to patrol the coast under sail. Then Indian raiders siezed a newly-launched ship at New Dartmouth, fitted her out and put her to sea, finally losing her after a sea battle with an English sloop of war. That September Indians also attacked Jewell's Island, a fishing settlement in Casco Bay, killing all of the English there, and taking their vessels. At about the same time they attacked Sagadahoc, where they took a shallop. In October Indians led by the sagamore Mugg captured a thirty-ton ketch at Richmond Island, and after wintering her at

⁷⁹ Hubbard, General History of New England, (1972 reprint of MAHS 1848 ed.), p. 532.

⁸⁰ Records of the Governor & Company of the Massachusetts Bay in New England, vol. III, pp. 416-17: Oct. 14, 1656: This Court, taking into consideration the necessity of restraining from the Indians whatsoever may be a means to disturb our peace & quiet, do order, & by the authority of this Court it is enacted, that henceforth no person or persons inhabiting within this jurisdiction shall, directly or indirectly, any ways give, sell, barter or otherwise dispose of any boat, skiff, or any greater vessel unto any Indian or Indians whatsoever, under the penalty of fifty pounds, to be paid to the

Sheepscot, they set off on a raiding expedition with one of the English prisoners as navigator and sailing-master. According to another English prisoner, Mugg's plan was to "take vessels and go to all the fishing islands and so drive all the country before him in the spring."⁸¹

The following spring nine soldiers in the garrison of the fort at Kennebec were ambushed at Arrowsic Island and most of them killed. Then there were sporadic attacks all around the Piscataqua region, with three men killed at Wells on April 6th, six or seven more the next day at York, and another two at Wells on April 12th. Two days later they burned a house at Sturgeon Creek, and a bit later killed three men near Portsmouth. April 29th they ambushed and killed three more men at Wells. Beginning on May 16th Indians besieged Black Point, a substantial fishing settlement, for three days, raising the siege only after Mugg had been killed. On May 19th five of them left Black Point and paddled to York, where they killed another six English, and then killed one more at Wells on the 23d. On June 13th they ambushed and killed two men at Hampton. On June 29th they ambushed and routed an English relief force at Black Point, killing over forty English and twelve friendly Indians. July 15th news came that the Indians had captured nearly twenty fishing ketches belonging to Salem merchants, whose crews of five or six men had no heart for resistance. Their captors released them after plundering what they could use.⁸²

country Treasurer, upon legal conviction, for every such vessel so sold or disposed of as aforesaid.

⁸¹ MEHS series 2, vol. 6, p. 204. Cited in Horace P. Beck, The American Indian as a Sea Fighter in Colonial Times, (Mystic, CT: Mystic Seaport, 1959).

⁸² Hubbard, General History of New England, pp. 629-35.

King Philip's War had been over barely a dozen years, and settlers were scarcely back in their pre-war routines, when in 1689 the next Indian war, King William's War, started. Cotton Mather lists, as two of the causes of the war, encroachments on Indian territory by English fishermen and woodsmen, who, though Mather doesn't say it, were either employed by or contracted to merchants in the maritime industries:

They were invaded in their Fishery, at Saco River, by certain gentlemen, who stopped the fish from coming up the river with their nets and seines...but the fourth and main provocation was, the granting or patenting of their lands to some English.⁸³

In Europe, this was the War of the League of Augsburg, during which Louis XIV of France attempted to conquer the Netherlands and restore the exiled English Catholic James II to the throne he had precipitately abandoned to his son-in-law, William of Orange. Now in a three-year campaign which expanded a European War into a North American theater, the Indians succeeded, with French guidance, in driving the English out of most of Maine. The English frontier in Maine was set back as far south as Wells and South Berwick, and remained fairly static for nearly a generation. The French also drove out or killed most of the English fishermen and settlers in Newfoundland, in 1697. This effectively curtailed a significant segment of New England's trade in the Cod Fisheries.⁸⁴

King William's War continued intermittently until 1699, even after peace had been concluded in Europe. It was followed by three years of uneasy truce.

⁸³ Cotton Mather, *Decenium Luctuosum* (Boston: 1699; NY: Barnes & Noble reprint, 1952), p. 186.

⁸⁴ *CSP. Colonial Papers*, vol. 15, pp. 305-6.

The next war began in 1702, after the accession of a French prince to the throne of Spain. The War of the Spanish Succession, known in New England as Queen Anne's War (she having ascended the throne in 1702), again provided justification for the French to open hostilities against the New England frontier. Again they used their Indian proxies, who needed little prodding to initiate action against English encroachment on their ancestral homelands, and English usurpation of their hereditary fisheries.

Queen Anne's war ended in 1713 with the Peace of Utrecht, and New Englanders were left to their own resources to begin the next Indian War, called Lovewell's War after a principal English commander, or Dummer's War, after the Lieutenant Governor of Massachusetts, who was the ranking magistrate for much of the war, and signed the treaty at the end. Lovewell's War began in 1722 with an unprovoked English attack against Norridgewock, above the present site of Waterville, on the Kennebec River. Indian counterattacks followed, and the Norridgewock problem was dealt a final solution by an English surprise attack and massacre in 1724, during which the body of the resident French Jesuit was mangled and scalped. Encouraged by the bounty on scalps and a previous successful raid, one John Lovewell raised a company of bounty hunters and marched against Pigwacket, the principal Indian town on the upper Saco River. On this one occasion, inexplicably, justice intervened, and Lovewell and his company were surprised and driven off with the loss of several bounty-hunters, including the misnomered Lovewell. The Pigwackets' victory was Pyrrhic, however; they were so reduced in numbers that they migrated north to Canada

for protection. Following Lovewell's War, there were King George's War and the Seven Years' War, which ended in 1763, making a total of 88 years of intermittent guerilla warfare in the region. In contemporary Europe, only the Low Countries and Germany had suffered comparable devastation in recent times.

What the Indians Attempted

A careful tabulation of Indian attacks will reveal the strategy behind them. It was the landward extension of what is called on the sea a "*guerre de course*". The whole purpose of hostilities from the Indian side was to drive the English from their fishing grounds and from their forest resources—that is, to destroy New England by denying the English access to the sources of their maritime economy, while raising their costs of daily existence. In this the war of 1676 was a temporary success at sea, because the Indians were at first sufficiently organized to conduct a campaign on the water against English fishermen, while keeping the local English forces pinned within musket shot of their garrison houses and forts. Their success is evident in a letter from Major General Daniel Denison, written in 1675: "It is hardly imaginable the panic fear that is upon our upland plantations & scattered places deserting their habitations..."⁸⁵ In Annals of Portsmouth, drawing on state papers and Belknap, Adams states that as of 1693

The war had been peculiarly distressing to the inhabitants of New Hampshire, as well as to their neighbours of the other provinces. Besides the loss of lives, and the continual expense attending a state of war, they were interrupted in their agricultural

⁸⁵ MEHS Collections, Second Series, vol. 6, p. 48.

pursuits, in consequence of which, provisions had become very scarce and dear: and their trade, which consisted chiefly of lumber, was nearly destroyed.⁸⁶

Many of the Indian raids between 1689 and 1713 were led by French officers, and conducted against towns known specifically for their fishing communities, masts reserves and sawmills--Pemaquid, Sheepscot, Brunswick, Casco, Saco, Wells, York, Berwick, Salmon Falls, Dover, Oyster River, Exeter, Haverhill. Masting crews were especially vulnerable, as Colonel Hilton discovered in his last moments. Just twenty years before, fifteen militia working in the woods had been ambushed and wiped out at Wheelwright's Pond in Lee, barely a day's march away from the scene of Hilton's ambush.⁸⁷

The French directed attacks at the masting industry for two very good reasons. First, they wanted the masts themselves, and at least once tried to bribe a mast agent whom they had taken at sea.⁸⁸ If they could cut off England's supply of masts, it would be much more difficult for the British navy to threaten their communications with their fur trade in Canada, their fisheries in Cape Breton, their sugar islands in the Caribbean, and their various trades with Africa and Asia. Every complement of masts prevented from getting to England

⁸⁶ Nathaniel Adams, Annals of Portsmouth, (Portsmouth: 1825), p. 99.

⁸⁷ E. Hoyt, Esq., Antiquarian Researches, or Indian Wars, (Greenfield, MA: 1824). pp. 151-4.

⁸⁸ CSP, Colonial Papers, vol. 13, p. 215: William Wallis to Henry Griffith, Feb. 4, 1690: "I gave you an account of my being intercepted on my way from New England and being carried to St. Malo. During my detention I was visited by several French merchants, and I was assured that, being concerned in masting affairs, the French King would give me good prices and ready money for any naval stores, with a safe conduct for my ship. I was often approached on the subject, but always repulsed their advances. But the merchants of St. Malo will certainly begin a trade to Newfoundland and thence by sloops to New England, unless they be prevented; for the people of New England are of such a stamp that they will readily fall in with it, being disposed to hearken to any trade proposed to them for their particular advantage, without regard to the detriment that may be wrought at this time to Old England. Unless steps be taken, the trade in masts and naval stores will be ruined."

represented one less new ship able to engage in hostilities, or one less existing ship able to return to sea after an engagement. Every fishing vessel captured or destroyed, and every mill burned, represented a financial loss to England, not only in capital, but in future revenues and broken morale. The Piscataqua area was renowned for its masts, and there were mast yards at Portsmouth and near the head of Spruce Creek in Kittery, as well as at least three "mast coves" along the river. Saco and Falmouth also provided masts, and the whole coast supported many sawmills and a strong seasonal fishing industry. Most of the mills burned at least once, many of the houses burned, hundreds of settlers were killed, and hundreds more were captured. The area was no longer self-sufficient in agricultural products, and the wave of refugees from the eastward put an intolerable burden on the economic and political infrastructures. The influx of hundreds of refugee families and stragglers strained the reserves of food and shelter in the towns that were not directly attacked.

The Fortunes of War Favor the Environment

The wars nearly bankrupted New England, and doubtless retarded her entry into the industrial revolution. As Penhallow observed, by 1706 "The charge of the war was by this time so great, that every Indian we had killed or taken cost the country at least a thousand pounds."⁸⁹ This came at a time when forest products and fishing, the normal sources of revenue for New England other than shipbuilding, were casualties of the wars. In addition, at the end of

⁸⁹ Penhallow, Samuel, History of the Wars of New England with the Eastern Indians. (Boston:

King William's war the French and Indians on at least one occasion set fire to a forest containing good pines. (See Map 6.) This was a reasoned attack on the British navy and the colonial economy. Had they done it more often they might have fought the British to a standstill, for the English navy was helpless without its supply of masts, and the French could interdict British access to the Baltic mast suppliers more easily than they could British access to New England. This kind of sabotage may have happened again at the end of the Seven Years' War, when for reasons unknown the forest burned all the way from the Salmon Falls River to Black Point and York.⁹⁰ That the forest in 1761 could still burn such a distance in this region is an indication of how thickly forested the region still was, after one hundred and twenty-five years of English presence. The persisting forest density gives some indication of how quickly the forest had recovered each time the settlements were abandoned, but in parts of this burned-over area woodsmen had been felling trees and farmers had been clearing, regularly except during wartime, through the whole one hundred and twenty-five years..

The appended casualty lists for the period show how severely the wars affected the coastal area. In the town of Oyster River (now Durham and Newmarket, New Hampshire) alone, there were twenty-two attacks in the forty-nine years between 1675 and 1724. In these attacks, at least 115 settlers were killed, at least 74 were taken into captivity, and an uncounted number were

1726; 1924 reprint), p. 40.

⁹⁰ See the appended map ascribed to John Bridger, 1699, which shows "a large tract of pine burned by the Indians" and the fire which swept from Rochester, NH, to York, ME, in 1761, mentioned by Belknap.

wounded. Well over half the homesteads had come under fire, and many were burned. Much of the livestock was killed, and one of the mills was burned. The town, which had been a fertile agricultural area and a rich source of masts and other forest products since the 1640s, was in many years unable to supply its own food. From the appended casualty lists it is evident that the eighty-eight years of the French and Indian wars greatly impoverished northern New England, and retarded the development of the coastal resources, both at sea and ashore. Or, from the point of view of those resources, they had ample time to recover from the occasional local depletion. From the Merrimac to Nova Scotia, there was scarcely anyone, red or white, who had not lost at least one relative, and who had not seen one or more houses burned in his village. Colonial records from the time are filled with pleas for assistance from the wounded, the homeless, the starving, and the impoverished. Notwithstanding the enormous proportional losses the Indians inflicted on the English, there was always a fresh supply of English, and the Indians finally ran out of warriors.

Those were the last good times for the forests and fishes of New England until the 20th century. As long as there were hostilities, for the last quarter of New England's first century and the first quarter of the next, New England's forests grew largely unharvested. The only substantial damage to the forests may have come from the forementioned fires set by raiding Indians to destroy the resource. Years passed during which there was little or no new clearing, and few men spent much time in the forest except with armed guards posted. The mast trade recoiled from Maine, but continued in a small way in the Piscataqua region.

The masts and timbers registered in cargo manifests of 1692, for instance, for two of the three mast ships that year, show only 39 masts, 20 bowsprits, 16 yards, 15,400 feet of oars, 20 clamps, ten pieces of ash, and 46 miscellaneous spars.⁹¹ This was one third the number of mast ships that had sailed annually from Piscataqua in the years before the war, according to Robert Tufton Mason's report of 1671. The three ships carried barely enough masts and spars to refit a single English fleet after a real battle, and certainly the 20 clamps wouldn't go very far toward repairing a dozen or more battered and perforated hulls--routine damage in the course of a sea engagement.

North of Wells, seedlings reclaimed the abandoned fields of Maine's exiled English farmers, and began a new generation of spars and staves. Even in peacetime, the existing technology had made it difficult to keep the forest from taking back cleared fields, as Hubbard noted in his Indian Wars, when he pointed out that the Indians had been able to attack so close to Boston because

most of those inland plantations being overrun with young wood (the inhabitants being everywhere apt to engross more land into their hands than they were able to subdue) as if they were seated amidst of a heap of bushes, their enemies took advantage thereof...⁹²

From Maine to northern Massachusetts mills were burned and dams abandoned, to go out with high water in the spring or in an autumn freshet. Where mast pines had been taken from the forest, the openings they had left grew back in their own progeny or the progeny of their near-relatives. Fish went about their seasonal cycles without regular European predation east of Wells,

⁹¹ Saltonstall, William, Ports of Piscataqua, (Cambridge, MA: 1941), p. 62.

⁹² Hubbard, Wm., History of the Indian Wars of New England, (Boston: 1676; Drake ed., 1865),

and no doubt even beaver returned to some of their former streams, for there is ample evidence that furs comprised part of the trading cycle well into the eighteenth century, and Jeremy Belknap described both beaver trapping in New Hampshire, and using beaver dams for stream crossings in the late eighteenth century.⁹³

Not until after Lovewell's (Governor Dummer's) War,⁹⁴ or around 1725, did returning settlers bring the Maine population back to its pre-war level, rebuild the mills and mill dams, reopen the roads and again begin to harvest the forest and the sea for the maritime trades. Even then the stage was not clear for unhindered harvest, for there were still two more French and Indian Wars to come before the Revolution. Much of the interior and the Maine coast beyond Falmouth came under attack during those wars, and hostilities effectively slowed English expansion into the eighteenth century, as Hoyt reported.⁹⁵

The wars may also have had a dampening effect on some of the legitimate maritime commerce of the Boston-Salem axis during the years of active

vol. 1, p. 169.

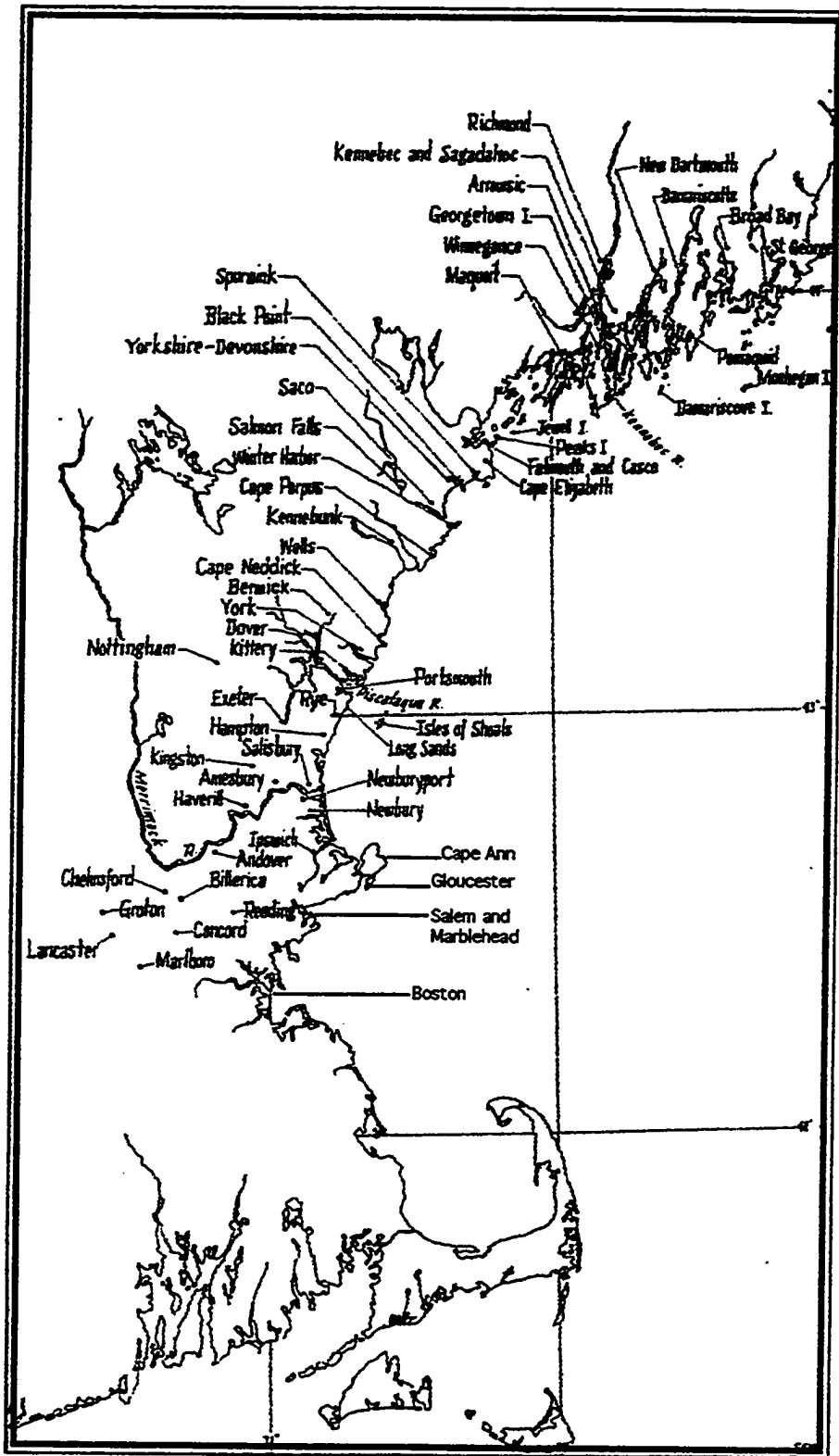
⁹³ For evidence of late seventeenth-century fur trade, see the probate inventory of Humphrey Chadbourne, of Kittery (South Berwick) in York Deeds, Court Records, vol. 2, Part I, fol. 30-31. See also the Lidget Account Book in the mss. collections of the Portsmouth Athenaeum, and the cargo list for the mast-ship America, departing Piscataqua in 1692, (from the Langdon mss. papers in the NHHS collections) and listing "84 pounds of beaver, 130 skins of small furs,"--from Saltonstall, Ports of Piscataqua, pp. 61-2. For Belknap's remarks about beaver, see Jeremy Belknap, History of New Hampshire. (Dover NH: Crosby & Varney, 1812, 1970 reprint), vol. 3, pp. 58-9, 154-61.

⁹⁴ John Frost, Indian Wars of the United States. From the Earliest Period to the Present Time. (New York: C. M. Saxton, Barker & Co., 1860), p. 105.

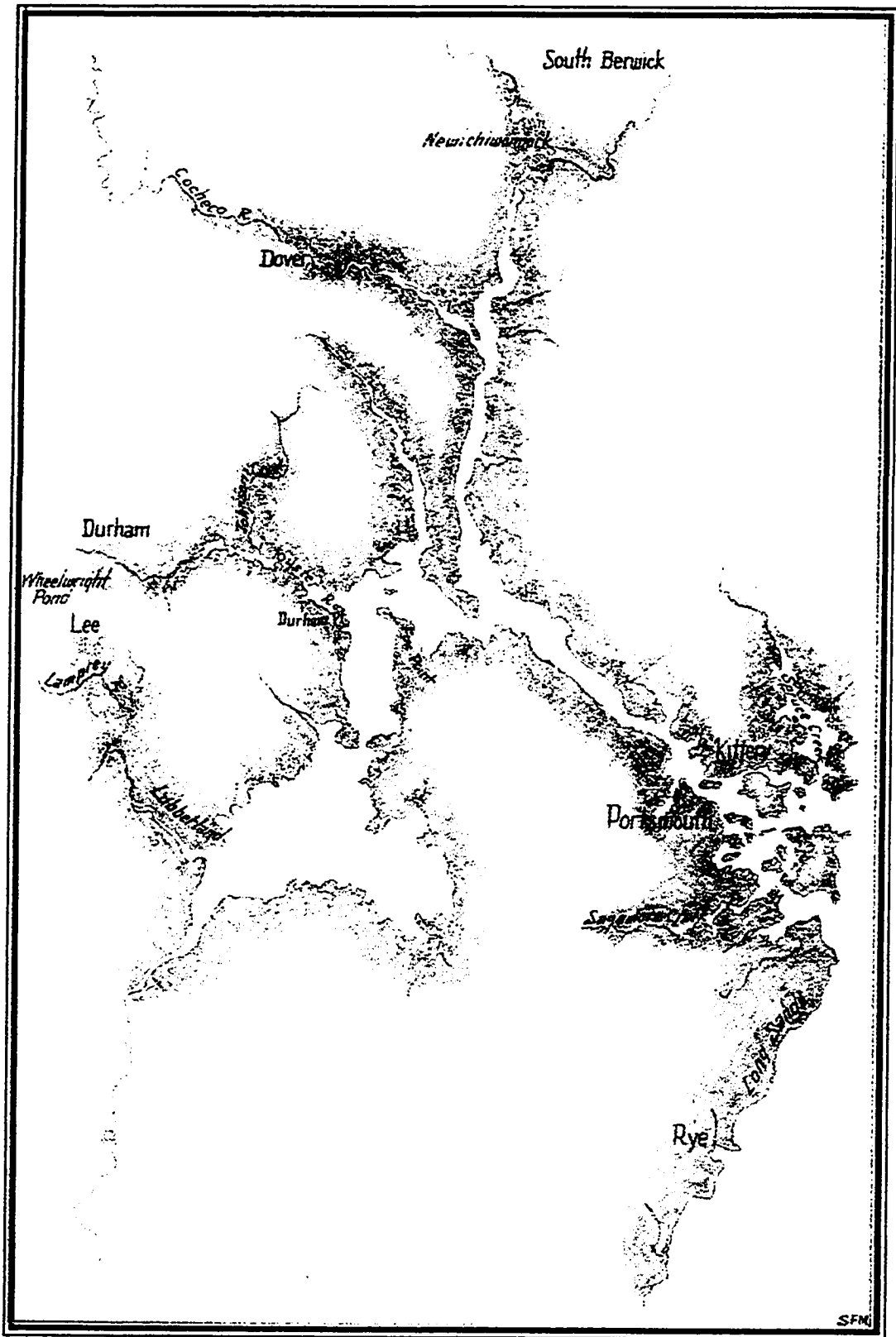
⁹⁵ E. Hoyt, Esq. Antiquarian Researches, or Indian Wars, (Greenfield, MA: Ansel Phelps, 1824), p. 258, speaking of King George's War: "The continued hostilities on the frontiers of Massachusetts and New Hampshire, effectually obstructed the progress of settlements beyond the limits at the commencement of the war. Population had been much retarded in the older parts of the country, many had been killed, and captured, or disabled by wounds, and the two provinces were involved in a public debt..."

hostilities. The numbers of small vessels reported lost to French and Indian attacks in that period equalled nearly half of the officially registered vessels of their size.⁹⁶ When whole fleets of fishing vessels were lost to enemy action, many fishermen and small merchants must have been bankrupted. Those who remained solvent would have felt little incentive to replace their fishing boats before peace guaranteed better prospects. But while the fishing and lumber industries were diminished, the merchants and mariners, doubtless including out-of-work fishermen, turned to privateering, piracy and ocean trade between other ports. Building privateers and replacing lost fishing vessels between hostilities kept Bay shipbuilders busy, and exerted some pressure on the timber stocks nearest the Bay ports. Since the replacement vessels were nearly all under one hundred tons, they used oaks still young enough to stump-sprout, and their harvest actually stimulated the growth of more trees. Thus the century of warfare had some benefit for coastal maritime resources, even as it stimulated shipbuilding and other sorts of maritime endeavour between wars.

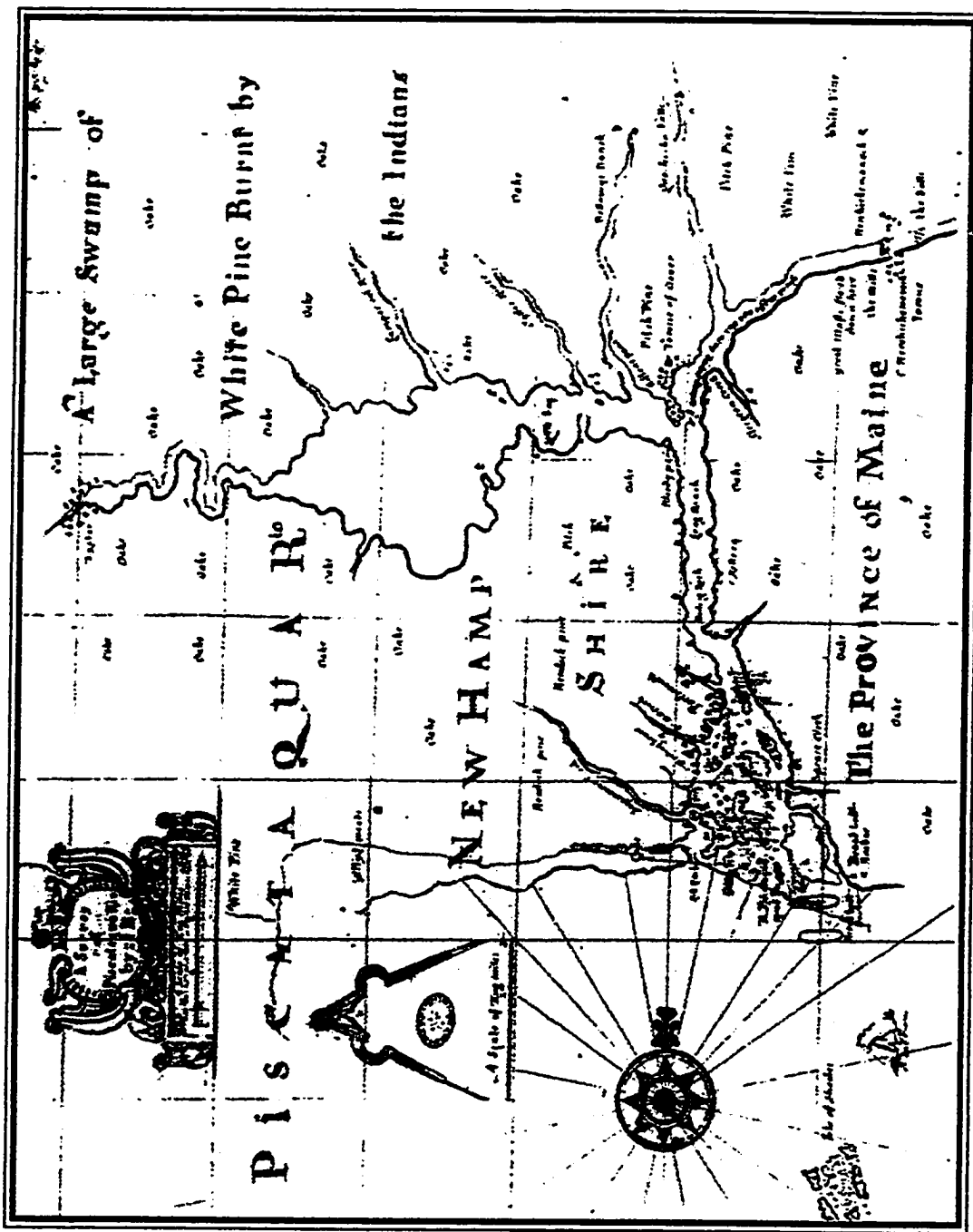
⁹⁶ Horace P. Beck, The American Indian As A Sea-Fighter In Colonial Times, (Mystic, CT: Marine Historical Association publication #35, 1959). This is a very readable compilation of contemporary records of events in the coastal theater during those wars.



Map 4, English Settlements Attacked in the Northern Theater of the Indian Wars.
(drawn by Sam Manning)



Map 5, Piscataqua Settlements Attacked by Indians, 1675-1724. (Drawn by Sam Manning)



Map 6, Late Seventeenth Century Map Showing Indian Depredations on the Piscataqua Pine Forest. (Reprint in the collection of the Portsmouth Athenaeum)

CHAPTER 6

REVOLUTIONS AS BOOKENDS TO A COASTAL ECOSYSTEM: A CENTER OF ENVIRONMENTAL EQUILIBRIUM, 1689-1775

Dutch, French and Indians were not the only adversaries competing for control of New England's coastal resources; the English settlers strove also among themselves for that wealth. This chapter will examine more closely the struggle within the English community for control of those resources and industries, a struggle that culminated in the Glorious Revolution. It will then show that the resources were redistributed in different ways according to their accessibility from navigable water, a process that bestowed a unique fate on the coastal resources for the next century, until the end of the American Revolution. It will examine the technologies of forest harvest, shipbuilding and fishing, and evaluate their impact on the coastal ecosystem. Finally, it will show how, even after the English established supremacy along the coast, relatively static technology and demography ensured a nearly level rate of harvest and regeneration that kept the ecosystem in balance for nearly a century. The following chapter will show how those circumstances, which had led to a sustainable balance between harvest and regeneration along the coast, were gradually eroded by economic change in the half-century between the Battle of Lexington and the opening of the Erie Canal.

Recapitulation

The previous chapter examined New England's coastal resources and maritime industries as principal factors in all of the international conflicts that plagued the area between 1653 and 1763. Attempts to control forest and fishery resources, and to secure access to out-of-the-way harbors convenient for unsupervised maritime enterprise, drove much of the military, political and economic confrontation both on the frontier and in Boston, Quebec, London, Amsterdam and Paris.

On a geopolitical level, cultural, economic and religious struggles involved the Indians (from 1636 to 1783), Dutch (from 1653 to 1674), French (from 1676 to 1763) and internally, the English (until 1783). On a regional level, economic and religious rivalries within the merchant communities of Boston and Portsmouth, and between the urban and the satellite ports, flared up at each prospect of war with the Dutch, French or Indians. During these wars, landholders or merchants on the frontier were sometimes dispossessed of both property and lives with the tacit encouragement and surreptitious support of their urban rivals. Within the English community, at least, the internecine contest for coastal resources culminated in the Glorious Revolution of 1689.

When the dust from that revolution had settled, Englishmen and the remaining Dutch among them put aside their differences to continue the geopolitical struggle against France and the Indians.¹ Wars with the French and

¹ Coordinated French and Indian attacks in 1690 against towns on the Hudson and Piscataqua rivers

Indians, who had very competent leadership both from Frontenac's subordinates and from Abenaki tribal war leaders, continued intermittently from 1689 until 1763, when Franco-Indian competitors were finally deleted from the coastal equation on the Plains of Abraham. After 1763, peace with the French and Indians gave New England merchants time to concentrate on their own quarrels with their cousins in the Mother Country over ownership of New England's natural resources, until the conclusion of hostilities in 1783. Following the Revolutionary War, New Englanders were thrown once more into competition with each other for the coastal wealth, but the circumstances were changing, as we shall see in the following chapter.

Prologue to the Glorious Revolution: Whose Woods These Are

From 1665 until 1693, New England endured an undeclared civil war at the same time it was coping with growing hostilities from the French and Indians. It began when Massachusetts invaded Maine, repudiated the authority of the King's commissioners who had separated Maine from Massachusetts, and forced Maine to return under Boston's jurisdiction². Matters worsened when

and Casco Bay forced the rival colonies of New York and the New England finally to coordinate their own resistance and use their common resources more efficiently. The much-maligned Andros had been a prime mover in this, acting in anticipation of France's moves a few years before. One very good study of this from the Connecticut side is Harold E. Selesky's War and Society in Colonial Connecticut (New Haven: Yale University Press, 1990). C. M. Andrews' Colonial Period of American History, vol. III, pp. 70-137 presents a history of New York from Dutch province to English Crown Colony, 1664-1691.

² *Ibid.*, vol. 5, pp. 585-6. Hen. Jocelyn, Fran. Champernown, Wm Phillips, Edw. Johnson, Edw. Rishworth, Fran. Hooke, Saml Wheelwright, John Wincoll, to Col. Nicolls, July, 1668: "Major-General Leveret, Wm (Edw.) Tyng, Rich. Wadron and Capt. Robt. Pike appeared at York, the 6th July, attended with 12 armed horse, their two marshalls and several other gentlemen, where they denied the authority of the King's commission there exercised, and asserted their own commission

Robert Mason attempted to reclaim his inheritance, the old Masonian grant of New Hampshire. On arriving in New Hampshire, he found that the Puritan faction, led by Richard Waldron, Richard Martyn and a few other entrepreneurs, some of whom had represented New Hampshire on the Massachusetts General Court, had through the medium of that General Court awarded themselves most of his lands, and sold them in turn to others. A new Governor sent from England to govern New Hampshire independently also found that these Puritan merchant-oligarchs consistently ignored the Acts of Trade and Navigation that prohibited the import of most goods directly from Europe. Although New Hampshire's Assembly pleaded abject poverty, its constituent members had removed annually as much timber as could be sawn by twenty-odd sawmills on the Masonian Grant, in addition to masts and spars, timber exported with value added in the form of ships, and countless barrels of fish from the coastal waters.³

in the King's name from the General Court of Boston. They siezed the lawful marshall, and took away the province records, which had been kept there for 30 years, through four changes of government."

³ York Deeds, Vol. 2, part 1, fol. 21: November 20, 1666: Richard Nicolls, governor of the American territories of the Duke of York, appointed Nicholas Shapleigh of Kittery to oversee and inventory the lands of Capt. John Mason's heir Robert Mason, and also prevent embezzling or destruction of "Masting & other timber trees growing upon the said land, fit for shipping which diverse persons have taken the liberty to cut down & destroy without license or giving any account for the same..." See also Hubbard, History of the Indian Wars in New England, (Drake, ed., Roxbury: 1865), pp. 75-6: "All or most of the forementioned towns and plantations are seated upon, and near some River greater or lesser, whose streams are principally improved for the driving of Saw-mills... there is scarce a River or Creek in those Parts that hath not some of those Engines erected upon them.

The upper branches of the famous River Piscataqua, being also employed all of them that way: namely, Sturgeon Creek, Salmon Falls, Newichewannock, Quecheco, Oyster River, Squamscot, Greenland, Lamprey River, together with the towns of Exeter and Dover, seated upon or near some of the main branches thereof, whose principal trade is in deal-boards, cut by those saw mills, since their rift timber is near all consumed..."

See also CSP. Colonial Papers, vol. 9, pp. 156-9, report by Sir Joseph Williamson in 1675, that 45,000 quintals of cod were then taken at Piscataqua yearly.

The Piscataqua had become a convenient port of entry for illegal goods bound for Boston, and thereupon grew a new industry--smuggling. When the new Customs Agent, Randolph, and the new Governor, Cranfield, attempted to arrest locally-owned vessels for bringing in enumerated goods, they were unable to keep the vessels long enough to bring them to trial. The Puritan oligarchs in the New Hampshire Assembly simply released them. When Randolph attempted to sequester goods, they were removed from newly-arrived ships and hidden away in creeks on the Maine side of the river--Spruce Creek, Chauncey Creek, and probably Braveboat Harbor.⁴ From thence they were easily whisked off to Massachusetts ports by much smaller and less noticable fishing vessels--shallops or ketches.

Even more distressing to the Puritan faction than possible loss of the smuggling industry was the likelihood that, in the event of Mason's success, their land titles would be proven illegal, and they would lose their ill-gotten coastal resources--a continuing source of wealth. The Massachusetts General Court had originally seized New Hampshire and southern Maine between 1641 and the early 1650s, and appropriated those lands without any legal grounds, the last seizure occuring with Cromwell's tacit approval.⁵ Following complaints at Court, Royal Commissioners in 1664 had gone to New England, and in a series of

⁴ CSP, Colonial Papers, vol. 11, pp. 362-3. Edward Randolph to Lords of Trade and Plantations: "But so long as Boston goes unpunished for like misconduct of juries these (smugglers) may hope to escape. Without it, it will be difficult for the Government here to enforce the laws, for there are two small creeks on the Maine side of the river where prohibited goods can be covered and secured. It is essential that the Bostoners (who govern that side of the river) should be brought to account for the escape of forfeited goods and vessels."

⁵ CSP, Colonial Papers, vol. 5, p. 18, for a protest of Edward Godfrey, "sometime governor of

assemblies had returned Maine and New Hampshire to their original status as separate provinces. The Massachusetts Commissioners had then brought Maine back into their fold in 1668 at the point of their dragoons' sabers.⁶ Now in the aftermath of the first Massachusetts *Reconquista*, New Hampshire was separated from the Puritan domains with its own Royal Governor, and the legitimate Masonian heir appeared to reclaim his inheritance.⁷ If Mason's claims were validated, New Hampshire's Puritan oligarchy would be ruined by lawsuits from the occupants of land to whom they had sold now-worthless titles, and they would lose their monopoly over New Hampshire's coastal ecotone.⁸ Their claims to many of their holdings in Maine might also be called into question, and the final result could well be not only the loss of Massachusetts' hegemony

Maine," against the Massachusetts seizure of 1653.

⁶ *CSP, Colonial Papers*, vol. 5, pp. 585-6; also Vol. 10, pp. 54-5, 608. "Petition of the Inhabitants of Maine to the King: Describes the encroachments of the Massachusetts, and the heavy taxes (to the amount of £3,000 and upwards) to be paid by the inhabitants of York, Wells and Kittery. Pray that such whose names they represent may be empowered to govern till His Majesty's pleasure be further known. 136 signatures. Read 9.30.1680." See also *CSP, Colonial Papers*, vol. 11, p. 52, the petition of Francis Champernoun, Wm Bickham, Nicholas Shapleigh & Walter Barefoot to the King, dated May 1681, protesting the hegemony of the Puritan faction in New Hampshire, "The greater part of the Council are such as were in authority while the Province was under the jurisdiction of Massachusetts, and zealous promoters of that interest."

⁷ *CSP, Colonial Papers* vol. 9, pp. 455-6: See Randolph's letter to the King regarding his trip to New Hampshire following the announcement of Mason's claims, and the generally good reception those claims had received there, as well as the "complaints of the oppression and usurpation of the Boston magistrates," who had betrayed dissenters to the Indians, "some of them having been suffered to be ruined by the Indians for having expressed their duty to the King and taken commissions as Justices of the Peace from the King's Commissioners."

⁸ *CSP, Colonial Papers*, vol. 11, p. 48-52: See the letters of Richard Chamberlain, Secretary of New Hampshire, to The Lords of Trade and Plantations, in which he states: "The whole truth is that they have given each other great tracts of Mr. Mason's land, and sold it to divers persons without any legal title, and they therefore expect the purchasers to come upon them for the purchase money." A case might be made that King Phillip's War was in part caused by the separation of New Hampshire from Massachusetts, which prompted some Massachusetts land speculators, John Winthrop Jr. among them, to turn their attentions from the eastern to the western frontiers of the Bay colony.

over the rich coastal resources, but consequently the precipitous loss of oligarchic wealth.⁹ Once separated from Massachusetts, the New Hampshire Puritan oligarchy would have no friendly court of higher appeal in Boston (where their political colleagues, relatives and business associates treated appeal to England as treason). Worse, their opponents would have access in England to a court of higher appeal clearly hostile to Puritan interests.

The threat to Massachusetts' hegemony over the forest products, the maritime trades, the smuggling industry and the land itself was too much for most good Puritan merchants and oligarchs to tolerate.¹⁰ Not only was there rising competition from non-Puritan merchants on the frontiers, but there were also recidivist Puritan merchants in Boston and Portsmouth, who supported the Anglican cause, and demanded equal rights. Driving Dr. Child into exile in 1647 had not exiled the problem of heresy for long. Now it was returning to threaten their wealth as well as their orthodoxy.

Puritans and Strangers in the Land

The case of Walter Barefoot is illustrative of the conflict between the two camps. Barefoot was the new Lieutenant-Governor of New Hampshire

⁹ CSP, Colonial Papers vol. 7, p. 448: For example, see Nicholas Shapleigh's report of May 20, 1667, informing Robert Mason that Richard Waldron had cut masts on Mason's property, and shipped them on the *Great Duke of York* for his own profit. Shapleigh advised Mason to get testimonies from justices of the peace in Maine, to arrest the masts, and to have Waldron and others summonsed to England for trial. See also CSP, Colonial Papers, vol. 5, p. 468: Shapleigh's report to the King in December 1672, warning that Massachusetts' woodcutters threatened reserves of mast pines on Gorges grant and on land granted to the Duke of York.

¹⁰ CSP, Colonial Papers, vol. 11, p. 27: See Mason's collected testimonies for this, illustrative of which is that of John Michlemore, who testified that Major Waldron had said to him "You have been to Mr. Mason for a confirmation of your lands, for which I will smoke you over the coals."

province. He had been around, by his own admission, for twenty-five years. He was related by marriage to the prominent local Puritan families who had long controlled New Hampshire with guidance from Massachusetts, but he wasn't one of them. He had bought forest land and a mill site on the Lamprey river from the son of a Massachusetts magistrate, Samuel Simonds. (In 1641 Samuel Simonds had been one of the Assistants on the Massachusetts General Court, and had been sent as commissioner to settle the newly-acquired territories in New Hampshire. Twenty-three years later the General Court awarded him 640 acres of prime pine land on the Lamprey River, half of which he gave to his son, who promptly sold it to Barefoot.) When Barefoot found the title clouded (the land wasn't Massachusetts' to grant) he repurchased the land from the agents of the rightful original grantee, Mason. He then spent £700 on a sawmill and other improvements, and sold it to a local Puritan, Robert Wadleigh, taking back a mortgage. Two years later Wadleigh had become so indebted to Barefoot that he released his right to the property. At that point Barefoot tried to reclaim his land and mill, but Wadleigh refused to relinquish possession. Barefoot presented all the titles, mortgages and deeds, and Wadleigh presented nothing but this statement: "I leave my case with you. I hope you believe that I have a title to those lands, for it concerns you all."¹¹ The jury found in favor of Wadleigh, and Barefoot was forced to appeal his case to the King and Council.¹²

¹¹ CSP, Colonial Papers, vol. 11, p. 408.

¹² CSP, Colonial Papers, vol. 11, p. 408 for the problem between Barefoot and Wadleigh: "Wadleigh by favour of the Government of Massachusetts still kept possession, and Barefoot could get no relief. In February 1683 Barefoot brought his action against Wadleigh for recovery of the land and for damages, and produced sundry deeds in support of his title, whereas Wadleigh

Not coincidentally, less than a month previously Wadleigh's three sons had been party to an insurrection. Edward Gove, a New Hampshire Assemblyman with extremist Puritan sympathies, had gathered a handful of impetuous New Hampshire Puritan youngsters about him and trooped around the province announcing that he would take over the government and kill all those who were members of the Church of England.¹³ Governor Cranfield quickly got control of the militia and arrested Gove without incident, sending him to England to be executed for high treason. Wadleigh's sons and the others were convicted, pardoned and paroled, while Gove, after some time in an English prison, was eventually pardoned and returned to New Hampshire. Cranfield saw in the insurrection the hand of the Puritan oligarchy, and particularly of the Puritan ministers from Massachusetts.¹⁴ On the eve of Gove's trial, a Massachusetts magistrate had approached Cranfield with a number of depositions that Gove was insane, and therefore incompetent to stand trial.¹⁵ Cranfield had a reasonable explanation for it: he believed that there was "a general combination to continue their irregular trade, and make this port and

showed no title and made no defence, but simply said to the jury 'I leave my case with you. I hope you believe that I have a title to those lands, for it concerns you all.' The jury after several hours consultation found for Wadleigh without any reason given." See NHHS Collections, vol. XXXI, Probate Records, vol. I, pp. 322-6 for Barefoot's will, describing the property in question.

¹³ CSP. Colonial Papers, vol. 11, pp. 373-4. Governor Cranfield to the Lords of Trade and Plantations, Jan. 16, 1684. See also *Ibid.*, pp. 575-8.

¹⁴ *Ibid.*, p. 403: See also the letter from Deputy Governor Walter Barefoot, of New Hampshire, to the Lords of Trade and Plantations, accusing the Massachusetts clergy of conspiring with the extreme orthodox faction to commit treason.

¹⁵ *Ibid.*, pp. 387-9.

the Isle of Shoales the chief centres of the design"¹⁶ now that Boston was closely watched by the King's Customs officer, Randolph.¹⁷

Ultimately the merchant leaders of the Puritan faction in New Hampshire effectively neutralized Royal Government there by refusing to support its officers, and by terrorizing the King's appointed Governor so that he fled to Boston and petitioned to be dismissed from the governorship.¹⁸

Another rehearsal of the Glorious Revolution came in Essex County, Massachusetts. Essex County included the small port towns of Ipswich and Newbury. Situated on the Ipswich and Parker Rivers, they had formerly been important seaports in the New England economy, but were increasingly marginalized as the better ports of Newburyport and Salem grew to the north and south. When Andros appeared in Massachusetts to become Royal Governor, and sought to collect taxes from the province, a Puritan divine and the local Puritan General Court deputies from Essex County led a tax revolt. They based

¹⁶ *Ibid.*

¹⁷ *Ibid.*, vol. 10, p. 544: Not that Boston Harbor was under the control of the King's customs agents; see Randolph's account of beatings and death-threats received by his agents in Boston. See also *Ibid.*, p. 547, his further statement that it was "impossible to go on board any but empty hulls except by forcing an entry with violence."

¹⁸ *Ibid.*, vol. 11, p. 758: "Jan. 6, 1685, New Hampshire. Since my last letter higher commotions and disturbances have occurred in the province and greater affronts have been offered to myself and the King's officers that at any time since my arrival. These have been stirred up by letters from Nathaniel Weare, and improved here by Waldern (Waldron) Gillman, and Vaughan, who is lately gone to England to make further complaints. A council has been frequently held by the above-named persons at the house of Major Pike, a Magistrate of Massachusetts, to which place all the ill men daily resort for advice. Many of the town of Hampton and Exeter have signed a paper, that I cannot get sight of, to do nothing but what they themselves duly judge to be law. And although by their petitions and agents they made great professions of loyalty to the King's person and Government, yet at the same time they beat and abuse his marshals and justices here to such a degree that they are afraid to execute their office, and have, therefore, many of them, flung up their commissions...I hope soon to find a passage to Barbados or Jamaica where I shall be ready to receive your orders, only trusting that they may not be for my return here, since I have neither

their resistance on the argument that there should be no taxation without representation, but the governor suppressed their novel concept by putting them in jail until they recanted and paid.¹⁹ Meanwhile in Boston, older Puritan merchants seeking to rise from the middle class found their ambitions limited by the powers of the recently-risen merchant princes, who were willing to embrace both King and Church in order to enhance and ensure their revenues.

These conflicts within the merchant community, and the long contest between Puritan oligarchy and English patent-holders came to a head in the Glorious Revolution, when Thomas Danforth and his extreme faction staged a

health nor ability for the work. Sgd Edw. Cranfield."

¹⁹ *Ibid.*, vol. 12, p. 446: Sept 21, 1687, Minutes of Council of New England. Several inhabitants of Essex examined for refusing to pay their rates and for publishing factious, seditious writings. Order that they be committed for trial by special commission at Boston. Five others bound over to appear and take their trial. Certain others charged.

Sept 23, 1687: On the refusal of all the towns in Essex except Salem, Mowberry and Marblehead, to pay rates, order for the estates of the inhabitants to be assessed and for the factious and seditious people to be bound over.

Oct. 5, 1687: Col. Entry Book, vol. LXIV, pp. 149-50: Samuel Appleton being brought before Council on suspicion of being concerned in the late disorders in Essex, was recommitted to custody.

Oct. 19, 1687: Col. Entry Book, vol. LXIV, pp. 150-1: Minutes of Council of New England. John Osgood and two others of Essex County, being brought up for refusing to pay rates and for publishing seditious matter, were bound over in £500 for their trial. Christopher Osgood charged with the same misdemeanor was discharged. Samuel Appleton committed to custody till he give security in £1,000 to appear at the next superior court.

Nov. 28, 1687: Col. Papers, vol. LXI, No. 75, and Col. Entry Book, vol. LXI, pp. 373-4: Governor Andros to Lords of Trade and Plantations..."Lately several persons in Essex made a disturbance about the payment of their rates, chiefly in the town of Ipswich. They were tried, convicted, and fined and bound over to keep the peace. *Below attached* : Proceedings of a town meeting in Ipswich, Aug 23, 1687. Protesting against the levying of a rate without the consent of an Assembly. Voted by the whole town twice. Proceedings of a similar meeting held at Topsfield Aug. 30, 1687, for the same purpose. The language is milder than in the case of Ipswich. Proceedings of a Spanish Court held at Boston, Oct. 3, 1687, to try certain information laid against certain of Ipswich. The ringleader, John Wise, a minister, was suspended from his ministry, fined £50, and required to find security in £1,000 for good behaviour. Robert Appleton received the same sentence; the rest lighter penalties.

Nov. 30, 1687: Col. Entry book, vol. LXIV, pp. 160-1: Samuel Appleton committed to custody, not having found security as ordered.

virtual Puritan coup d'état within the Massachusetts assembly.²⁰ They seized the Royal Governor and his circle of friends, and locked them up in the castle on an island in Boston harbor. They then imprisoned the captain and officers of the frigate on the Boston station, tied up the frigate and stripped her of her sails. Among those thrown into prison with Governor Andros was the merchant prince Charles Lidget, who in 1676 had been landlord to both Increase and Cotton Mather, the religious leaders of the Glorious Revolution, and to a few other Puritan notables as well. Lidget had also been one of the twenty merchants involved in the Million Acre Purchase, a failed attempt to engross much of the prime forest land on either side of the Merrimack River, with its extensive mast reserves, oak stands and salmon fisheries.²¹ In 1689 these non-orthodox merchants found few friends among the lesser Puritan traders whom they had earlier sought to preempt.²²

At the same time, to save money, they withdrew financial support of the garrisons on the frontier, and called for their withdrawal, a move the French and Indians were only too happy to exploit.²³ Although Danforth's faction initially

²⁰ CSP Colonial Papers vol. 11, pp. 19-20. See the list of accusations against Danforth in the Order of the King in Council. Danforth had already been in trouble with the King and Council back in 1681, for attempting to usurp the Royal Prerogative. For a recent account of the Glorious Revolution, see David S. Lovejoy, The Glorious Revolution in America, (New York: Harper and Row, 1972). Lovejoy accepts the Puritan interpretation of events, and dismisses Randolph's account of Massachusetts mendacity, wealth and size, ignoring the vast amount of independent evidence in the Calendar of State Papers and elsewhere that substantiates Randolph's claims and vitiates the arguments of the Puritan faction. A more objective account may be found in C. M. Andrews, ed., Narratives of the Insurrections, 1675-1690, (New York: Charles Scribner's Sons, 1915; Barnes and Noble reprint, 1967), pp.165-296. There is ample room for more study of this subject.

²¹ Belknap's History of New Hampshire, vol. I, p. 116.

²² See the Lidget account book, 1676 entries of rents received.

²³ CSP Colonial Papers, vol. 13, p. 212.

carried the day, their arrogance threw the issue of home rule, and with it their quasi-legal domination over the region's resources, as a gauntlet in the faces of the King and Council, and their merchant neighbors as well. With no strong authority to organise the military, and with the King's frigate tied up in Boston Harbor minus her sails and rigging, the coast was open to French and Indian predation. The losses that ensued were staggering, for it was during this time that the English presence was driven from the eastern territories as far south as Wells, Maine.²⁴ In a raid on Dover, Indians whom he had formerly deceived

²⁴ Andros's account of the collapse of frontier defenses in a letter dated May 29, 1690 makes the situation clear: "Account of the forces raised in New England and of the forts built for defence against the Indians in 1688.

FORT PEMAQUID. Garrison. Capt. Brockholes' regular company; Capt. Tyng's and Capt. George Minot's Provincial Companies. Total 156 men. On the insurrection in Boston the whole of these forces were withdrawn except 18 of the regular company, and the fort fell into the hands of the French.

NEW DARTMOUTH. Garrison. 20 regulars under Lieutenant Jordan, Captain Withington's Provincial Company. Total 84 men. Most of the troops were drawn off or debauched so that they carried their officer prisoner to Boston and deserted the fort.

REDOUBT ON DAMARISCOTLY (DAMARISCOTTA) RIVER. This being garrisoned from New Dartmouth was also deserted.

SAOIDCHOCK(SAGADAHOCK?), NEWTOWN, FORT ANNE, POJEPSCOT (PEJEPSCOT). These forts on the Kennebec were commanded by Lieut.-Colonel Macgregory and Major Thomas Savage with their men and Captain Manning's Companies, in all 180 men. The Major and most of the officers of the New England forces revolted, seized the Lieutenant-Colonel, drew off the men and deserted the forts.

FALMOUTH, a fort in Casco Bay. Garrison. Captain George Lockhart's company of 60 men. The commander was seized and the forces withdrawn. SACO RIVER. A fort commanded by Captain John Floyd with his own company and a detachment, in all 88 men. Kennebinke (Kennebunk) and Wells, forts garrisoned from Saco. The whole of these forts were deserted by the officers and men.

MERRIMAC RIVER. A company of 50 men was at the upper plantation, as also the militia of that river. The officers and men were debauched, and quitted their stations.

CONNECTICUT RIVER. Captain Jonathan Bull's company of 50 men and the militia under Colonel Robert Treat, and 40 men of the regular companies. The officers and soldiers deserted their posts.

Total of all troops employed, 709 men. The vessels employed on the coast were *HMSS Speedwell* and *Mary* and two provincial sloops. All the principal garrisons were supplied with three months' provisions and sufficient warlike stores, and at Boston there were further military stores in the Castle.

While the forces were out the Indians were powerless, but when they were withdrawn the Indians did and still do great damage. The King is urged to exert his authority for the saving of the country."—CSP, Colonial Papers vol. 13, pp. 273-4.

and robbed seized Richard Waldron, a principal leader of the New Hampshire Puritan junta, in his own house, and repaying artfulness with art, terminally engraved him with the delicate calligraphy of *l'arme blanche*.²⁵ Even at this time some Boston merchants were engaged in supplying the French and Indians, who no doubt offered them, indirectly, the prospect of freshly vacated land.²⁶ Both in Boston and in London, the reaction to the extreme faction brought an end to the very Puritan autonomy they had sought to recapture.

Industry, Economy, Environment and Technology

Along the coast, from the 1670s on, it made no difference to the environment where the nominal political control lay. The technology of

²⁵ Belknap, History of New Hampshire, vol. I, pp.248-9: "When they were done eating, they cut the Major across the breast and belly with knives, each one with a stroke, saying 'I cross out my account.' They then cut off his nose and ears, forcing them into his mouth; and when spent with the loss of blood he was falling down from the table, one of them held his own sword under him, which put an end to his misery."

²⁶ CSP, Colonial Papers vol. 13, pp. 563-4: Information of Mark Emerson, sometime a soldier under Captain Francis Nicholson. "Two years and a half ago I was at Boston and was pressed and sent by the Revolutionary Government to keep garrison, where I was captured with several others of the Indians and taken up Kennebec River near a hundred miles to Norridgway (Norridgewalk). After staying some time I was taken round to St. John's river and thence to Quishmaquig, where I was sold to the French. Before that, I was often tortured by the Indians to make them sport. Awhile after I was sold I went with my master to Canada, where hearing that the English were near, we returned to Quishmaquig. There I lived, doing such work as I was put to, so long as we were able for starving. For last winter and spring both French and Indians were forced to eat their dogs, since having no powder or shot they could not kill a fowl, though they swarmed in numbers before their doors. In March however, Mr. Alden arrived in the St. John's river with the Mary, and brought them supplies of food and ammunition, without which they would have perished. He has been with them often since the war began, as lately as last September. I was redeemed by Mr. John Nelson, who was on his way to Canada a prisoner. Mr. Alden might have had me last trip for little, but said he came to trade, not to redeem captives."

See also *Ibid.*, p. 301, July, 1690: "Report of Captain Holmes, employed to fetch masts for the King's ships, who left Piscataqua on the 19th May. He has brought but 14 masts this voyage and 22 yards, whereas in other voyages he has brought back 74 masts and yards. He has seen the desolation wrought by the French and Indians, which would never have taken place if Sir Edmund Andros had not been deposed by the revolution at Boston. Some of the people at Boston supply the Indians with arms and ammunition; the names of these persons can be given. Informant has no

resource extraction remained the same regardless of race and religion, and could only vary with the size of the population engaged in that work. It hardly mattered to the ecosystem whether the laws were made in Paris, Quebec, London, Boston, or Norridgewock, Pigwacket and Pennacook, for that matter. Forest harvest was done with ax and ox; felled trees were bucked to length with a saw; timber was finished with pit saw, broadaxe and adze. Fishing was done with a handline from boats and smaller vessels, or in rivers with a small seine or weir. Furthermore, in the coastal region all resources could have value added to them by labor without great added expense for transport, and the finished products were never far from a shipping facility that would put them on the world market. This meant that the maritime industries and the environmental resources developed a natural interdependence that distinguished the coastal region from the interior, where the cost of transport changed the nature of added value.

What did matter to the fate of the coastal environment was that the existing organized English towns had increasingly imposed close controls on the harvest of their common resources.²⁷ Nearby resources became increasingly

interest in New England, and gives this information on public grounds only. Signed John Holmes.

²⁷ For example, Exeter Town Records in Charles H. Bell, History of the Town of Exeter New Hampshire, (Exeter, 1888), pp. 51-3: the series of ordinances passed by the town of Exeter between 1650 and 1674, regulating the harvest of forest products.

See also Currier, John J., History of Newbury, (Boston: 1902; 1984 reprint), p. 128: "March 5, 1676-77, the free-holders voted 'That such persons that shall fell downe & make use of Timber of the Towns Commons for the building of ships or vessels shall from henceforth, from time to time, have liberty from the Selectmen and shall pay for the Townes use two shillings a tun according to the burden of the vessel and if any shall take timber out of the Townes Commons without leave as above said shall pay four shillings a Tun to the Townes use to be levyed by ye constable.'"

See also Town Records of Dorchester, which, after issuing ordinances every year since 1634, provided in their instructions to the Selectmen, 1641, "that they carefully p'uide for the saffy of

expensive in the outside market, as towns exercised closer control over their forests. Both towns and colonies began early to regulate their fisheries; along the rivers, fishing was increasingly controlled to prohibit depleting the stock, although towns wrestled with the colonial or (later) state governments for control over their resources. A brief history of fishing regulations before 1823 on waters in the colony and state of New Hampshire alone illustrates this.²⁸ New

our Commons: in the wood and Timber."

See also town records of Kittery, ME. In January, 1713 the town decided to revive an old order requiring anyone who wished to fell pine or oak trees 'fit for mill logs or ship timber' to obtain the town's permission and added the further requirement that anyone so licensed must pay a fee to the town treasury of 12d for every tree he wished to cut. (from Saltonstall, Ports of Piscataqua, p. 23).

²⁸ Report of Mr. Haven to House of Representatives, "Historical Collections & Monthly Literary Journal," (Concord, NH: Hill & Moore, 1823), vol. I, pp. 161-5, appendix, pp. 67-8: "The first act passed in this state to prevent the destruction of fish was in 1754, when the taking of alewives in Cohass brook in Derryfield was prohibited, except at certain times, and under certain restrictions. From that period to the present time, fifty acts have been passed of the same class, namely--

From 1754 to 1764, ten years,	1 Act.
1764 to 1774	4 Acts
1774 to 1784	7 Acts
1784 to 1794	10 Acts
1794 to 1804	3 Acts
1804 to 1814	3 Acts
1814 to 1823, 9 years,	22 Acts

Of these Acts, 14 have been for the preservation of salmon, shad and alewives in the Merrimack river; 3 for shad and salmon in Connecticut river, 2 for codfish and smelts, bluefish and bass in Piscataqua river, 2 more for bass alone in Piscataqua river, 1 for salmon in Ammonoosook river, 1 for fish in Ashuelot river, 2 for alewives in Exeter river, 3 for alewives in Cohass brook, 6 for fish in various small streams and brooks, and 16 for small fish in ponds.

Of these acts it is stated, that 6 have been repealed altogether, and the fisheries made free, 13 repealed and substitutes enacted; 3 expressly repealed in part; 3 expired by their own limitation; and 25 remain on the statute book as still in force. Of those 25, still unrepealed, it is thought more than one-half have become obsolete, or are altogether disregarded.

The first Act, on record, for the preservation of fish in Merrimack river was passed in 1764, and was the second of that kind enacted in the state. It appears that it did not pass without opposition; and that its wisdom was much doubted. A remonstrance against it was presented to the Legislature, signed by three hundred and fifty-seven persons, inhabitants of Londonderry, Chester, Derryfield, Bedford, Goffstown, Starkstown, and Pennycook, in which they "pray that the fishing at the falls in said river may not be restrained in any measure, but that the same may remain free, as it hath been hitherto." The remonstrants however consent that the salmon fishery may be restrained a part of the year.

Of the fourteen Acts passed for the preservation of salmon, shad and alewives in

England towns had regulated their fisheries for a century before the provinces began to legislate fisheries acts, as we have seen in Exeter and Dover, New Hampshire, and several Massachusetts towns. A decree from Governor Wentworth, occupying most of the first page of the *New Hampshire Gazette* for Friday, May 11th, 1764, is one example of this kind of provincial legislation.

Keeping a watchful eye on their timberlands, riparian fisheries and any shoreland suitable for fishing stations, proprietors and selectmen shepherded their town's common resources starting in the early 17th century, and denied outside merchants easy access to them. Beyond their own home towns, merchants didn't control many of the fishing ports or lumber and mast ports. When merchants were looking for a load of fish or forest products to make up a cargo, or shipwrights were gathering timber and masts to start a new vessel, they had to deal with local merchants, fishermen or private landowners, who had some understandable interest in profiting from their personal resources. Remember that Richard Hollingsworth, when he died in 1654, left hewn ship timbers lying not only in his own shipyard, but also on the land of one of Salem's deputies to the General Court, at that time either Hawthorne or Browne, both of whom were merchant-landowners. Merchant-landowners, whose wealth generally ensured that they were also political leaders, made common

Merrimack river, several begin as follows: "Whereas the Act to which this is an addition has not been found to answer the purpose for which it was intended," or words to that effect; and it appears that the experiment was made for the fourteenth time, so late as the year 1820; the experience of fifty-six years and thirteen previous trials, not having yet taught the way of keeping "salmon, shad and alewives" in Merrimack river by operation of law!

The acts passed for the preservation of fish in Piscataqua river were limited to three or five years, and it does not appear that any attempt was made to renew them."

cause with shipbuilders from the time of the earliest settlements. Both depended on coastal resources for their livelihoods.

This private market was naturally more expensive than resources from unoccupied coast or forest. Merchants and shipwrights, if they wished to avoid the expenses of town-regulated resources and private local markets, had to acquire for themselves control of fishing stations and large expanses of forest that were both beyond the limits of any organised town, and not claimed by anyone politically stronger than they. Initially, merchants did this on territories newly acquired by fiat from their original proprietors either by the Massachusetts General Court, or by its subsidiary cabal that controlled New Hampshire through the Council in Portsmouth. Shipwrights also began to acquire their own timber sources in Maine, and established their enterprises in harbors east of Cape Ann, where land and labor were cheaper than they were in the Bay. Later, in the nineteenth century, shipwrights began to secure timber resources along the coast in the deep south, but that is another story.

Although some Maine residents were listed as "shipwrights" from the very beginning, and a shipbuilding trade went on there all along, few Maine-built ships appeared on the early records. There were, for instance, several shipbuilders active in the Piscataqua area before the eighteenth century, all of whom built vessels, but most of whom are not mentioned by trade in Massachusetts records. Their ships are also noticeably absent from surviving official accounts, although Massachusetts merchants must have provided them from an early date with a regular clientele. Possibly the merchant-owners of

those ships built "to the eastward" did not want them to appear on official enrollment lists.

Powerful merchants on the coastal frontier sought to own or control a kind of vertical monopoly, which included timber and fishing resources, harbor and shipbuilding facilities, and a range of semi-autonomous subcontractors. They also sought access to one or more out-of-the-way harbors that were not subject to the regular supervision of any government official. They combined these assets with wharves, docks and warehouses in a major port such as Boston or Portsmouth, where they could continue to participate in the government, and where they had a ready population of consumers for their imports. It was risky, however, to relocate lock, stock and barrel to the new possessions, because once separated from the social, political and economic networks of the metropolis, they were defenceless against the machinations of their own ambitious urban peers, as the previous chapter showed. The best insurance policy against this predation-behind-closed-doors was strategic marriage, which brought powerful allies. Any comparison of genealogical records with deeds to large tracts of frontier land in the period from 1690 to 1815 will show a complex tapestry of surnames found on the rolls of the Massachusetts General Court and the New Hampshire Assembly, the records of principal merchants, and lists of Great Proprietors.²⁹

²⁹ An excellent examination of the early evolution of these relationships in the seventeenth century is John Frederick Martin's Profits in the Wilderness. (Chapel Hill, NC: University of North Carolina Press, 1991). While Martin convincingly demonstrates the role of landownership in the acquisition of wealth, he unfortunately does not address the role of topography, natural resource, and maritime trade in the assessment of early colonial wealth. What made some lands more valuable than others was standing timber, sawmill or shipbuilding potential, proximity to

Discrepancies in Shipping Records

In 1665 the King's commissioners required the Massachusetts Bay Colony to give them a count of vessels registered in Boston. Secretary of the Colony Edward Rawson reported that "The number of our ships & vessels, according to our best information, may be about eighty from twenty tons to forty, & from forty tons to one hundred about forty sail, & of ships above one hundred tons about a dozen."³⁰ or 132 vessels all told. John Hull, in his diary, reported different numbers of vessels entering Boston harbor in the years 1663 and 1664, distinguished not by tonnage but by rig. His numbers are larger than those of the earlier report:

1663: "This year it was said, by such as took account of the number of ships that came in, that there came into Boston harbor sixty ships and barks, besides ketches, &c."

1664: "There hath come into our harbor of Boston near one hundred sail of ships, this year, of ours and strangers, and all laden hence."³¹

In 1664, however, Sir Joseph Williamson reported that New England had 300 vessels trading to the southern colonies, Caribbean, southern Europe and French Canada. He also reported 1,300 boats fishing at Cape Sable, Nova Scotia, and 1,500 fishermen working at the Isles of Shoals, a number that suggests about 375 fishing boats stationed there.³² In 1675 William Harris, an agent sent from

fishing grounds, or accessibility to shipping. It was not so much the land itself that was valuable, but what it offered for potentially exportable added value in return for labor. That's why the earliest fortunes were built around the maritime industries and coastal property, not around inland farming.

³⁰ Records of the Governor & Company of the Massachusetts Bay in New England, vol. IV, part 2, p. 193.

³¹ John Hull, *Op. Cit.*, pp. 210, 214.

³² CSP, Colonial Papers, vol. 5, p. 524.

Connecticut to England, reported "Twelve ships between 40 and 80 tons are built every year in Boston, Salem and that jurisdiction; he came over in a ship built there of 200 tons with 14 guns."³³ In 1676 the newly-arrived Governor Randolph was asked to verify reports of many more vessels in the area. Recent information indicated 12 ships between 100 & 200 tons, just as Rawson had reported previously, but there were now 190 between 20 & 100 tons, and 500 fishing boats of about 6 tons each.³⁴ Randolph reported that there were "built in the Colony 730 ships varying from 6 to 250 tons, there are 30 master shipbuilders."³⁵

How can these different numbers be reconciled? Had 70 ships of 20-100 tons been built in the eleven years between Rawson and Randolph? And what of the 500 fishing vessels? Many shallops and most ketches were over 6 tons, regardless of what tonnage they showed on the registry, if indeed they were registered at all. Part of the answer is the likelihood that vessels small enough to avoid registry traded over great distances; it was then not unusual to find the same 20-30 ton ketch from New England trading first at Newfoundland and then at Madeira or Lisbon, although it was nominally a fishing vessel of a tonnage barely large enough to require registration. This dual purpose for small vessels lasted well into the 19th century, when vessels were alternately registered for fishing and for coasting, depending on the season.³⁶ Thus when John Hull

³³ *Ibid.*, vol. 9, p. 221.

³⁴ *MAHS Collections*, series 1, vol. 4, p. 216.

³⁵ *CSP, Colonial Papers*, vol. 9, p. 463-6.

³⁶ See the Customs Registry of Penobscot Bay for the early nineteenth century, collections of the

reported a number of vessels "besides ketches, etc.," he may have been dismissing under "ketches, etc." the majority of sea-going vessels in the colony.

The Boston registry records show that between 1696 and 1701, 79 vessels (about 13 per year) were built in Boston, but between 1702 and 1707, the number of vessels built there increased to 130 (about 22 per year), and in the last six years of Queen Anne's War, from 1707 to 1713, the total increased again to 191, or nearly 32 per year. This indicates a rise in shipbuilding during the war years, at least in Boston.³⁷

A wartime geographical relocation of shipbuilding is one circumstance that may have warped the statistics available in the Boston records for 1697-1714, which the Bailyns used for their pioneering research; others will be mentioned later. Shipbuilding before the war was much more extensive to the eastward, and must have shrunk during the war years, while Boston production increased to pick up the slack.³⁸ Alternatively, new ships may have gone directly to Europe without registration when it was dangerous for them to sail under the British flag. Here might be a subject for further research, for existing records and accounts of William Pepperell, one of the principal merchants at Piscataqua, suggest a more active peacetime shipbuilding industry there than the registry

Penobscot Marine Museum, Searsport, Maine.

³⁷ These figures are a synthesis of those from the appendices of Bernard and Lotte Bailyn, *Massachusetts Shipping*. (Cambridge: Harvard University Press, 1959) and Joseph A. Goldenberg, *Shipbuilding in Colonial America* (Charlottesville: University Press of Virginia, 1976). The exact numbers are suspect, but the changes relative to the dates demonstrate that shipbuilding increased around the metropole in war years, when it was most difficult in the outports.

³⁸ For instance, one 50-ton vessel, clearing the Piscataqua for Boston in 1723, listed on its cargo manifest 3 masts and 3 bowsprits, presumably for vessels building at Boston. (Naval Office Records, microfilm, UNH).

rolls reveal. The Pepperells alone owned 57 ocean-going vessels at various times in their careers.³⁹ Their homes in Kittery were surrounded by active shipyards. They built vessels regularly, with new ships occasionally going directly to foreign merchants, possibly thus eluding the registry. Even in wartime fishermen in relatively secure areas may have continued to build shallops and ketches for local use. However, during the war years between 1690 and 1713, while Boston shipbuilding was booming, only eight or nine new vessels were added to the Pepperell fleet.⁴⁰ That may have been because Boston or Salem merchants bid higher for the services of Piscataqua shipbuilders, for outport shipbuilders also built for the Boston trade, and when wealthy merchants lost most of their vessels they may have hired outport builders to help replace them.⁴¹ On the other hand it may reflect a greater difficulty in marshalling men and materièl on the frontier during wartime. The previous chapter mentioned that during King William's War one of the English adventurers who speculated in Piscataqua shipbuilding complained that his men were pressed out of his shipyard into the militia, thus delaying completion of a vessel he had under contract.

Shipbuilders also moved in peacetime from urban centers toward the outports, where they might find cheaper labor and materials. Shipbuilding had

³⁹ Fairchild, Mssrs William Pepperrell, p. 222 (index).

⁴⁰ *Ibid.*, p. 47.

⁴¹ Horace P. Beck, The American Indian as a Sea-fighter in Colonial Times, p. 43: John Higginson of Salem wrote in 1697 that "of sixty-odd fishing ketches of this town but six are left."

begun very early between Ipswich and Haverhill; already in 1643 there were four shipyards in the vicinity of Haverhill.⁴² In 1649 a Newbury landowner sold

unto Matthew Chaffe of Boston, shipwright, one Ferme, containeing foure hundred Acres of land, be it more or lesse, lying and being betweene the river of Merimack and Newbury River in the County of Essex in New England.⁴³

Away from the Boston-Salem axis, shipbuilding went on to a greater extent than local merchants could have required. In all, Massachusetts records indicate that 130 vessels were built on the Merrimac River alone between 1671 and 1714--eleven of them for English owners. Merrimac towns managed timber resources to maintain a steady income from shipbuilding; for instance, on April 12, 1681 Newbury sold to Lieutenant Stephen Greenleaf "a parcell of timber to make plank for a vessel."⁴⁴ Piscataqua records also show that vessels built in New England sometimes went to Caribbean merchants, whose own timber resources were nearly exhausted by the late seventeenth century. There is ample room for research in this aspect of colonial shipbuilding and trade, for many Caribbean merchants owned vessels, and few vessels were built in the islands after the seventeenth century. According to Piscataqua customs records, between 1748 and 1770 at least one Barbados merchant owned a Piscataqua-built brig; one York-built brig was owned in Grenada, as was a Newbury-built schooner, and one North Yarmouth-built schooner was owned in Antigua.⁴⁵ Additionally

⁴² Robert K. Cheney, Maritime History of the Merrimac, (Newburyport: Newburyport Press, Inc., 1964), p. 6.

⁴³ Boston Town Records, 1634-1660, and Book of Possessions, p. 11.

⁴⁴ John J. Currier, History of Newbury, Massachusetts, 1635-1902 (Boston: Damrell & Upham, 1902; Reprint Portsmouth: Peter Randall, 1985), p. 128.

⁴⁵ NH Colonial Naval Office, Shipping Lists for NH, Customs Record Book 1770-1775, # 5, Portsmouth Athenaeum mss Coll. S-39.

there was a steady trickle of New England masts and spars into the Caribbean, suggesting a regular need there.⁴⁶

Since the Dutch Wars, and the days of New England's domination of the Admiralty Board, the Royal Navy had claimed a share of New England's resources beyond masts and spars. Records also survive of at least three warships built in New England for the Royal Navy in the period spanned by the French and Indian wars. In 1696 the *Bedford Galley*, 32 guns, was built in Piscataqua for the Royal Navy.⁴⁷ At about the same time, there was built in Portsmouth the *Falkland*, a fourth rater of 776 tons and 48 guns, that survived until 1768.⁴⁸ In 1714, on her arrival in the Thames, the Crown sold to Russia the *Britania*, ex *Great Allen*, 50 guns, built in New England.⁴⁹ While these much larger vessels were on the ways, they may have occupied most of the shipwrights in the local area, and kept their services from their usual local patrons. That more were not built can be laid to the poor reputation of New England oak among the chauvinists in the Royal Navy Board.⁵⁰

In 1697 Lord Bellomont reported 11 ships, 5 brigantines, 4 ketches and 4 sloops belonging to Piscataqua.⁵¹ This number seems small considering the number of merchants and lumber brokers in the area. The Pepperell interests

⁴⁶ The above-mentioned Shipping lists for New Hampshire show three such vessels in 1751, and for the following year five more.

⁴⁷ Nathaniel Adams, *Annals of Portsmouth*, pp. 102-3.

⁴⁸ Saltonstall, *Ports of Piscataqua*, p. 17.

⁴⁹ *Mariner's Mirror*, vol. 17, No. 4, p. 325.

⁵⁰ Albion, *Forests and Seapower*, p. 24.

⁵¹ Saltonstall, *Ports of Piscataqua*, p. 18.

owned nearly that many vessels, and added half that number during the war years. Saltonstall records 73 Piscataqua-built vessels entering through Boston Customs between 1692 and 1714, a number that, when averaged, indicates only a little over 3 new vessels per year,⁵² but we know that there were several active shipbuilders in the Piscataqua district at that time, perhaps as many as six in Kittery alone, and more in Oyster River, Dover, Berwick and Portsmouth.⁵³ These discrepancies are worth investigating. It may be that Pepperrell sponsored a little piracy on the side in unregistered ships, as some of the great Boston merchants did.

Maritime Interests in Peacetime

Maritime interests thrived between the wars. In 1700 Lord Bellomont sent to England a series of increasingly shrill letters, denouncing Partridge, the Lieutenant Governor of New Hampshire, and others for sending ship timbers and masts to Portugal. Partridge had apparently sent over one load of good shipbuilding supplies, which had cost him £300 and returned him £1,600, and was fool enough to brag about it. That set the whole coast to speculating in ship timbers to Lisbon. Partridge was followed by merchants from Boston and Newburyport, and one consortium of Salem merchants put together a cargo for Lisbon that included 6,000 four-inch-thick and an equal number of three-inch planks, all 45 feet long and clear of knots. This single load represented ceiling

⁵² Ibid., p. 23.

⁵³ Everett S. Stackpole, Old Kittery and Her Families (Lewiston, ME: Lewiston Journal Press, 1903).

and planking for several good-sized vessels, and hundreds of mature forest-grown oaks. Partridge indicated that if Bellomont could see his way clear to allowing a shipment of good masts to Portugal, he could name his price in cash. Partridge also admitted that he had built £22,000 worth of ships for English merchants (upwards of 20 ships at his stated prices per ton). These merchants apparently sponsored his trade with Portugal, for they persuaded the Crown to make Bellomont rescind his embargo on a ship Partridge had recently built for them at Piscataqua and had just laden with timbers for Portugal.⁵⁴

It is probable that the Portuguese at that time were paying hard cash for much-needed ship timbers and spars. Portugal had then just begun to receive vast amounts of gold from recently-discovered mines in Minas Gerais, Brazil, which had started producing a few years earlier.⁵⁵ Within the first decade or so of their opening, gold from those mines is reported to have exceeded the amount extracted by Spain from its American possessions in the entire sixteenth century.⁵⁶ The returns on spars and shiptimber allowed two of Partridge's English merchant patrons to sell £6,000 worth of English cloth to New England, probably for hard money, apparently in a single transaction, and the cash nature of the transaction was doubtless what encouraged the Crown to tell Bellomont to

⁵⁴ CSP, Colonial Papers, vol. 18, pp. 46, 178, 191-201, 229, 268, 354-81. See also the list made by Thomas Bannister in 1715, in J. J. Malone, Pine Trees and Politics. (Seattle: University of Washington Press, 1964), pp. 153-4. This shows 28 shipments made to Cadiz or Lisbon between 1712 and 1718, including over 1,500 pine spars and bowsprits, and over 90,000 feet each of oak timber 30-55 feet long and oak plank 2-4 inches thick.

⁵⁵ C. R. Boxer, The Golden Age of Brazil. (Berkeley: University of California Press, 1962), pp. 30-60, "The Gold Rush in Minas Gerais."

⁵⁶ *Ibid.*, p. 60.

back off when he threatened to arrest the new ship. Merchants at home and in the colonies were quick to adopt this method of leveraging New England's coastal resources into Brazilian gold and silver.

This was not the only peacetime shipping boom. In the tentative peace between 1713 and 1723, the Pepperell fleet in Kittery increased by at least eighteen vessels, including six brigantines, two schooners, eight sloops and one pink.⁵⁷ Pepperell's vessels frequently called at Lisbon or Bilboa. Merchants who didn't export ships directly found means of exporting naval supplies. When Thomas Walden cleared for Cadiz on December 30, 1723, he carried, in addition to fish and staves, 134 pieces of oak timber.⁵⁸ On the first of January, 1724, Captain Joseph Gibson cleared his vessel, *Eagle*, 70 tons, from Piscataqua bound for Lisbon with a cargo of 89 pieces of oak timber, 1,500 feet of oak plank, 200 feet of pine plank, 20 small spruce spars, fish & lumber.⁵⁹ Additionally, vessels often cleared the Piscataqua for Europe with only a partial lading. Presumably the rest was made up in stops at masting stations or sawmills to the eastward, or was already stowed and not declared. It is difficult to assess the impact of a given shipload of timber on the forest reserves, but we can get a rough estimate using Albion's scale of 600 American board feet to the load, and one timber oak to the load, which weighed about a ton and a quarter.⁶⁰ Assuming an arbitrary average of

⁵⁷ Fairchild, Mssrs. William Pepperell, p. 77.

⁵⁸ NH Colonial Naval Office Shipping Lists for New Hampshire, pp. 7-8. (on microfilm, UNH library).

⁵⁹ *Ibid.*

⁶⁰ Albion, Forests and Sea Power, p. 9.

two compass timbers to a tree, based on my own experience, only one straight timber per tree, and a range of 2-8 inches thickness on the plank, we might guess that the above-mentioned shipload contained the remains of 61-65 large oak trees, one or two large pines, and 20 spruce.

This all suggests that in peacetime shipbuilding was very active beyond the purview of the Boston Customs House. Because shipbuilders north of Salem operated on the fringes of legal supervision, and because there were near-contemporaneous reports of far more vessels, the numbers reported by the King's commissioners in 1665, and those recorded in the Boston records for the years 1697-1714 (used by the Bailyns in their study) are suspect. There may be several reasons for this, which are explained as follows.

First, there is the problem of attrition. Lloyds of London records indicate that half of all sailing vessels in the 18th and 19th centuries were eventually lost in use.⁶¹ A single storm could decimate the shipping in a large area, as happened to the British in 1703, when a hurricane destroyed 15 men-of-war and hundreds of merchant vessels in a single night.⁶² We have already considered the losses in war.

Secondly, there is the additional problem of accurate reporting of tonnage. Because vessels were taxed on their tonnage, all shipowners then (and now) did everything they could to reduce the reported tonnage of their vessels. This is the

⁶¹ Peter Throckmorton, The Sea Remembers (New York: Weidenfeld & Nicolson, 1987), pp. 222-3.

⁶² John Fisher, Storms (London: Adlard Coles Ltd.—G. C. Harrap & Co. Ltd., 1958), pp. 15, 19.

most logical explanation of sloops and ketches registered at less than 30 tons, but showing up in the customs rolls as engaged in offshore trade.⁶³

Thirdly, it is likely that some of the vessels built north of Boston sailed directly for foreign ports with their first cargo of fish and forest products, without clearing customs, and were sold abroad without ever registering in New England. The English Act of 1662 provided that every ship built with two-and-one-half or more decks was to receive ten percent of the customs on the goods it carried on its first two voyages.⁶⁴ An Act of 1670 granted the ten percent to all new vessels of three decks or more and sufficiently armed, and extended a further five percent of customs to the builders of any vessels of two or more decks and more than 300 tons.⁶⁵ These acts, made in response to the threat of war with Holland and the ongoing predations of Turks and Barbary pirates, may have offered further encouragement to shipbuilders in New England, although most New England vessels were too small to qualify. It should be noted that the ship which Partridge commissioned to be built at Portsmouth to further his trade with Portugal was 350 tons, sufficient to qualify him and his sponsors for the new ship bonuses. At the same time they argued that the new ship that had

⁶³ See Fairchild, Mssrs. William Pepperrell p. 39. The Bailyn's study also shows a few vessels registered with Customs at tonnages so small they would not normally have appeared on registry lists; they would have been enrolled in the coastal trade. Comparable modern examples are the cruise vessels now working in Boston Harbor, which have deadweights of more than a thousand tons, but are registered with the Coast Guard at under 100 tons.

⁶⁴ Henry C. Hunter, How England got Its Merchant Marine. (NY: National Council of American Shipbuilders, 1935), p. 154.

⁶⁵ *Ibid.*, pp. 169-70.

attracted Bellomont's attention, the *Mary*, was, at eighty tons, too small to carry really valuable masts.

Shipbuilding continued apace into the eighteenth century. In 1724 English shipbuilders complained that "in the eight years ending in 1720 they were informed that there were 700 sail of ships built in New England, and in the years since, as many, if not more; and that the New England trade had drawn over so many working shipwrights that there were not enough left in London to carry on the work."⁶⁶ This number suggesting an average of over 87 ships per year sounds reasonable, given the number of active shipyards for which we have records.

In any event, most vessels built north of Cape Ann, because they were less than 150 tons, cannot collectively have depleted the forests much beyond the local towns.⁶⁷ Towns still held forested commons to which only legal town inhabitants had access, and farmers cut shipbuilding timber from their own woodlots in the winters.⁶⁸ It is difficult to estimate the board foot content of an

⁶⁶ Saltonstall, *Ports of Piscataqua*, p. 29.

⁶⁷ The tonnage of 28 identifiable New-England-built-and-owned vessels to clear Piscataqua Customs in the quarter between 9.27.1723 and 3.20.1724, according to surviving records: 2 @ 160, 2 @ 100, 2 @ 90, 1 each @ 80, 70 & 60, 6 @ 50, 2 @ 40, 1 @ 35, 5 @ 30, 1 @ 25, and 4 @ 20. The average was 56.4 tons, and the mean was 50. (NH Colonial Naval Office, Shipping lists for New Hampshire, pp. 7-8, UNH microfilm.).

⁶⁸ Although there are many examples of large urban shipyards importing timber, I have not found one reference in a local history north of Salem to a timber shortage before 1850. Starting in the 1850s, or a bit earlier, Maine shipyards began to use "hardwoods," other than oak, for keels. See for example the insurance inspection records for the ship *H. B. Mildmay*, 865.72 tons, built at Biddeford in 1856: The keel was maple, 14" by 26", and 160 feet long. All of the other timbers were white oak up to the waterways, which were white pine, and the plank shear, which was hard pine. The general remarks are telling, though: "Frame though rather small timber is of excellent quality." (Mss. Records from Maine Maritime Museum collections, Bath, ME). Further to the westward, in Essex County, Massachusetts, a diarist noted in 1799 that Salem shipbuilder Retire Becket had brought in a keel piece of walnut, 64 feet long. (Philip Chadwick Foster Smith, The

acre of old-growth timber, because we cannot tell how closely the trees were spaced. Early reports suggested that one might ride a horse through some of them without difficulty, where the Indians had burned the undergrowth. A guess based on 50 mature pines to the acre, and an average of 7,000 feet to the tree would yield 350,000 board feet in an acre of white pine, but that would depend on the soil and the trees. The largest white pines scaled over 10,000 feet, but they were rare. On the other hand, pines were taken off an old Searsmont, Maine property in the middle third of this century that scaled over 4,000 feet, and in the 1970s this writer had one that scaled 2,400 feet taken down near his house. It's possible that good old-growth pine acreage upon clearcutting yielded 200,000 to 350,000 board feet to the acre, but it was seldom clearcut. The best pines were taken selectively for spars, and many of the rest were taken for lumber, but circumstantial evidence suggests that the foresters were apparently continually scouting the woods for individual trees, rather than starting at one boundary and cutting through to the next. Old-growth oak stands are harder to quantify. We know that after one hundred and sixty years of clearing for agriculture and cutting for local needs, all the timbers for the ship *Essex*, 850.21 tons, were brought into Salem River in one winter from the surrounding towns up to the Merrimac, and that when Josiah Fox surveyed her in 1807, he stated that "The white oak timber and plank with which this ship was built is superior in quality to any white oak, I have seen made use of in the Navy--It appears to have been

Frigate Essex Papers, (Salem: Peabody Museum, 1974), p. 48. We might deduce that "hardwoods" came into use chronologically in direct relation to the shipyard's proximity to population centers.

cut from trees young and thriving."⁶⁹ With such reserves, local woodlots and commons must have been sufficient to supply most shipbuilding needs before the nineteenth century. Single oaks cut for 100-ton vessels generally stump-sprouted, each producing three or four replacement trees in the next fifty or sixty years, and until the end of the eighteenth century, most vessels built were under 100 tons, so that each set of oak roots made a contribution to the shipbuilding industry about every half or three-quarters of a century. In the late eighteenth century, local depletion led some farmers to replant oak, and pine seems to have colonised on its own in some places, as we shall see in the next chapter.

The State of the Technology

In 1630, the mechanics of harvesting both forest and sea, and the arts of constructing mills and vessels to facilitate both harvest and trade, were circumscribed by a traditional technology that would not change measurably for more than a century. It is unlikely that the coastal ecotone was altered in any broad way from 1675 to 1783, except for occasional local erosion by hurricanes, or forest loss from fire. After the Revolutionary War, change occurred rapidly, and before the middle of the nineteenth century, the coastal ecotone was changed forever, as we shall demonstrate in the final chapter.

By 1670 a shipbuilding industry had been established in small shipyards along the coast all the way to Pemaquid. Along navigable streams, near-coastal stocks of large oak and mast pine had doubtless been locally thinned. But

⁶⁹ Philip Smith, The Frigate Essex Papers, p. 57.

virtually all the dominant species in the forest were scions of generations of dominant individuals, and the annual growth of their offspring and nearby younger siblings should have replaced most of them with new trees of comparable size within a few decades. Annual forest harvests close to the fall line and seasonal fishing along shore maintained a consistent pressure on both forest and fish populations, yet that pressure was not sufficient to produce an overall pattern of resource exhaustion. Forests were selectively harvested for masts, shiptimber, lumber, staves, clapboards and shingles, as well as for more labor-intensive products such as ox-bows, boats and furniture, but the extent of the process was limited both by the technology and by the economics of the system.

Salt marshes and tributary streams that provided the food base for the demersal fish were in most cases disturbed only locally, and, away from the population centers in Massachusetts Bay, they were not disrupted consistently. The ubiquitous technique of channeling salt marshes to facilitate drainage, a practice learned from millenia of European salt-marsh farming, was intended to provide better access to marsh hay at low tide. It may actually have enhanced distribution of salt marsh-generated nutrients at the bottom of the food pyramid, and by maintaining a brackish root environment that only the *Spartinas* could tolerate, prevented gradual encroachment of the forest through natural succession. Anadromous fish populations were limited locally by dams, but the state of dam-building technology did not permit dams on the lower stretches of large rivers. In 1741, the inhabitants of Hingham had agreed to cart migrating

alewives up around the dams that had recently blocked their ascension to a pond in town, and in season, the mills would be stopped and fishways opened in the dams. This technique restored the alewives in a few years, but the inhabitants found that they lost more money through stopping the mills than the alewives were worth. Eventually, they wrote off the alewives and kept the mills working year-around.⁷⁰ The natural resources (anadromous fish) that used the brook seasonally were no longer as valuable as the waterpower produced year-round by the dams.

The Technology of Shipbuilding and Forest Harvest

The technology for building vessels, from boats to ships, changed very little in New England between the middle of the seventeenth century and the Revolutionary War. Anyone with tools and training and a little capital could become a shipbuilder, and set up a shipyard wherever resources were available and tides permitted a launching. The oaks used to build vessels smaller than one hundred and fifty tons were young enough (60-85 years) that they very likely stump-sprouted after they had been cut. Thus, where a shipbuilder had cut a single oak for a shallop or a ketch, sixty or seventy years later there were three or four new stems of a size suitable to harvest again for a new vessel of similar tonnage, and at a subsequent harvest the builder had to cut a much smaller percentage of the standing timber on the original lot. In the case of oak, at least, regular harvest produced a heavier stand of timber, which grew faster because

⁷⁰ Belknap, History of New Hampshire, vol. III., pp. 334-5. General Benjamin Lincoln to Jeremy

the root systems were already in place.⁷¹ Properly managed, a good hardwood lot of sufficient size, say 75-100 acres, would have provided a small vessel every year, or a larger vessel every few years, without becoming depleted. Compass timber for larger vessels came from pasture oaks, or oaks at the edge of the woods, but taking such an oak from the forest edge meant that another would likely grow in its place within the century, for edge-effect oaks with spreading tops left ample numbers of offspring in their stead, (see chapter 1 "Ingredients: Oak"). Depending on the season, large oaks for compass timbers required a timber carriage or pung (sledge) and several teams of oxen to get them to the shipyard, even if they were dubbed to rough shape with an adze where they fell.⁷² Shipbuilders contracted with farmers for such pieces, or went themselves into the woods with patterns for them. While oak planking and some straight timbers (the keel and keelson, for instance) could be sawed in a sawmill, most of the frames, knees, deck beams, and other curved timber could at best be roughed with a pit saw, before being dubbed out with a broadaxe or adze. This was time-consuming, and required considerable skill. Furthermore, a large oak with much shape in it requires a bed of smaller trees to break its fall, or it may splinter some of its curved parts with the force of its own momentum upon impact

Belknap, correspondence.

⁷¹ This may be seen in a woodlot in Camden, Maine, that was owned by Camden Shipbuilding, and cut over to build minesweepers during the Second World War. Fifty-five years later, many of those old stumps may be discerned as the nearly-vanished bases of clumps of currently (1998) mature and harvestable red oaks. This woodlot ("Albatross Acres") is partly owned by the author.

⁷² MEHS Collections, series I, vol. 2, p. 163: "two of the traders at that lower corner (of New Gloucester, Maine) told the writer this day, July 31st, 1824, that in one day the last week about one hundred ox teams passed by down the Yarmouth road very heavily loaded with lumber, (they usually carry from two to five thousand feet to the load,)...near the whole of them came from eight

against the ground. There is also some danger that a large oak, when being felled, will suddenly split up from the rear notch, the resulting rear piece of the tree flying upward with sufficient speed and force to strike the woodcutter's head like a bat hitting a canteloupe, with similar results.⁷³ Thus taking oak timber for shipbuilding was a slow and careful process, but it was profitable enough to provide winter employment for many farmers near the coast. They husbanded their woodlots for this winter income, while others counted on their woodlots to supply them with bolts for staves, shingles or clapboards, which they would rieve out over the winter to ship into the world market the following summer. Occasionally in the later years of the century, as the coastal forests were thinned, enterprising ship carpenters and yeomen-sailors built vessels miles from the sea and hauled them overland to the nearest tidal water.

Stave rievors competed with shipbuilders for large straight oaks, and Hubbard reported in 1677 that in the Piscataqua area "their rift timber is near all consumed..."⁷⁴ This was a bit premature, for documents record the production of staves in the Piscataqua area into the late eighteenth century. It may have reflected the excessive harvest of resources by the Puritan cabal, whose ravages were eventually sufficiently moderated by the advent of a royal governor and the legitimate grantee, that the forest had opportunity to recover.

to ten miles back in the country."

⁷³ This happened not many years ago to one of the author's acquaintances in Camden.

⁷⁴ Hubbard, William, The History of the Indian Wars in New England from the First Settlement to the termination of the War with King Philip, in 1677. (Drake, ed., 1865), pp. 75-6.

Masts

White pines were in demand for masts and spars from the first decade of settlement, or earlier. Pines for the spars of the average smaller vessels were less than half the size of mast pines for a first-rate man o' war. We may use the dimensions from the *Susan Constant* as a guide. Knowing the rough ratios of length to beam to depth in hold for ships of this era, which were roughly 1 to 0.41 to 0.21, and the prescribed mast length for the main lower mast, which was 2.5 to 2.8 times the beam, we can compute the greatest mast size for a ship of *Susan Constant's* tonnage (120). Such a mast was 63' 3" long, by 21" at its greatest diameter, which was about ten feet above the base, where it went through the mast partners.⁷⁵ A pine 28" in diameter would probably suffice, after the sapwood had been removed. Of course, since masts were designed a bit thinner after 1640, such a pine would certainly have sufficed for most of our period. Such pines were perhaps one hundred and twenty to two hundred and forty years old, and could be found almost anywhere along the coast from Ipswich to Penobscot, in varying densities up to a few dozen to the acre, depending on the age and mix of the forest.

Mast pines suitable for large Naval vessels were less common, but could be found in many places at the rate of several to the acre, if we may extrapolate from various accounts of cutting. Suffice it that for all the wrangling over the harvest of Mast pines, the harvest went on for nearly two hundred years, and for all the complaints about waste and scarcity, the same region produced mast pines

⁷⁵ Brian Lavery, *Susan Constant*, pp. 10, 28.

on a regular basis for generations..⁷⁶ Twenty-three years after Exeter's first mast contract with Edward Gilman Jr. in 1641, mast agents were still finding superb pines within a mile or two of where Gilman had harvested them. Gilman himself reserved timber for his sawmill and "pines for great masts" on a piece of land he sold to John Robeson of Haverhill in 1651, ten years after he had begun felling great pines on his property.⁷⁷ Two years later Gilman conveyed to his father and his two brothers all his cattle and his wheels and tackling for drawing masts, as collateral for a bond they had given to one Captain Clarke for Edward's performance in a masting "covenant to get down masts to Exeter river, and to pay for goods had of Mr Dudley..."⁷⁸ (These masts were probably going into a New England-built vessel, since Clarke was a Massachusetts merchant and sometime Boston deputy to the General court, who that same year was investing in sawmills in York, and Dudley was a merchant who served Massachusetts in varying capacities from Assistant to the General Court to Lieutenant Governor and Governor). In 1657, a ship's carpenter was crushed when he fell under a rolling mast pine at the side of Oyster River, which had long been renowned for its mast pines.⁷⁹ In a report to Lord Arlington in 1665, a correspondent observed

⁷⁶ According to a note in Mariner's Mirror, vol. 18, #1, p. 93: the proportion of mast thickness to ship's beam gradually decreased from 1" thickness per 1' beam in 1600, to eleven twelfths of an inch per foot of beam in 1618. This was borne out in the *Couronne* of 1638, which had a mast of 41.33 inches to a beam of 44'. Modern principles of masting began ca. 1640, and settled into one inch of diameter per yard of length. This represents a substantial decrease in size since the days of the *Henri Grace a Dieu*, whose main lower mast contained nearly 21,000 board feet of timber, according to the Mariners Mirror of January, 1932.

⁷⁷ Norfolk County Records, in Essex Antiquarian, vol. 1, p. 85.

⁷⁸ *Ibid.*, p. 115.

⁷⁹ NH State Papers vol. 31, p. 35. Also, description of accident, NH State Papers vol. 40, pp. 134-5: Ffreeborne Balch deposed: This deponent saith that hee beinge att oyster river to see some masts to

that his voyage was slowed disastrously by having to travel with Capt. Pierce, "who was laden with masts," and observed that Piscataqua ("piscatoquay") had "excellent masts," with "above 20 saw mills upon this river."⁸⁰ Although there had been sawmills in South Berwick at Newichewannock and Salmon Falls since the 1630s, and masts taken since the 1640s, Samuel Maverick reported a great mast pine of thirty tons taken out of South Berwick in 1660. Maverick had also reported that at Cocheco river "at the head are 2 Saw Mills, and affoord good Masts," and at Oyster River (Durham) "are many people settled some Saw Mills, and affoords yow Good Masts..."⁸¹ Tradition in the Newmarket-Newfields area recorded one mast that measured eight feet in diameter by 111 feet long, which required eighty oxen to draw it to the landing on the Squamscot.⁸² Samuel Sewall reported another great mast taken out of South Berwick in 1687.⁸³

In 1691 Charles Lidget proposed to the Crown that New England contained ample reserves to supply English needs for masts and spars:

bee turned into the water, that Henrie Thorner orderinge the workemen what to doe: & they accordinge to his word turninge the formost mast wch lay before the other mast, the formost mast beinge removed & hee beinge upon the other mast, they turninge after cast him off, & run upon him, & soe brused him wch was the cause of his death & further saith not.

⁸⁰ CSP. Col. Papers, vol. 5, p. 341.

⁸¹ Samuel Mavericke, "Description of New England," in: New England Historical and Genealogical Register For the Year 1885, (Boston: N.E. Historic Genealogical Society, 1885), p. 36. Since the green wood might be half water, and the dry wood weighs about 24 pounds per cubic foot, we might calculate that at 48 pounds per cubic foot, this mast pine contained *fifteen thousand board feet* of timber. Tenth Census of the US, vol. 13, part 9, Forest Trees of North America, (Washington: US Printing Office, 1883).

⁸² Rev. James Hill Fitts, History of Newfields, NH, (Concord, NH: Rumford Press, 1912), p. 335.

⁸³ Samuel Sewall, Diary, M. Halsey Thomas, ed. (NY: Farrar, Straus & Giroux 1973), vol. 1, p. 149: "Wednesday, the 14th of September, 1687: See the mill (at Salmon Falls). Ride into Swamp to see a Mast drawn of about 26 inches or 28; about two and thirty yoke of oxen before, and about four yoke by the side of the Mast, between the fore and hinder wheels."

All the shipping of England may be supplied from the American Colonies...East New England and Maine abound in pine-trees with which the Crown has been served for masts and yards, though there has been great waste, trees being left to lie and rot, or being cut into deal boards if it has not exactly suited the scantling when fallen. A quantity of seventy-six trees has there been bought at the ship's side for less than £1,700, which now costs the Crown £5,400 in England. The season for the work is winter, but if there be frost and want of snow little can be done, for the ground is hard and the timber being brittle snaps. If the frost break the fallen timber cannot be drawn out of the swamps at any other season, unless the end of the next summer be strangely dry.⁸⁴

Two decades later, in 1710, Colonel Winthrop Hilton and a party of men from Exeter, who had gone into the forest to debark trees already felled for masts, were ambushed by Indians. They killed Hilton and two others, and captured two more. This occurred only fourteen miles into the forest beyond where Gilman had been harvesting mast pines seventy years earlier.⁸⁵ Clearly seventy years of masting parties had not appreciably degraded the pine forest around Exeter. In 1733 David Dunbar reported that he had "surveyed upwards of 100 large pine trees in township of Berwick, at request of Paul Gerish, Esquire. Allowed to be cut down for masts, yards & bowsprits for the Royal Navy, per HM law of 19 June, 1730, to Ralph Gulston, contractor for said masts, etc., 60 of which have been cut & hauled to waterside by Paul Gerish in pursuance of said license & contract."⁸⁶ Eighty years of regular harvesting had not eliminated great mast pines from the Berwick area, either.

Gradual changes in price may reflect some increasing scarcity of the largest trees near the original settlements, but mast pines were still cut in commercial quantities until around the end of the 18th century. A contemporary cargo

⁸⁴ CSP. Colonial Papers vol. 13, p. 529.

⁸⁵ Adams, Annals of Portsmouth, pp. 125-26. Penhallow's Indian Wars, p. 58.

manifest indicates that a few spar pines were still shipped out of Piscataqua in the early nineteenth century.⁸⁷ It is apparent that there were mast pines in the Piscataqua district long after the harvest started. (See Appendix F.) That is because the technology ensured that relatively few such pines could be felled in any given year, allowing ample time and opportunity for regeneration, and for the scions of trees harvested earlier to grow to their full maturity. It may indicate additionally that prices on the mast market controlled the harvest of great pines, or that the broad-arrow policy worked, or a combination of the two. We know from the Exeter town records what they were worth to the town in 1664, although the ordinance is not as detailed as the price lists and cargo manifest, and reflects the stumpage value of the tree felled and lying in the Exeter woods, whereas two of the other tables reflect the value of the masts delivered at Piscataqua and finished probably to eight sides, presumably with the requisite taper, and the cargo manifest reflects the value of the masts loaded on board the ship. Although slowly rising prices probably reflect some increasing scarcity of supply, they had to be kept competitive with prices out of Falmouth and points east, so any price inflation may well reflect wage inflation as much as resource depletion. Prices for 36-inch masts rose from £85 in 1699 to £147 in 1791, not quite doubling in a century. This would suggest that the largest trees were indeed getting scarcer, but were still available in some quantity. Prices for 32-

⁸⁶ NHHS, Mss dated 3/21/1733.

⁸⁷ Cargo manifest in possession of NHHS, Sheafe Papers: Shipped April, 1802 by Sheafe and Marsh of Portsmouth on board the ship *St. Cuthbert*, Michael Hooker Master, for India: 32 masts from 12 to 24 inches in diameter, five bowsprits from 15 to 20 inches in diameter, and 62 assorted spars, at a charge of \$836. There was a charge of \$112.40 for "hewing the masts, &c." See Appendix

inch masts, however, rose from £39 in 1699 to £74:13:04 in 1775, then fell to £60 in 1791, indicating little scarcity of trees just a few decades younger than the largest, and perhaps increased market competition to the eastward.⁸⁸ The thirty-two inch mast pine taken in 1791 might well have grown in the clearing where a great pine had been felled in the 1660s or 70s, and be the offspring of that pine or its neighbor.

Harvesting Mast Pines

To harvest a selected mast pine, a tote road was cleared from the butt of the tree to the nearest mast road. This in itself might take up to several days. Then a bed of smaller trees was prepared to break the fall of the great pine. This also took the better part of a day. We have the court record of "other timber" that was felled by William Leighton while taking mast pine on the land of John Frost, of Berwick, in 1734. Leighton took out seven large pines and one small one that had been surveyed by David Dunbar, the Surveyor-General for New England. These pines had been taken from Frost's land by Leighton's masting team, working for Samuel Waldo, who in turn was subcontracting to fill a contract awarded by the Navy Board to Ralph Gulston and his family. According to the latest regulations governing mast pine, Frost could not prevent Leighton from taking the pine at market value. But he sued successfully for damages to the other timber, so we know from the court records what one such operation

F for mast price lists.

⁸⁸ See Malone, Pine Trees and Politics, graphs of New England mast prices, 1690-1770, p. 147.

entailed. In addition to the pines, Leighton had cut four beech trees, four hemlocks, one maple, and a large assortment of spruce, beech and black birch poles, valued together at £48.⁸⁹ Removing this assortment of trees probably opened up over half an acre of canopy. If this happened every time a great pine was taken from the woods, at least some of the dominant individuals left their truncated cone-laden tops in conveniently cleared ground, protected by surrounding forest. Where they did not, their co-dominant neighbors that were near-relatives dropped cones within the next six years.⁹⁰ Thus the selective harvest of mast pines, coupled with laws restricting the harvest of pine on public land, probably preserved the genotypes of those same dominant pines that comprised the forest canopy.

After the bed was prepared, the great tree was felled onto it with axes, limbed out, and sawn to length with a crosscut saw. This must have taken nearly a day. Then a set of wheels was backed up to the butt of the mast log, and oxen backed up to the mast wheels.⁹¹ The butt was raised with levers up to the axle of the wheels and chained in place, and the mast log dragged out far enough to put at least one more set of wheels over it. Then the remaining oxen were

⁸⁹ *Ibid.*, pp. 114-16.

⁹⁰ Sylvics of forest Trees (Agricultural Handbook #271), p. 332: dominant white pines produce twice as many seeds as their codominants. Thus great mast pines would be more likely than their surrounding codominants to replace themselves in the clearings left when they were taken, if they were felled within a year or two of dropping cones, or felled with ripe cones in their tops.

⁹¹ A log arch, or mast wheels, consisted in the later eighteenth century of a pair of wheels six or more feet in diameter, joined by an axle to which a block was attached in the middle. The butt of the log was drawn to the axle and chained there, or in other cases the leverage of a tongue from the axle was used to raise the butt until it could be chained over the axle, the oxen first drawing the lever from a vertical down to a horizontal position, thus using the force of the oxen times the moment arm of the tongue length around the turning point of the axle. See description in Belknap,

hitched up to the lead set of wheels--team after team being backed up to be hitched to the preceding yoke, as many as thirty-two pairs, by eyewitness account--and a few teams were hitched behind or alongside, to slow the log's progress downhill.

In the winter, when most of the forest work was done, a pung or sledge was set up at the butt end, and the log rolled onto the pung, and chained in place. Then teams of oxen were hitched in front, and the teamsters began the process of dragging the mast to the nearest water deep enough to float it, or to the side of a creek which, perhaps aided by a series of log-and-stone crib dams, would rise to sufficient depth in the Spring freshets.⁹² As was mentioned in chapter one above, a team of oxen might weigh twenty-eight hundred pounds, and pull nine hundred pounds all day at two miles per hour on good cleared ground, or more than twenty-eight hundred pounds on an iced skid road. Therefore, Samuel Sewall's experience of seeing thirty-two teams pulling a mast log in September would have been less spectacular in January on an iced road, when eleven teams would have sufficed. This enormous improvement in efficiency when moving heavy timber on an iced surface recommended a winter harvest season, when there might be a 66% savings in teams employed, and the animals, not being needed in the fields, might be hired for less per team than in the summer. Nonetheless, it was slow work demanding constant attention. Should a mast log

History of New Hampshire, vol. 3, pp. 78-9.

⁹² An excellent account of this process may be found in John S. Springer, Forest Life and Forest Trees. (NY: Harper and Brothers, 1851; Reprint Somersworth, NH: New Hampshire Publishing Company, 1971), pp. 82-4. The technology of timber harvesting had not changed substantially since Sewall's time. The technology of dam-building, which did not change for several centuries, will be

cross a declivity of any depth, with both ends elevated at either side of the dip, the side oxen were strangled. If such a log picked up too much speed going downhill, it would overrun and crush the nearest teams, and perhaps a teamster as well, so the logs had to be belayed with a cable around a big tree or stump at the top of each hill, as well as slowed down by teams on the rear. If a log rolled over with the sledge, the teamster might be crushed; one nineteenth-century witness tells of a teamster who chewed through the oak runner of a sledge in his death-agonies.⁹³ When mast teams worked in summer, as when Sewall saw them, there must have been heavy contract pressure from the Navy Board or a needy shipbuilder to justify taking so many oxen away from the farms.

Clearly taking great pines from the woods in mast lengths was a time-consuming proposition. It was also expensive. The great wheels used in the seventeenth and early eighteenth centuries, such as those mentioned in Gilman's mortgage to his father and brother, were as much as 18 feet in diameter. The mast log was chained below them, and the great wheel diameter was necessary for a tree six feet thick to clear stumps in the trail. These huge wheels must have been expensive to buy and expensive to repair, for the iron rims required the regular attention of a blacksmith, and the hubs, spokes and felloes required considerable skill to fabricate. The only improvement in this technology between the first masting operations in the early sixteen hundreds and the end of the eighteenth century was the use of smaller wheels. By

discussed below.

⁹³ *Ibid.*, p. 94.

Belknap's time these smaller wheels would be capsized so that they rested on the side of one wheel with the axle upright, and the log would be rolled across the lower wheel and chained to the axle. Then using the oxen, the wheels would be tipped over into the normal position, with the log resting on top of the axle.⁹⁴ The shock of hitting the ground with such a weight on top must have shortened the life expectancy of both wheels and axle.

Sawing logs into shorter lengths for the sawmills was more practical in terms of oxen needed, but perhaps not in economic terms when the pines were over 30 inches in diameter, considering the value of boards versus the value of great masts, and the speed at which the water-driven sash saw operated. When sawmills competed with mast contractors for pines, it must have involved trees between twelve and thirty inches in diameter. Thinner pines like these were not so difficult to obtain for spars, but pines over 30 inches in diameter were not only valuable for masts, they were also difficult to fell, transport and maneuver on the brow of the mill, and were slow to saw. In the event, water-driven, single-sash sawmills sawed about 4,000 feet of boards a day in 1750, not much more than they had sawn a century before. With a big mast pine, that would mean just a few rips down the log between morning and night. It would have been more practical to make more saw cuts on smaller logs, and produce more boards each day, and in fact an observer noted that the boards thus sawed were an inch thick,

⁹⁴ Belknap, History of New Hampshire, vol. 3, p. 78-9.

and from fifteen to twenty-five feet long.⁹⁵ It would have taken more than two days to saw a single great mast pine into such boards.

One factor which has not been addressed by previous writers is the domestic market for masts, which must have been considerable. It can only be extrapolated from the approximate number and size of vessels produced domestically in any year, adding to that the number of vessels that had to replace masts and spars after a storm or naval engagement. In most years, domestic demand for masts must have rivaled or exceeded Navy Board contracts. The first ordinance regulating the felling of mast trees throughout the Massachusetts jurisdiction appeared in 1665, but specifically allowed felling trees for masts to be used locally.⁹⁶ The thirty-one ships built between 1630 and 1650, listed in Appendix C, must have taken from one hundred eighty-six to two hundred and forty-eight masts, some of them upwards of thirty-two inches in diameter by ninety-six feet long. They also used three hundred and ten spars, more or less, and thirty-one bowsprits and jib-booms. And that was simply to fit them for their first voyage, before any of them ran afoul of a storm or an enemy vessel. We know from Winthrop's observations that ships occasionally had to remast completely after a storm. After a battle they usually had to replace several spars.⁹⁷

⁹⁵ James Elliott DeFebaugh, History of the Lumber Industry in America, vol. 2, p. 16.

⁹⁶ Massachusetts State Archives, mss. collections, vol. 60 Maritime, p. 51.

⁹⁷ For instance after Trafalgar and the following storm: "Among the twenty-seven British ships *Belleisle* had lost all three masts and her bowsprit, *Royal Sovereign* had lost the main and mizen-masts; *Tonnant* had lost all three topmasts and at least twelve other ships of the line had lost masts or spars of one kind or another. Of the enemy's (seventeen) ships, which were taken during the battle itself, eight were entirely and nine partially dismasted." John Fisher, Storms (London: Adlard Coles Ltd.—G. C. Harrap & Co. Ltd., 1958), p. 59.

Suffice it to say that alongside the requirements of the British navy, a strong domestic market existed for mast pine, one that has gone unmentioned in analyses of the mast trade. Certainly the woodsmen who depended on contracts with Boston merchants to get their lumber, staves and shingles to market must have been careful to supply those merchants or their shipbuilders with masts and spars. The merchants themselves kept their own clients supplied with masts and spars. Loss of masts or spars meant down time for vessels and idle crews during the fishing season; one of William Pepperell's vessels took a small mast and bowsprit to a captain fishing in Newfoundland in 1723.⁹⁸ Samuel Cutt and Samuel Ratcliffe both sent spruce spars to their fishing crews in Newfoundland in 1752.⁹⁹ The major competitors for the King's mast pines may have been New England shipbuilders and sparmakers as much as sawmills.

The Technology of Sawmills and Dams

Sawmills of the seventeenth and eighteenth centuries were rather inefficient, depending on large wooden works to move the saw, and on very ephemeral dams for their water power. A mill-dam of the period was not the cut stone or brick and masonry construction we have grown accustomed to since the advent of hydroelectric generating stations. It was fashioned in any of dozens of ways from notched logs, timber pinned together with iron spikes, rough stone small enough to move with simple tools, and planking. On sandy or gravelly

⁹⁸ Portsmouth Athenaeum, Pepperell Collection, Ms 28, box 1, folder 9.

⁹⁹ NH Colonial Naval Office, Shipping lists for New Hampshire, pp. 11-12.

bottoms, it depended for its permanence on pilings driven into the stream bed, or on the weight of stone in the timber crib, combined with water pressure on a gradual sloping upstream surface, and a stone, log or timber apron below the face to prevent the backwash of the fall from undercutting the dam. In 1734 the new dam on the Presumpscot River above Casco Bay consumed 1,300 tons of timber, an amount sufficient to attract the attention of the Boston media.¹⁰⁰

Dam engineering was probably an art with local characteristics until the industrial revolution of the early nineteenth century, but in 1874 a well-illustrated book on The Construction of Mill Dams was published in Ohio.¹⁰¹ It included plates of construction techniques in dams all over the country, and many of those dams cannot have differed from the dams raised by the earliest millwrights along the New England littoral. Most of them still depended more or less on stones, log cribs, timber, planking, and iron pins. Life expectancy of these dams was not long. After logs and timber had rotted, and pins had rusted, ice and violent freshets were enough to take out a dam and redistribute it far downstream, perhaps using its large timbers as rams to knock out any other dams in its path. We know that as early as the 1650s dams barely a decade old had to be replaced at York,¹⁰² and in 1646 the General Court of Massachusetts excused a deputy so that he could go home and rebuild his dam, which could not

¹⁰⁰ *The Boston News-Letter*, Oct. 17, 1734.

¹⁰¹ James Leffel, The Construction of Mill Dams (Springfield, Ohio: James Leffel & Co., 1874). See especially pp. 1-120.

¹⁰² York Deeds, vol. 1, Part I, fol. 59.0.

have been more than 15 years old.¹⁰³ One of this author's own ancestors made a career change overnight from sawmill owner to carpenter, when in the early 19th century a freshet took out his milldam and he had no money to rebuild it.

The Technology of Fishing Before 1800

From 1630 to 1800 the technology of forestry and fishing remained fairly static. Demersal fish were caught with baited hooks on a handline, whether the fisherman was in his own shallop or ketch within sight of his home coasts, or offshore on the banks in a ketch, dogbody or heeltapper,¹⁰⁴ jointly owned by the crew or leased from a merchant, or fishing from any such vessels out of a seasonal base further downeast in Maine, or west of the Canso Straits in Nova Scotia. Size of the fish caught was regulated by hook size and bait, and there was no economic incentive to catch smaller fish, for preparing them for market was more labor-intensive and time-consuming per pound of product than preparing larger ones, so the return on them was less per unit of labor. When possible, hooks were baited with salted mackerel, herring or alewives, so the bait industry created some demand for smaller, mostly anadromous fish or their immediate predators. This made the land more valuable where good stage sites adjoined streams and salt marshes, and the fishermen could catch their bait without leaving their home waters. The New England coast from Ipswich to the

¹⁰³ Records of Massachusetts Bay in New England vol.3, p. 83. Nov. 4, 1646: Mr. Bozoon Allen, on his motion, by reason of his great loss in his milldam, occasioned by the last great storm, was dismissed the service of the Court, unless he could conveniently come again.

¹⁰⁴ Charles G. Davis, Ships of the Past (Salem: Marine Research Society publication number 19, 1929), pp. 24-5.

Penobscot presented a great deal of such terrain, but it was especially suitable from York to Casco. Further sites occurred at intervals all the way to the Canso Straits. This quality, with the vast reserves of timber and water-power behind the coast, made the area irresistible to Boston merchants.

During each of the wars, however, fishermen had been driven from the islands and the coast by marauding French and Indians, often with the loss of many boats and lives. This was also true of the Revolutionary War, when the entire fishing community at the Isles of Shoals was evacuated to the mainland by command of the government, in order to prevent losses by surprise attack from the sea. Each time the fishermen abandoned their fishing grounds and flakes, the fish population recovered. Belknap observed in 1791 that the fisheries were in decline by comparison with the pre-war years, but he stated that 25,850 quintals of cod had that year been shipped from Piscataqua.¹⁰⁵ This was more than had been exported a century before, and suggests a resilient breeding stock and good nearby sources of food for the groundfish, which had recovered substantially during the years 1775-1783, when British naval patrols had kept fishermen off the local grounds. An implication is that the salt marsh between

¹⁰⁵ Belknap, History of New Hampshire, vol. 3, pp. 159-60, 170. "The fishery has not of late years been prosecuted with the same spirit as formerly. Fifty or sixty years ago, the shores of the rivers, creeks and islands were covered with fish flakes; and seven or eight ships were loaded annually for Spain and Portugal; besides what was carried to the West-Indies. Afterward they found it more convenient to make the fish at Canseau (Canso); which was nearer to the banks. It was continued there to great advantage till 1744, when it was broken up by the French war. After the peace it revived, but not in so great a degree as before. Fish was frequently cured in the summer on the eastern shores and islands, and in spring and fall, at home. Previously to the late revolution, the greater part of remittances to Europe was made by the fisheries; but it has not yet recovered from the shock which it received by the war with Britain."

Cape Ann and Saco was still healthy then, after more than a century and a half of use.

The Economics of the Maritime Trade

Although New England's maritime industries grew steadily, and sometimes almost exponentially, the patterns of trade demanded a certain kind of shipping that varied with the trade. The vessels used were the shallop, ketch, small schooner, pinnace or bark in the coastal fishing trade, the lighter, ketch, schooner, pinnace and bark in the coastal carrying trade, and the ketch, pinnace, bark, brig, brigantine, snow and small ship or large sloop in the ocean carrying trade. Shallops rarely exceeded twelve tons, ketches rarely exceeded forty tons, schooners and barks forty or fifty, pinnaces and sloops sixty, brigs, brigantines and snows eighty and ships one hundred and fifty tons. Some ships built for the trans-Atlantic trade exceeded three hundred tons, but other than a few warships built for England, scarcely any New England-built ships were larger than five hundred tons before the Revolutionary War. This was because at the home ports of most New England merchants, and at many intermediate ports on their trading routes, goods were picked up and delivered in moderate amounts, often in small harbors that did not admit vessels of a great draft.

The fishing harbors from Ipswich to Nova Scotia were often shallow at low tide, and they were where the fish cargoes were made up, a few dozen quintals at a time, and shipped to a larger depot such as the Isles of Shoals or Salem. Lumber, shingles and staves were usually gathered at shallow landings

by lighters or flat-bottomed gundalows that carried them to an assembly place, perhaps at Casco, Winter Harbor or Portsmouth, where they could be loaded into a larger vessel. In the middle and southern colonies, the agricultural products, tobacco and naval stores that comprised part of New England's trade were picked up at plantation landings on steadily shoaling rivers and creeks. These creeks shoaled so rapidly with siltation that Joppatown, one of Delaware's principal 18th century seaports, is today two miles from navigable waters. A forest now grows over the old Joppatown harbor. Of the many seventeenth-century Delaware Bay ports that once served to load New England ships for the Caribbean or Europe, only Baltimore survives.¹⁰⁶ At many of the Caribbean islands, sugar and molasses were lightered to the ship anchored in a shallow and poorly protected "bay" in front of the plantation where they were made. In fact, a special kind of lighter, the "Moses Boat," evolved to carry barrels and hogsheads between ship and shore at the Caribbean plantations, and such boats were a regular export item from the Piscataqua.¹⁰⁷ To trade effectively, vessels had to be able to reach small outports and plantation landings in shallow water, where they could drop off modest portions of their cargoes without flooding the market, and pick up whatever local goods were available--whether plantation-grown, such as tobacco, sugar, and indigo, or forest-grown, such as dyewood logs

¹⁰⁶ John and Mildred Teal, Life and Death of a Salt Marsh, (Boston: Atlantic Monthly Press, 1969), pp. 74-5. Their data on erosion and fill, though slight, are an eye-opener. Water depth at the Hanover Street Bridge in Baltimore decreased from 17 feet in 1845 to six inches in 1924.

¹⁰⁷ Howard Chappelle, National Watercraft Collection (Washington: Smithsonian Institution, USGPO: 1960), p. 16. See cargo lists for brigs *Betsey*, *Elizabeth*, *Adventure*, and ship *William*, Customs Record Book 1770-1775, # 5, ending Jan. 5, 1771, Portsmouth Athenaeum mss Coll. S-39, p. 3, listings 4 & 9; p. 6, listing 57; p. 8, listing 7.

at river landings on the Central American coast.¹⁰⁸ The variety of goods imported into London in the previously noted one-month inventory suggests how versatile vessels had to be to reach the harbors whence colonial goods came.

Furthermore while Europe was frequently at war, and vessels were subject to predation by pirates, privateers and hostile navies, it made no sense to ship all of one's investments in a single bottom, when loss of that one vessel would mean ruin. In addition, vessels were loaded with small consignments of cargo from multiple sources, a condition to be considered in the next chapter. All of which is a roundabout way of explaining why merchant vessels were of modest tonnage well into the eighteenth century. (See Figures 9 and 10.) If merchants needed more tonnage, they built more small ships, rather than a few bigger ships. Only great merchants who had large accounts in major ports had any use for vessels of more than one or two hundred tons, for vessels of that size were restricted by draft and cargo capacity to large ports with well-developed wharf and storage facilities, extensive hinterlands and substantial markets. Large vessels, though more easily defended, were not suited for trading at outports or smuggling. They were more numerous in London and Boston, but unusual in the outports, and unable to get into many of the smaller ports with shoal approaches. This began to change around the American Revolution.

¹⁰⁸ William Dampier, Voyages vol. II, Part II, pp. 9-131, referred to in Bridenbaugh, No Peace Beyond the Line, p. 340.

En Fin

In conclusion, over the century and a half of New England's settlement, maritime commerce and industry on the one hand, and resource and harvest on the other, were inextricably bound together, gradually affecting the landscape from an increasing distance above the fall line to several miles offshore. If the effects were not yet visible in any dramatic way, it was for three reasons. First, the technology of harvest and fabrication, whether in fishing, lumbering, or shipbuilding, had been too slow and primitive to make an immediately noticeable impact on the forest or the fisheries, except in local instances. Second, as a result of years of warfare, the population had been frequently diverted from the forestry and fishing industries, and driven from the resources, and those who remained at work in the forests had been too few to have a lasting impact beyond the immediate vicinity of the settlements. Third, wherever most elements of the local community felt they had a vested interest in the maritime economy and that economy was intertwined with the coastal ecology, there was some consensus to keep resource harvest at a sustainable level. Already in more settled areas to the westward dam owners had challenged that consensus and won, the dams being valued more for their capacity to add value to another resource than the losing resource was valued in its raw state, as we saw in Benjamin Lincoln's Hingham of 1741.

Between the Glorious Revolution and the Revolutionary War, the coastal ecosystem survived quite well, and at times even recovered where the English were thinned or driven out. Proprietors grappled for the inland properties, but

most of the coastal area was already claimed as far as the Kennebec, and sparsely settled. Technology and population were as yet insufficient to wreak the havoc of later years. In most of eastern New England's coastal area, European consumption had not yet surpassed natural regeneration. But that was to change soon, as we shall see in the next chapter.

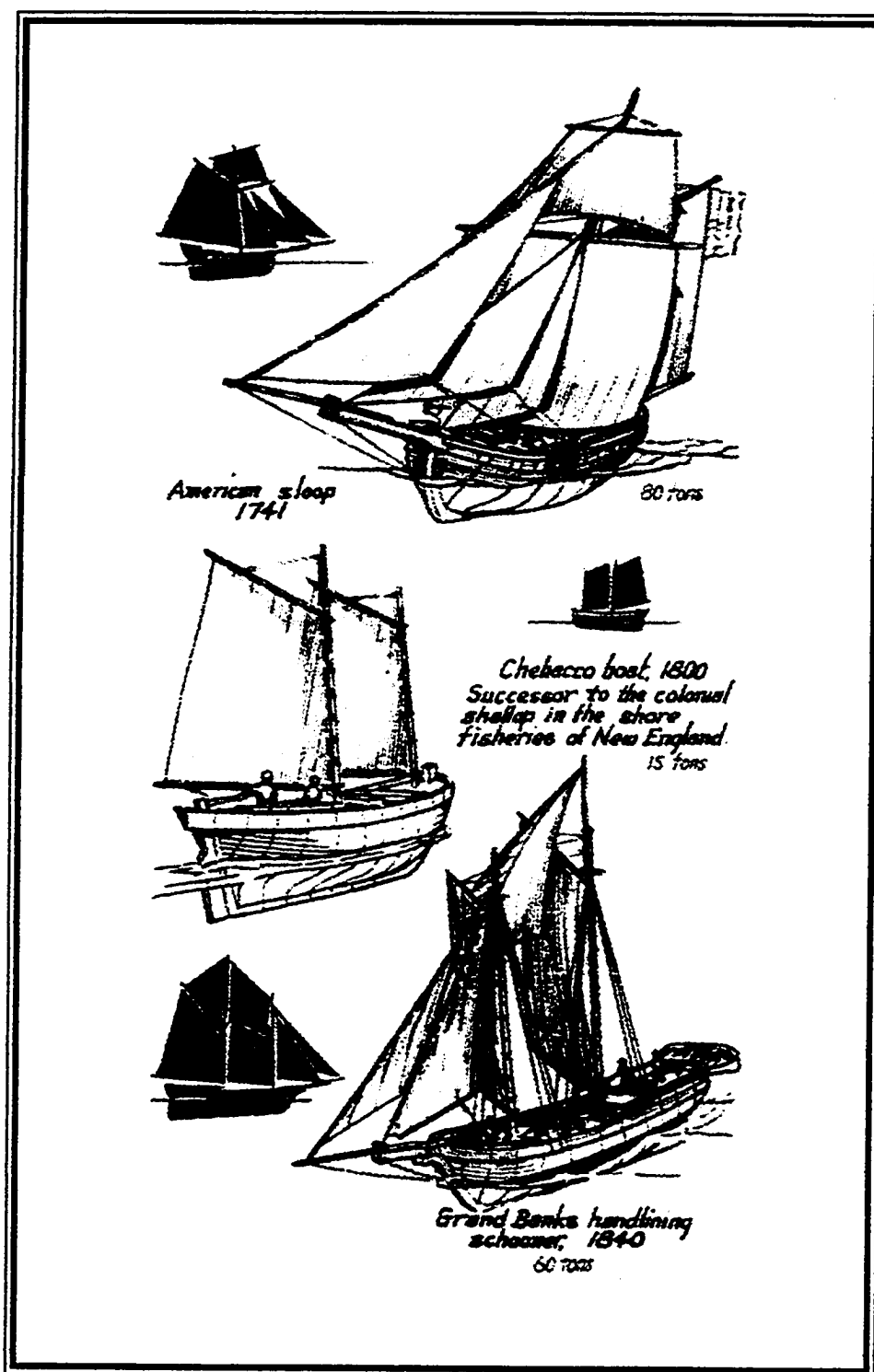


Figure 9, Small Vessel Types, 18th-19th Centuries, (© Sam Manning, 1973)

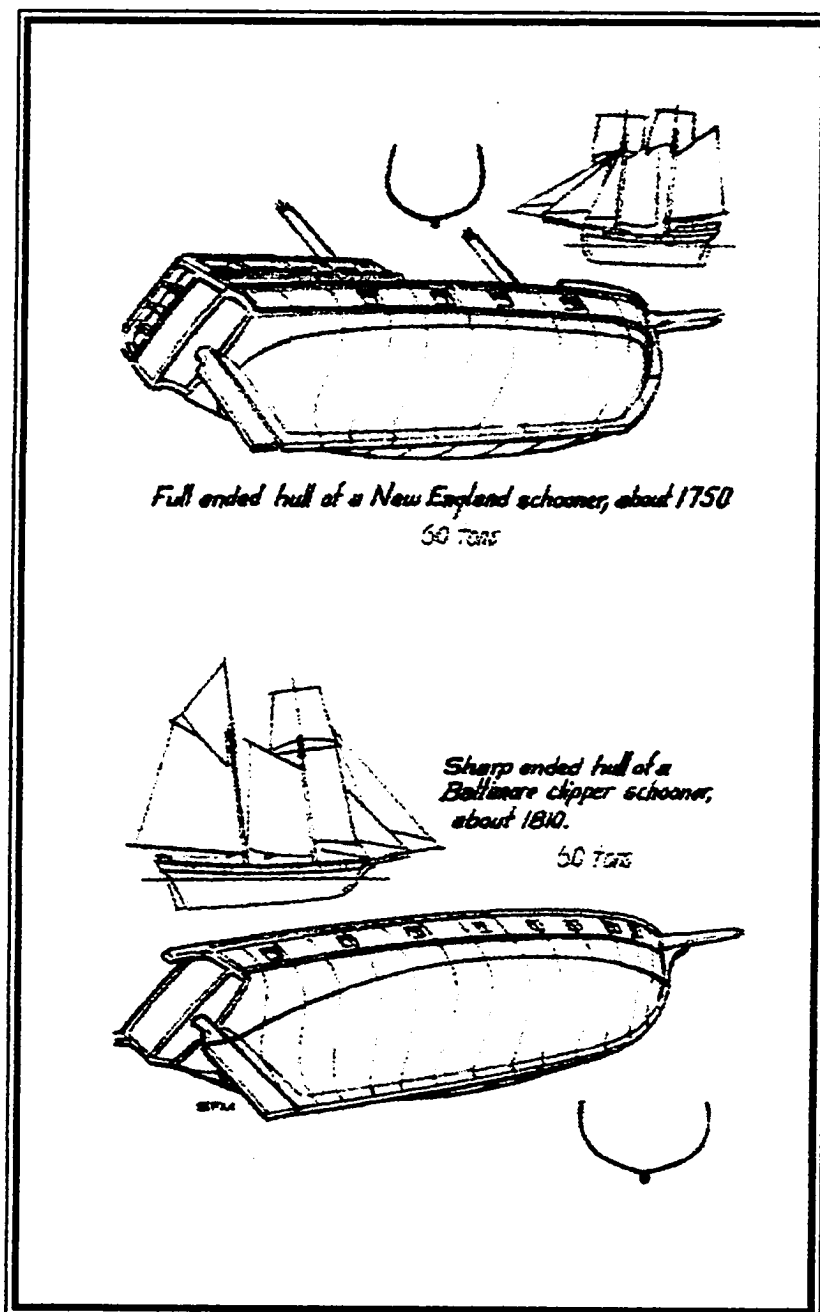


Figure 10, Schooner Hull Configuration 18th to 19th Centuries. (© Sam Manning, 1973)

CHAPTER 7

THE SHIP IN THE FOREST

The men in the forest, they askéd of me,
How many strawberries grow on the salt sea?
I answered them back with a tear in my eye,
How many ships sail in the forest?¹

This chapter will briefly (for this has been done quite adequately by others) recount the late eighteenth-century growth of maritime industries along that coast, and show why the coastal ecotone evolved in a manner unlike the inland territories.² It will also briefly examine a notable rôle of maritime industries in the political evolution of colonial society--leadership in confrontation between social classes. It will then show how the industrial revolution affected changes in shipbuilding technology and design, shaped a growing consumer market, changed the structure of capitalism, and altered the relationship between maritime industries and the environment. It will recount some contemporary reaction to resource decline, and the countermeasures that were proposed. It will

¹ Traditional ballad.

² The best broad-spectrum secondary histories of the New England coastal ecotone are still Samuel E. Morison, Maritime History of Massachusetts, (Boston: Houghton Mifflin Company, 1941), William G. Saltonstall, Ports of Piscataqua, (Cambridge: Harvard University Press, 1941) and William H. Rowe, The Maritime History of Maine, (New York: W. W. Norton & Company, 1948). Each defers to the filiopietistic antiquarian school of historiography, as one might expect from that era, and none integrates the environmental and economic components of the subject with the narrative of the ships and men. There is room for a newer history of New England's Coast.

show that technology, the industrial revolution, and the consumer market drove a paradigm shift in capitalism from local, communitarian capitalism to a capitalism more like the corporate version we know today. This shift in the economy both affected and was affected by the use of the land and the harvest of the sea, all of which changed the coastal environment utterly.

In the course of this discussion, I will show that for nearly one and one half centuries, the maritime industries were in large part responsible for maintaining a sustainable balance between near-coastal resources and colonial resource consumption. In essence, until the advent of steam, and until industrialization created a new economy, every ship sailed in the forest, and that, in part, was the forest's salvation, and indirectly, the salvation of the fisheries.

After the Glorious Revolution

In the wake of the crisis precipitated by the Glorious Revolution, rational centrists came to power. The ensuing government was both Royal and local, but the local men of the Royal Governor's council were largely pragmatic merchant princes. They completed the process of resource acquisition started three generations earlier, but they did it with an ecumenical religious agenda. From this time on definitive ownership of the coastal resources was accelerated, and great merchant-proprietors subsequently acquired most of interior Maine and the hitherto undeveloped interior parts of New Hampshire. The last chapter suggested that merchant-princes and proprietors intermarried to protect their properties from each other. That practice continued until by the time of the

Revolution in 1775 a list of surnames of proprietors who presided over large tracts of land in Maine or New Hampshire land reads much like a list of Boston's 17th-century merchant-princes and members of the Governor's Council since 1700, plus the Wentworth establishment in Portsmouth.

This assertion of control by absentee urban merchant-prince proprietors had some dampening effect on the wholesale harvest of forest products, for most Great Proprietors could afford to put overseers on their land, and the wisest of them were quick to distribute some of their lands to trustworthy and loyal settlers, as Mason and Gorges had done before them. In New Hampshire, the ravages of the Waldron faction, reported by Hubbard in 1677, and protested by Randolph and Mason in the 1680s, were replaced by a more orderly exploitation of natural resources. New townships were distributed among Wentworth colleagues with the understanding that they would be exploited judiciously, rather than rapaciously, and the best timberlands were reserved to the proprietors. Secure owner-management encouraged the selective harvest of much of the forest, with the consequence that regeneration nearly kept up with consumption. That is why descriptions of New Hampshire landscape in the later 18th century contrast sharply with allegations of strip and waste under Puritan usurpers before 1683.

By Contrast

This was not true of the resources further down east. Beyond Maquoit, and progressing inland, squatters who had some hope of keeping their land

might husband it, farmers who owned their land certainly did, but absentee proprietors who claimed squatter's land simply hastened the end of the forest in question, because no one on the contested ground felt responsible for vacant land claimed by others who were not there to supervise their claims. Where already-occupied land was claimed by absentee proprietors, it was often stripped and wasted by settlers who had lost hope of passing it on to their heirs, and expected to see it confiscated eventually by the proprietors. Gordon Kershaw's The Kennebec Proprietors describes this long evolution in the nature of resource ownership on the middle Kennebec, and Allen Taylor's Liberty Men and Great Proprietors is an excellent account of the struggle between squatter and absentee proprietor east of the Kennebec.³ In this respect squatters differed little from the Puritan interlopers who had earlier seized the Masonian and Gorges grants and ravaged them for a quick profit.

Not unsurprisingly, few men feel responsible for preserving the property of adversarial wealthy absentee owners. This is particularly true when they are poor, have only their labor to contribute, have little expectation of leaving the fruits of their own responsible labor to their children, and are offered a window of opportunity to exploit others' property irresponsibly for their own immediate gain. Additionally, cutting timber for shipbuilding and for the sawmills was the frontiersman's logical choice for economic security, as long as the market persisted. The author of the New Gloucester, Maine, history, writing in 1824 in

³ Gordon Kershaw, The Kennebec Proprietors, 1749-1775. (Portland, ME: MEHS, 1975). Alan Taylor, Liberty Men and Great Proprietors. The Revolutionary Settlement on the Maine Frontier, 1760-1820. (Chapel Hill and London: University of North Carolina Press, 1990).

his eighty-fourth year, had come to New Gloucester in 1761, when it was largely virgin territory. He recalled that

Of white pine, which is valuable for masts and boards, there was the best growth sixty years ago in the upper part of this town, Danville, and Poland, and between Royal's River and the Little Androscoggin River, that the writer ever saw or heard of in the state of Maine, from whence were hauled several shiploads for the King of England, before the Revolutionary War. Since that time people have been cutting it into board logs, and hauling it into the two rivers, and much of it has been worked into shingles and clapboards; so that it is almost destroyed.⁴

In the eighteenth century, lands inland from the coast belonging to absentee Proprietors or poor farmers were subject to the same pressures to strip and waste that are exerted on Public lands today by lumber and mining companies, you and I, gentle reader, being today's absentee landowners. Then, as now, legislative bodies and the rural poor were unduly influenced by urban wealth. Except through theft or the muzzles of their weapons, the yeomanry and proletariat had little voice in the debate, as their repeated petitions and remonstrances with their respective governing bodies suggest. Daniel Shays did not evolve in a vacuum.

It Didn't Happen Here

In the coastal area that is the focus of this study, however, something else happened. Much of this land was already granted and occupied. After the end of Queen Anne's War, in 1714, the Provincial Governments imposed on Massachusetts and New Hampshire ensured that this part of the frontier would be kept as safe as possible for development by the most recent echelon of

⁴ MEHS Collections. Series 1, vol. 2, p. 157.

merchants to claim title to it, that the French and Indians would be deleted from the equation, and that the wildest excesses of merchant collusion with pirates and smugglers would gradually be suppressed. In the two decades after Dummer's War, or between 1723 and George's War of 1744, control of the coastal resources west of the Kennebec gradually became distributed among a sufficient number of individuals to buffer the natural resource market against power plays by small groups of aspiring great proprietors. Along the coast and in its immediate hinterland, wherever resources could be brought to shore in a small boat, or drawn from the forest to a stream large enough to float logs, a communitarian variety of capitalism evolved that was to preserve the resources for several generations, until the industrial revolution and its textile industry changed the nature of the maritime economy.

The economic bases of the original settlements had all been the same: the export of furs, forest products and fish. Each of these products had been an integral component of the ecosystem that the Native Americans had yielded to the encroaching English. Each initially provided cash substitutes which served as currency in the embryonic Atlantic economy, and despite protests to the contrary, none of them was harvested to the point of regional scarcity in the 17th century.⁵ Yet by the end of the first century of settlement, or 1730, each had subsided to the status of a simple component of a much broader market that included agricultural produce and more sophisticated local manufactures. Not

⁵ CSP, Colonial Papers, vol. 7, p. 294: See Mason's report of NH exports in 1671, after more than 40 years of harvesting: "Goods exported yearly: 20,000 tons of deal and pipe staves, 10,000 quintals of fish, 10 ship loads of masts, several thousand beaver and otter skins." Compare with the report,

surprisingly, as more skilled labor was involved in manufacturing an export product, proportionately more value was added to the product. The more value that was added to an export product before it left the country, the greater the profit it returned. The advantage that shipbuilding and related industries had over fishing and simple sawing and rieving of forest products was that an increased amount of skilled elbow grease provided a proportionately greater return in value added to any given harvest. Although most areas outside the Boston-Salem axis seem to have concentrated on shipbuilding, lumber and farm produce, a small export furniture industry developed in the Piscataqua area, adding considerable value to forest products brought down from the tributary rivers.⁶

A Sustainable Maritime Ecology

The result of this combination of low population density, widely distributed renewable resources, self-reliance and maritime opportunity was a self-sustaining ecology, both human and environmental, that lasted nearly a century around the Boston-Salem axis, and declined only gradually east and west from that axis over several generations. For well over a century, merchants, yeoman farmers, artisans and maritime professionals had collaborated to build vessels, fabricate cargoes for them, and distribute those cargoes around the

Ibid., p. 392, that by 1672 timber was exhausted in the West Indies except on Antigua.

⁶ See Naval Office Records & Portsmouth Customs lists. Between 1751 and 1771 at least 26 vessels left the Piscataqua with chairs, desks, chest of drawers, tables and bookcases on their cargo manifests, bound mostly for the Caribbean, but also for Newfoundland, Canada, the southern coastal colonies and England.

maritime littorals of the world, wherever they could be exchanged at a potential profit. In the Piscataqua region, farmers exported produce, livestock, cheeses, maple sugar, dressed timber, shingles and clapboards. With the aid of farmers, woodsmen exported tar, turpentine and rosin; lumbermen exported deals, boards and planks. Coopers exported staves and shaken hogsheads, barrels, pipes and casks, and sparmakers exported masts, bowsprits and yards. Local fishermen exported cod, haddock, salmon, mackerel and sturgeon, some of it salted, some pickled. Artisan-entrepreneurs exported ships, candles, blacksmiths' wares, boats, furniture, tools, bricks, bread, flour, prefabricated houses and windows, and even slave quarters for Caribbean plantations.⁷

Around the smaller outports, this continued into the nineteenth century. In Saco between 1816 and 1846, a hatter, a mason, two blacksmiths two physicians, a sailmaker, a joiner, at least three carpenters and five yeomen each owned a vessel jointly with a merchant and a sailor, and one physician and one carpenter were each sole owner of a vessel, at least for a few months. Maritime trade was a community endeavour. In Saco in 1816 as in the Piscataqua in 1716, close ties between neighbours and between family members facilitated advancement for the able and the ambitious. Isaac Waterhouse, a carpenter of Scarboro, Maine, built a 64-ton schooner in 1817 in partnership with four merchants of Saco, and by the next year he was a merchant-partner. The same year, Edward Moody, a carpenter of Saco, built an 82-ton schooner that he owned jointly with William Moody, a merchant. One or another of the Moody family

⁷ Not always of local manufacture. See chapter 4, footnote 94.

appeared on that schooner's enrollment documents for the next three years. Again in that same year, Ebenezer Andrews, a blacksmith of Saco, joined with John Waterhouse, Jr., a carpenter of Scarboro, and Ephraim Rice, a merchant of the same town, to build a 75-ton schooner. In 1826 Moses Pike, a shipcarpenter, built an 87-ton schooner for John Tarbox, Jr., a mariner, Ezra Dean, a physician, Edward Dean, a merchant, and Elias Bradbury, a sailmaker, all of Biddeford. Two years later both Deans and Tarbox still owned the vessel. In 1836, Cyrus King, a carpenter of Saco, and Joseph L. King, a yeoman of Scarboro, joined to buy a 49-ton schooner.⁸ The next year Cyrus sold his share to James Sweetser, a mariner of Portland, who then left the sea and became a joiner, while Joseph L. King sold his share to Edwin Tarbox, of Biddeford, another mariner.

The Saco area was not unique; similar arrangements occurred in the Pisacataqua drainage, and each harbor along the coast.⁹ Wherever men had ambition, ability and access to natural resources, they could become active participants in the Atlantic trade.¹⁰ Their engagement in that trade ensured a

⁸ Ship Registers and Enrollments of Saco, Maine (Rockland: WPA, 1942) bound mss in collections of the Penobscot Marine Museum, pagination varies with ship name, listed alphabetically. For Waterhouse, p. 39; for Moody, p. 69; for Andrews, Waterhouse and Rice, p. 65; for Pike and Tarbox, p. 61; for King, Sweetser and Tarbox, p. 50.

⁹ Edward E. Bourne, History of Wells and Kennebunk (Portland: B. Thurtson & Co., 1875), pp. 576-9, writing in 1875 about Wells and Kennebunk in 1798, stated: "Almost every man at this period, with a few thousand dollars, or owning a respectable farm, was interested in the navigation of the town." At that time, Kennebunk owned 6 ships averaging 198 tons, 1 bark of 132 tons, 19 brigs averaging 130 tons, a 135-ton snow, sixteen schooners and twelve sloops, for a total of 57 vessels, employing roughly 336 men and boys--perhaps 15% of the population, at a guess. [total population was 3,692 in 1803] In addition, between 1793 and 1800 the two towns lost 23 vessels to privateers. In 1820, the towns owned "five ships, forty-three brigs, and a large number of schooners and sloops...The crews were almost entirely of our own people." Not all vessels were built in the town; few local shipbuilders owned much wealth when they died.

¹⁰ Jeremy Belknap noted in his History of 1791 (vol. 3, p. 154) that: "Ships are built in all towns contiguous to the river Piscataqua and its branches. They are generally set up on the banks of the

steady market for the products of family farms and artisans' shops. This market in turn encouraged conservation by those who owned the resources and relied on them for an income, whether that income was in cash or in trade goods inaccessible in the local market. As long as the market existed without serious competition, it provided some incentive to husband the resources, both onshore and off. In short, in the outport areas, widespread resource ownership and a communitarian form of capitalism combined to maintain a sustainable yield from the coastal ecosystem well into the early nineteenth century.

All Good Things Come to an End

This rather ideal and self-sustaining economic order had previously been depressed from time to time when the country was at war, but it had always recovered with increased vigor in peacetime, while the occasional war, by interrupting resource harvest, enabled the resources to regenerate, as was earlier demonstrated. The idyllic state of affairs was finally shaken in the late 18th century by the appearance of textile mills, and changes in the population of major port cities, which suddenly grew beyond the carrying capacity of their hinterlands. Over several decades, the new industrial order spread outward from the cities, and the whole old economic edifice gradually collapsed under its weight, until it was buried in the depression of 1857. In that year 6,000 New England Cotton looms went idle, just at the apparent height of New England's

river, but sometimes vessels of a hundred tons and upwards have been built at the distance of one or two miles from the water, and drawn on strong sledges of timber, on the snow, by teams of two hundred oxen, and placed on the ice of rivers so as to float in the spring...Fishing schooners and

maritime achievement, as the thrill and drama of the clipper ships dominated the public's attention to the sea. The New York Herald, on May 5, 1857, observed:

Our wharves are crowded with ships, most of them without employment; and those that have found something to do have accepted it at rates ruinously low.¹¹

How did this happen? Several economic and demographic forces coincided to precipitate it. Let us go back some decades and follow the changes.

Early Symptoms and Premonitions

Although changes in the environment had been observed almost from the beginning, only local actions had been taken to halt or slow the loss of natural resources. In any event, the technology of extraction was sufficiently slow and primitive that declines in the resources were at first only locally noticeable. Even after the first century of harvest many of the environmental changes were probably still reversible, for a small trade in furs persisted well into the eighteenth century, as late as the Napoleonic era timber merchants were still shipping an occasional pine spar out of the Piscataqua, and until the late nineteenth century an intermittent inshore fishery persisted around the Isles of Shoals and along the Maine coast into Nova Scotia.

By the mid-eighteenth century, however, the New England fur trade was insignificant; by the early nineteenth century New England's export mast trade had virtually disappeared, and by the era of the clipper ships, on the eve of the

whale-boats are often built at the distance of two or three miles from the water."

¹¹ Kenneth M. Stamp, 1857. A Nation on the Brink. (NY and Oxford: Oxford University Press,

Civil War, shipyards from Boston to the Kennebec were supplementing what little remained of local oak with oak timber imported either from states further west or far to the south (live oak)¹², or local "hardwood," (maple, birch, elm, beech)¹³. White oak had nearly disappeared from the northern fringes of its range. By the end of the nineteenth century much of the inshore and anadromous fishery had declined, and some formerly commercial species of fish had disappeared altogether from their old habitat. In the half-century between 1775 and 1825, something had changed the rôle of forest resources and their caretakers in the maritime economy, and split the seaport cities from the maritime towns. Then, over the next half-century, it changed the nature of the fisheries.

What Happened to the Maritime Trades?

The basic maritime industries--fishing, sparmaking and shipbuilding, with their ancillary lumber trades, had made regular demands on the coastal environment between wars, and though they had become locally dormant in wartime, each advent of peace spurred a rebirth of the industries on a larger and more demanding scale.¹⁴ Additionally, each conclusion of hostilities was

1990), p. 219.

¹² Virginia Steele Wood, Live Oaking: Southern Timber for Tall Ships, (Boston: Northeastern University Press, 1981).

¹³ See surveyors records, mss collections of the Maine Maritime Museum, Bath, Maine.

¹⁴ This is generally accepted, but a comparison of building dates and tonnages for vessels registered in the Piscataqua before, during and after the war of 1812 shows exceptions in Durham, Eliot. Customs Records, Portsmouth, N.H., Vol. IV, Piscataqua-Built Vessels, Compiled by George A. Nelson, Deputy Collector of Customs, 1930-1932, (Portsmouth: Portsmouth Athenaeum, 1979). The outports of Berwick, Dover, Durham, Eliot, Exeter, Hampton, Kittery and Newmarket show a

followed by an extension of the industries into previously unexploited parts of the coast, with the result that there was a sliding scale of maritime prosperity, with the wealthier merchants in Boston, the wealthier (or at least more solvent) mariners in the outports, and the ancillary trades varying with shipbuilding demand. These processes were not without their problems. As previous chapters have shown, shipbuilders and mariners were not a tractable lot. In the eighteenth century, cash-poor Maine was a source of cheap labor, and one of New England's early incidents of labor strife occurred in the Piscataqua in 1766. On June 1st of that year, the *Boston Evening Post* reported that at Piscataqua

Unknown persons secretly entered ships commanded by Capts. Long & Clapp, & ruined the joiner-work, which had been contracted to out-of-town craftsmen. Thought to be

steady production up to 1813, and again up at least to the 1840s. Berwick shows no ships built in 1813-1814, (p. 30); Dover shows no vessels built in 1813 but 1 ship in 1814, (p. 59); Durham shows average production through both years of 1 schooner in 1813 and 1 schooner and 1 ship in 1814; Eliot shows one small schooner in each of those years; Exeter launched no vessels between 1807 and 1816 (p. 111); Hampton launched only schooners after 1795, and only one of those (in 1814) between 1801 and 1817 (p. 119); Kittery shows no vessels in 1813, but 2 schooners in 1814 and a brig, 3 schooners and a sloop in 1815 (p. 225); Newmarket shows just 1 brig built between 1811 and 1821, and that was in 1814 (p. 249). The city of Portsmouth, on the other hand, barely kept up with the outports from the end of the Revolutionary War until 1816. Portsmouth launched nothing in 1812 or 1813, 1 brig and 1 schooners in 1814 and 1 brig and 2 schooners in 1815. In the entire Piscataqua drainage, production declined in the Revolutionary War and War of 1812, but after the Revolutionary War shipbuilding returned first to the outports, building for local merchants and others, while after the war of 1812, shipbuilding increased in Portsmouth and gradually declined in the outports (pp. 348-9). Further to the eastward, in Kennebunk, Bourne states in *The History of Wells and Kennebunk*, pp. 566-606, that during the Indian Wars and the Revolutionary War, few or no vessels were launched, but "soon after the close of the Revolutionary War...The shipyards were filled with workmen." He adds that "The war between France and England made sad havoc with the navigation of Kennebunk," appending a list of vessels lost. The war of 1812 inhibited Kennebunk's trade, but the unemployed sailors turned to privateering, building new vessels for that purpose with no success. Bourne says that "all the navigation during the years 1812, 1813, and 1814 was laying up the river out of the way of danger from the enemy; but when the war closed many of these vessels were of little worth...The navigation was again rapidly increased, and in 1820, when our history ends, there were here owned five ships, forty-three brigs and a large number of schooners and sloops." Before 1812, urban shipbuilding seems to have varied inversely with shipbuilding in the outports, and directly with War. Gary Nash, *The Urban Crucible: Social Change, Political Consciousness, and the Origins of the American Revolution*, (Cambridge, MA: Harvard University Press, 1979), p. 101, points out that in Boston, only 40-50 ships were contracted annually in the 1730s, but that surged to 164 ships on the stocks in 1741, on the eve of yet another European War.

joyners from the town, considering that they had posted a notice warning all not to employ "country joyners" at risk of retaliation.¹⁵

Maine shipjoiners, idled at home, had exported their labor to the Portsmouth shipbuilding market. Mariners were increasingly marginalized in the Boston economy after 1750, and economically powerless in that city by the end of the century. It is probably no coincidence that they made up a large part of the mobile on the eve of the revolution.¹⁶ Their economic circumstances were part of a phenomenon that would envelope all of the coast before 1840, and affect the maritime trades in different ways, driving some previous players out of the equation altogether, and elevating others to newfound prestige. Among the old players soon to be eclipsed were the mariners themselves, farmers, and the coastal environment, as we shall soon see.

For two centuries previously maritime industries had been a major factor in the coastal ecology, and indeed the principal support of the New England economy. In the hundred years between King Philip's War and the Revolutionary War, the maritime industries had evolved slowly. Even as late as 1785 a shallop and a polacre, two long-outmoded vessels, had cleared into Boston Harbor.¹⁷ But during the fifty years between the battle of Lexington (1775) and the opening of the Erie Canal (1825), two new factors evolved which changed the environment, and the environmentally-dependent maritime industries forever.

¹⁵ *Boston Evening Post*, June 1, 1766. Portsmouth Athenaeum Collections.

¹⁶ See also Jesse Lemisch, "Jack Tar In The Streets: Merchant Seamen in the politics of Revolutionary America," in *William and Mary Quarterly*, 3rd series, vol 25 (1968) pp. 371-407, and Gary Nash, *The Urban Crucible* for excellent descriptions of this economic evolution and its social fallout.

¹⁷ *Boston Record Commissioners*, vol. 10, p. 218-19.

First, the industrial revolution, in its three manifestations of factory, canal and railroad changed the nature of capitalism and the concept of the environment in New England cosmology. Second, waves of immigrants increased the population of New England's coastal region exponentially, and some of them joined forces with westward-migrating New Englanders to open fertile new farmlands in Vermont, western New York and the old Northwest Territories. By the end of the period much of the produce from the newly-cleared farms could be shipped to urban centers by inland waterways and canals, and in another decade it would be shipped also by rail. The new competition radically changed the rôles of agriculture and woodland in New England's economy. By the eve of the Civil War the old environmental, social and economic underpinnings of New England's maritime industries were irretrievably in decline, and the environment that had once supported them had been changed for at least a century to come. To understand what had happened to change formerly conservative local attitudes toward the environment, let us first revisit the maritime industries of that earlier era.

Shipbuilding: the Long Flourish and Decline

Each outbreak of hostilities from 1675 to 1775 had occasioned a lapse in maritime trade, but the slack had been taken up in part by privateering, which offered opportunities not just to unemployed sailors and fishermen, but also to artisans who had lost their export markets during hostilities. Although

merchants didn't aggressively build their trading fleets in wartime, enterprising mariners converted merchant vessels to privateers, and commissioned new vessels for the privateering trade.¹⁸ With each treaty of peace, a new burst of ship-building energy was released along the coast, and hundreds of vessels were built, commissioned either by local or foreign merchants, or built on speculation. A mid eighteenth-century observer of shipbuilding estimated that 200 vessels a year slid down the ways in the Piscataqua district alone, and new registrations in the Customs books that bracket those years suggest that he was not exaggerating.¹⁹

Most of these vessels, whether built in Newburyport, Piscataqua, York, Kennebunk, Saco, or further down east, displaced less than 100 tons. They formed the economic matrix of a social and environmental ecosystem that was sustainable, and lasted over a century with only occasional minor ups and downs. The shipbuilding industry afforded ecumenical opportunity to enter the Atlantic trade from local ports. This in turn encouraged settlers at nearly every level to add value to local natural resources, export them, and thereby bring economic growth into areas that would not otherwise have been able to satisfy more than modest import needs. Through their maritime industries, outports

¹⁸ Vague suggestions of early American privateering are hidden in 17th-century correspondence and legal records, as well as contemporary histories. Most useful for scholars of this period is J. Franklin Jameson, editor, Privateering and Piracy in the Colonial Period: Illustrative Documents, (New York: The Macmillan Company, 1923 & Augustus M. Kelley, 1970 reprint). The line between privateering and piracy was often drawn in the water at the time of engagement, and disappeared with the current. Formal histories of New England privateering after 1700 include Carl E. Swanson's Predators and Prizes, (Columbia, SC: USC Press, 1991); Richard E. Winslow's Wealth and Honor (Portsmouth, NH: Portsmouth Marine Society, 1988); and Edgar S. Maclay's A History of American Privateers, (NY: D. Appleton & Co., 1899).

¹⁹ Andrew Burnaby, Travels Through North America in 1759 & 1760, 3rd edition, 1798, (NY: A. Wessels Co., 1904 reprint), p.146.

like the satellite towns of the Piscataqua watershed and the smaller ports of the Maine coast and the lower Merrimac not only sustained their own local shipping needs, but created two additional sources of income. First, they exported finished vessels to merchants in nearby port cities and even occasionally to Europe.²⁰ Second, by building and maintaining locally-owned fleets, they conducted a maritime trade in which outgoing goods from local farmers and artisans found ready transportation, while most of the goods in the return cargo were dropped off before the vessel reached its home port in Ipswich, Salisbury, Exeter, Berwick, York or Kennebunk. The vessel then appeared at home with a sufficient amount of merchandise for local consumption, and the balance of the voyage's profits in credit or cash, which enriched the local economy beyond its natural capacity to generate exports. Throughout the 18th century and into the early 19th century, vessels of every description returned to New England ports north of Salem sailing in ballast with just a handful of goods in the hold.²¹ We can assume that the voyages were profitable, or they wouldn't have been continued for successive generations, so the owners of the vessels must often have split a cash dividend representing profits of the voyage over and above the goods imported into the home port.

²⁰ Although the principal market for colonial ships before the revolution was England, many registries after 1815 end simply with "sold foreign."

²¹ Naval Office Shipping Lists for New Hampshire, middle of the 18th century: An example is the sloop *Greyhound*, 40 tons, returned twice in 1751 from the West Indies (Eustatia and Antigua) in ballast. After the middle of the eighteenth century, many Piscataqua vessels utilized only a fraction of their cargo capacity by the time they cleared into Portsmouth. They carried local manufactures (including fish) outbound, but made their profits delivering foreign goods to urban centers, both here and abroad.

With the outbreak of the Napoleonic wars, American shipbuilding enjoyed several boom years, but consequent embargos curtailing the maritime trades again took some pressure off the fisheries and forests. At the end of the Napoleonic wars shipbuilding and maritime trade recovered with a flourish, but this time the industrial revolution came with it. With that revolution came the textile industry, and with the textile industry came two dramatic changes in the market for raw materials. First, the demand for raw wool precipitated the sheep craze, a period of several years between 1820 and 1840 when many New England farmers cleared their untilled land for sheep pasture. Second, the growing market in printed cotton fabric dramatically increased trade in imported raw cotton for the new textile mills.

There had been a steady import of "cotton wool" in small quantities from the Caribbean since the 17th century, and always there had been enough sheep raised locally to supply local demands for woolens. With the introduction of mechanized spinning and weaving, mill technology demanded exponentially more wool and cotton, more wool than local farmers could supply with the few sheep they kept on their unspecialized farms, and more cotton than small vessels could carry in a few bags stowed with their other cargo, or even than Caribbean plantations could produce. Textile mills supplanted sawmills at many waterpowers, and millsites began to be evaluated by the number of spindles they drove rather than the number of saws. Contemporary fashion elevated the cotton industry from a small component of America's imports in the mid-eighteenth century to the leading export and linchpin of American economy in

the decade before the Civil War.²² In the South, plantations were dedicated to cotton, and in the North a new generation of ships was designed much larger, to carry bulk cargoes of raw cotton and textiles from Southern plantation ports to European and New England industrial towns. The country's economy, always regionally different, diverged further along lines of seasonal temperature.

The industrial revolution also brought a construction boom in industrial buildings along with an increase in immigration. Forests of large timber went into the construction of new textile mills, where most of the new wave of immigrants were intended to work. This opened a new market for woodcutters who had previously been largely dependent on the maritime trades for their business. In addition, workers had to be fed, so now there was a burgeoning domestic milltown market for the agricultural surplus that had originally been exported to Newfoundland, Canada and the Caribbean. Near mill towns, annual crops of wool, meat and produce became more valuable to a farmer than his winter's chopping in the woodlot. Farms that had formerly been managed with mixed agriculture were now dedicated to raising sheep and foodstuffs for export to milltowns. Nearly every millsite was dammed, nearly every marketable pine was reduced to boards in those mills, and nearly every new acre thus cleared was given to sheep pasture to feed the textile mills and their workforces, or plowed for agricultural products, also to feed those workforces. Urban populations quickly exceeded the productive capacity of local surrounding farms. New

²² Timothy Pitkin, A Statistical View of the Commerce of the United States, (Hartford: 1816; NY: 1967 reprint), pp. 111-12. In 1791, the total export of cotton (both upland and sea-island) from the United States amounted to 189,316 pounds. In 1801, total exports were 20,911,201 pounds. In

mouths made additional demands not just on the farms, but also on the fisheries, which were pushed to supply increased domestic consumption as well as traditional export markets.

This increase in stomachs created a demand which the traditional local management of forest and fisheries could not long support. Up to this time, some exhausted croplands had been returned to forest, perhaps even planted for a future harvest of oak timber.²³ Between 1800 and the mid-century, demand for larger vessels and more cropland exceeded the productive capacity of the developed hinterland, beginning around the greatest urban center, Boston, and spreading outward along the coast. The rising competition in the market for timber and produce created in turn a demand for cheap transportation from the interior. This sparked the canal boom, one result of which was to undercut the value of timber harvested along the coast, for it was cheaper to cut timber in the interior and float it by boatloads to the shipyards than to cut it on outlying farms and haul it in with oxen or horses.²⁴ Already in 1791 mast pines were being cut cheaply on the Pemigewasset and floated down to Newburyport.²⁵ A raft of timber from New Hampshire's interior forests came down to Woburn on the new Middlesex Canal in 1802, and with the successive completion of the

1810, exports were 93,261,462 pounds.

²³ See appendix H.

²⁴ New Edinburgh Encyclopaedia, 1st Am. Ed., (Philadelphia: Joseph & Edward Parker, 1832), vol. 14, p. 249: "...to convey 20 tons upon a narrow canal, the horse and boat generally cost about £100, and require only one man and a boy. To carry the same weight by land, more than 20 such horses are required, and at least ten men. The land establishment would therefore cost at least ten times the expense of that by the canal, under a proportionately greater wear and tear."

²⁵ Belknap, New Hampshire, vol. 3, pp. 51-2: See Belknap's description of large pines floating in the river above Amoskeag Falls, waiting as much as three years for a freshet to carry them over.

Merrimack River canals and locks, very large amounts of shiptimber and masts came down to the shipyards of Boston, bypassing smaller coastal shipbuilding ports. In the year 1810 alone the shipyards of Charleston and Medford received 1,513 tons (65,286 cubic feet) of oak timber and 3,623 tons (301,665 cubic feet) of pine timber and masts.²⁶ Canals were built in Maine, following rivers between Falmouth and Sebago lake, and between Warren and Searsmont, to open the interior to woodsmen and farmers. Smaller canals appeared in coastal marshes between little ports in New Hampshire (Hampton and the Merrimac River)²⁷ and Maine (the New Meadows and Mousam canals).²⁸ These lesser tidewater canals served in the long run to drain money from the lands they flooded, but they may have begun to affect the salt marshes locally, and by extension the inshore fisheries.²⁹

Certainly the proliferating dams reduced, but did not terminate, the anadromous fisheries. Edward Bourne, the historian of Wells and Kennebunk, writing in 1875, claimed that salmon ran in the Mousam River until 1760, when dams curtailed the spawning runs, and that "before the close of the last century

²⁶ Roberts, Christopher, The Middlesex Canal, 1793-1860, (Cambridge: Harvard University Press, 1938), pp. 162-3.

²⁷ Belknap, New Hampshire, vol. 3, p. 55: "Within this present year (1791) a canal has been cut through the marshes, which opens an inland navigation, from Hampton, through Salisbury, into Merrimack River, for about eight miles. By this passage, loaded boats may be conducted with the utmost ease and safety."

²⁸ For an account of Maine's canals, see Hayden L. V. Anderson, Canals and Inland Waterways of Maine, (Portland: MEHS, 1982).

²⁹ Compare this with an earlier attempt to improve the salt marsh, in a letter from Reverend Mr. Porter to Jeremy Belknap, New Hampshire, vol. 3, p. 72. "In the town of Rye, there was formerly a fresh pond, covering one hundred fifty acres, situate within ten or fifteen rods of the sea, being separated from it by a bank of sand. A communication was opened between this pond and the sea, in the year 1719, by which means the fresh water was drawn off, and the place is regularly

they had ceased to visit any of the rivers in Wells." He added that bass had quit the Mousam after settlement began at Kennebunk, and shad continued to run in his time.³⁰ Elsewhere he mentioned that in 1815 the town of Kennebunk had petitioned the Massachusetts legislature

to compel the owners of dams on the Mousam river to open a passage-way for salmon...But when the subject came up (in the legislative session) it appeared that some had not been notified, and thus the measure was defeated. Why it was not taken in hand a second time, we are not informed.³¹

Bourne's accounts probably resemble closely the histories of many of the short coastal rivers that had attracted fishermen and woodsmen in the seventeenth century; little rivers lost their anadromous fish when dams were built at the fall line.³² Although the little canals merely affected local salt marsh, the larger ones, like the Middlesex Canal, had a serious effect on local farmers. They changed the relationship between the coastal farmers and their woodlands, by opening a large market in the cities of Boston and Charlestown and their tributary suburbs, for both timber and agricultural products brought out of the interior.³³

Generally, toward the end of the eighteenth century and beginning of the nineteenth, the number of anadromous fish which constituted much of the base

overflowed by the tide, and yields large crops of salt hay."

³⁰ Edward E. Bourne, The History of Wells and Kennebunk, pp. 564-5.

³¹ *Ibid.*, p. 609.

³² Samuel Tenney, in "A Topographical Description of Exeter," MAHS Collections, series 1, vol. 4, p. 94, noted that the former alewife fishery had been lost for want of sluices in the dams. The bass fishery had been lost due to overfishing.

³³ See the account of Rev. Nathaniel Lawrence, "Historical Sketch of Tyngsborough," MAHS Collections, series 2, vol. 4, pp. 192-8: (Italics mine) "Few towns of its size contained more beautiful forests and richer woodlots, but since the (*Middlesex*) canal has been in operation, the axe has been laid at the roots of the trees, and many of our groves and forests are turned into pastures and fields. Several kinds of wood are natural to the soil. The yellow pine, various kinds of oak and the walnut, most prevail, of which there remains at present a plentiful supply.

of the food pyramid in the gulf of Maine declined with the loss of habitat, and the inshore fisheries declined with them. General Benjamin Lincoln, who spent much time considering the state of New England's natural resources, reflected on this in 1791.³⁴ However, the effects of topographical changes on the commercial fisheries were not yet dramatic enough to sway regional opinion to regulate the fisheries or forest harvest, though the Massachusetts legislature ordered some dam owners to install fishways.³⁵

In the near-coastal forests, the scions of pre-European dominant pines and oaks had heretofore been able to grow to a reproductive age and set seed before they were cut, and thus had maintained the genetic traits of their dominant ancestors. Now they disappeared without issue when a woodlot was cut and turned into pasture. Although mid-sized pines were still available from the Piscataqua in 1802 (see Appendix F), when the Town of Salem built the *Essex Frigate* in 1799, Lughton, their mast contractor on the Piscataqua, had to go all the way to the other side of Lake Winnepesaukee to find trees suitable for the largest masts, and there he had to cut six before finding one that wasn't rotten. On the other hand, local deciduous forest reserves at this time were still great

³⁴ In Belknap's History of New Hampshire, vol. 3, p. 342. "I have little doubt in my own mind but that every river whose source is in a lake or pond, where the waters are quiet, might with great ease be replenished with some kind of fish or other. I think there was a time when they were filled. Could we succeed in this measure the advantages would be important, for it would multiply our cod and other ground fish about our shores, in proportion as we increase the small river fish, for they are the proper food of the ground fish, which in pursuit thereof, are allured quite into our harbors, and give us a more easy supply.

³⁵ MEHS Series 2, vol. xv, pp. 70-1, 100-1, 129. Records in petitions and Court actions the protests of settlers along the Presumpscot River, to force dam owners to open fishways in their dams. The loss of anadromous fish had affected the inshore cod fisheries locally. The owner of the most offensive dam was ordered to show why he should not comply.

enough that all the oak timber for that frigate of 850 tons was collected in less than two months by Essex County farmers harvesting within their woodlots, and deposited at a central collection yard in Salem.³⁶ The discrepancy here is probably because the pine trees left to reproduce near the coast were out-of-the-way and useless-to-cut specimens which couldn't have competed successfully in an undisturbed forest, while oaks left standing in or at the edge of a pasture generally provided excellent compass timber for shipbuilders.³⁷ Furthermore, oak was a valuable firewood and stavewood, and each farm likely maintained a firewood lot long after the farmer had gotten out of the pine market, while every farm needed barrels from time to time.

When the *Essex* was built, it was four times larger than any ship built "within recent memory" in Salem.³⁸ Over the next forty years, as 850-ton ships became first the norm and then began to define the lower size range of such vessels, it didn't take long for the shipbuilding industry and its tributaries--sawn lumber and rift timber and staves--to deplete the remaining stock of mast pine

³⁶ Philip Smith, *The Frigate Essex Papers*, pp. 55, 57, & (for the masts) 124.

³⁷ An anonymous description of Haverhill, Massachusetts, in 1816 shows the relationship between the maritime industries, agriculture, and the industrial revolution. *MAHS series 2*, vol. 4, pp. 121-76: "In the spring the river is abundantly supplied with bass, alewives and shad. Salmon are not as plenty as formerly, but this fishery is still of considerable importance...

Wood principally oak and walnut. Soil generally deep rich loam, and very productive...

Haverhill is a very flourishing trading town, containing about 30 stores...

Ship building is a very important branch of business here, and was before the Revolutionary War. Ships of 400 tons are safely launched at high tide. In 1810 nine vessels were built amounting to 1800 tons, and fifty or sixty men were constantly employed in the shipyards. This business was interrupted by the restrictive measures of the government, but is again reviving with the revival of commerce. There are large quantities of fine ship timber of pasture oak in the vicinity, the average price of which for several years has been four dollars per ton.

There are here two cotton and wool factories and a card factory. Large quantities of shoes and hats are made here and exported to the southern states....Considerable quantities of beef are annually put up here...immense numbers of cattle are driven through town for a market."

and timber oak in many locales. New England's maritime response to the gold rush and the cotton boom probably consumed most of the trees of the coastal region as soon as they attained sufficient size to be useful.

Designed for speed or for carrying bulk cotton, the clippers and cotton packets developed over a very short period of time, and both represented an exponential increase in vessel size. Local merchants from the seventeenth century right up to the 1820s had increased the size of their vessels incrementally, to reflect the increase in population and corresponding opportunity for trade. Now the typical trading vessel that had taken over one hundred years to grow from 30 to 150 tons was superseded in a generation by vessels ranging from 200 tons for brigs to 2,000 tons for ships.³⁹ By way of comparison, the *Constitution* is a frigate of 1,576 tons.⁴⁰

The frigate *Essex*, a mere 850 tons, had required a collective effort by many of Salem's leading citizens. The new generation of vessels required a commensurately larger concentration of capital, more than many merchants could accumulate. Moreover, factories, canals and soon railroads both required even greater sums of capital and offered greater profits. What a local farmer's winter labor in his woods could contribute to such a project became proportionately insignificant, and so possibly did the value of his woodlot,

³⁸ Philip Smith, *Frigate Essex Papers*, p. 57.

³⁹ Compare tonnages of customs records from 1690 to 1830, between Salem and Penobscot Bay. By the 1830s, pinky schooners of less than 40 tons that had been built earlier in Ipswich and Rowley for the local fishing industry were finding employment in the Penobscot fisheries, while new vessels several times their size were often built in the Penobscot area and sold west to Boston or Salem.

⁴⁰ Howard Chapelle, *The American Sailing Navy* (New York: W. W. Norton, 1949), p. 536.

beyond what he needed for firewood. Farmers were not the only members of the old maritime ecosystem who had to look for other sources of profit. In an evolution that spread from Boston first to the secondary ports, and eventually to the smaller ports, the economic status of the maritime and collateral trades underwent a remarkable change. Whereas in seventeenth and early eighteenth-century Boston ship captains and even occasional mariners had been able to afford homes, by the appearance of the Boston Directory of 1796 virtually no mariners or ship captains were listed as owning a house. A quarter of a century later and fifty miles north, in 1821 39% of Portsmouth's resident mariners still owned their homes, but in 1834, while the total number of mariners had increased by nearly one-fifth, the percentage of homeowners among them had declined to 4%, and in 1839, when the total number of mariners had nearly doubled in the past five years, the percentage who owned their homes had declined to 2%.⁴¹

The advent of corporate capitalism had devalued simple labor, even when it was highly skilled. In the new corporate capitalism, the only labor that was valued was labor that added value; labor involved in transport became merely a service industry, losing its value as a skill. Ship carpenters and joiners, blacksmiths, blockmakers and sailmakers, all continued to own homes. Mariners lost their social standing, and with it their economic future. Whereas under the old communitarian capitalism, local boys had gone to sea to acquire a nest egg, or to learn the trade in the expectation of becoming officers, captains

⁴¹ See Appendix G, "Maritime Professions," and accompanying charts.

and finally merchants, now there was little future in the trade. Ambitious young men looked elsewhere for a future. Many of them took jobs in the new mills and foundries, which paid their more skilled workers enough to buy a home; others went west to find cheaper land in the newly-opened territories. The sailing trade became the refuge of those from lower social orders or who held fewer expectations of life. Farmers drifted away from the maritime economy and toward the urban market; their sons looked elsewhere for a future, and their lands became disconnected from the old sustainable ecology.

Theoretical Publications

The abandonment or neglect of parts of New England's old arable land during or immediately after the Revolutionary War had enabled the forest to recoup sufficiently to contribute to the local shipbuilding industry into the early nineteenth century, but it was insufficient to sustain the demands that the growing corporate capitalism made on shipbuilding. This threat to the maritime industries, and to the basic forest resource on which many other industries were founded, was observed by Benjamin Lincoln in a letter to the Massachusetts Historical Society entitled "Remarks on the Cultivation of the Oak," which is reproduced in Appendix H. Lincoln was not, however, the first to notice this correlation between oak reserves and maritime prosperity, or to write about it.

Throughout the late seventeenth and the eighteenth centuries, far-sighted observers had predicted the demise of the great forest, and a crisis in the oak and pine supply that would endanger both the shipping industries and the navy. In

England this in fact happened, but not in New England, where the population and technology were not yet great enough to extirpate the forest. In fact, the forest grew at an amazing rate. One of the officers dispatched to save frontier towns from Indian predation in 1688 remarked that the townsmen in New Dartmouth, Maine, had been unable to keep the forest from reclaiming much of their unused farmland, so the Indians had found cover right up to the English doorsteps.⁴² Trees were cut, but more trees grew. Still, thoughtful Englishmen began to urge conservation and cultivation of forest trees in the seventeenth century. In 1691 at least one copy of Evelyn's *Sylva* was in New England, and as more works on natural history and agriculture appeared in England, copies found their way here.⁴³ By the mid-eighteenth century, English farmers were experimenting with forestry methods, and publishing their theories. One such book, entitled The Timber Tree Improved, went through at least four editions by 1745, and at least one copy from that year found its way to New England.⁴⁴ It described seven different ways of cultivating oak forests from acorns. In the late eighteenth century, after the Revolution, local authorities in New England began to call for reforestation programs in anticipation of Naval needs, for the wave of shipbuilding in response to the privateering war had brought hundreds of ships out of the New England forest, either as privateers or to replace losses to

⁴² CSP, Colonial Papers, vol. 13, pp. 71-2.

⁴³ Samuel Eliot Morison, The Intellectual Life of Colonial New England, (NY: NYU Press, 1956), pp. 144-5.

⁴⁴ William Ellis, The Modern Husbandman, or The Practice of Farming: Vol. V. Containing The Timber-Tree improved, two Parts, (London: T. Osborne, 1747).

privateers.⁴⁵ According to Robert McCullough, "in 1804, the Massachusetts Society for the Promotion of Agriculture and the Arts offered prizes for the best plantations of certain hardwoods." When the Micheaux, father and son, published their North American Sylva (a beautifully illustrated philosophical descendent of Evelyn's Sylva) in 1819, their ideas were quickly disseminated by others, and by 1837 had found their way into the journal New England Farmer, where they were reprinted in four consecutive issues. As Maritime industries were beginning to draw on midwestern sources for their timber needs, New England farmers were turning their attention to silviculture, to regain their market.⁴⁶ The new interest came too late for the heyday of wooden shipping, but their endeavours in the first quarter of the nineteenth century may have facilitated the last generation of coasters and fishermen, nearly a century later. By the dawn of the clipper ship decade, in 1840, much dimensional shipbuilding timber was already imported from the south or the midwest, and spars came from the inland forests of Maine or the midwest, although local forests along the

⁴⁵ According to Edgar S. Maclay, A History of American Privateers, (NY: Appleton & Co., 1924), p. 506, there were at least 307 privateers from Massachusetts and 78 from New Hampshire in the Revolutionary War, and in the War of 1812 there were at least 150 from Massachusetts and 16 from New Hampshire. In each war there were several dozen privateers from unlisted ports, most very likely from New England.

Nellie Palmer George, Old Newmarket, (Exeter: 1932), p. 34, gives an unusual example: "In the farming community of Lee...in the spring of 1777...the building of the privateer *General Sullivan*, was fairly begun in this shipyard five miles from tidewater. Ten men of Lee, including Captain Parker, worked on its construction, each man owning one-tenth of the ship. When it was completed and all the timbers numbered, it was taken apart, loaded on ox teams (sic) hauled to Newmarket ship yard, put together again and launched there. It made its first voyage from Portsmouth in 1778. On its return it came up the river and was again in the shipyard to be overhauled..."

⁴⁶ McCullough, Robert, The Landscape of Community (Hanover, NH: University Press of New England, 1995) p. 97.

coast continued to provide a regular supply of smaller oak compass timber and planking, and "hardwood" keel timber.⁴⁷

Topographical Changes

As settlements proceeded further and further inland, and more and more dams were built, and more fields cleared, the rivers themselves became more erratic. Loss of forest cover led to erosion on a local scale, and erosion filled millponds, making the mills less useful. Because now-erratic water power could not yet be replaced by steam, lesser millsites were abandoned.⁴⁸ When poorly maintained or abandoned dams washed out, thousands of cubic yards of silt went downstream to choke spawning grounds and fill in navigable channels. By the late eighteenth century, constant clearing and grazing had already changed some of lower Massachusetts' coast into the dune topography we see today, and some settled areas in the Bay were increasingly dependent on imported firewood, even where neighboring forests had been preserved and there was still a shipbuilding industry.⁴⁹ From Cape Cod north to the Kennebec shipbuilding was in full swing

⁴⁷ See the insurance surveyors' reports for vessels built in Maine in the mid-nineteenth century, Mss. Collections of the Maine Maritime Museum, Bath, ME.

⁴⁸ See Walter Wells, The Water Power of Maine, (Augusta: Sprague, Owen and Nash, 1869). The sawmills on Sturgeon Creek, on the Maine side of the Piscataqua, that had featured prominently in the 17th Century economy, had been abandoned by the late 18th century and were not even mentioned in the survey of 1869.

⁴⁹ The "Description of Chatham," MAHS Collections, series 1, vol. 8, p. 148, noted in 1802: "...not more than sixty-five acres of woodland are left. It is situated near the line of Harwich, and consists principally of pitch pine. The greatest part of the fuel, which is consumed, is brought from the district of Maine; and costs at present about seven dollars a cord. Five cords of wood are considered as a sufficient yearly stock for a family...the land, particularly in the centre and south part of the township, is every year growing worse, by the drifting of the sand...Husbandry is pursued with little spirit, the people in general passing the flower of their lives at sea, which they do not quit until they are fifty years of age, leaving at home none but the old men and small

after the Revolution. Oak reserves declined noticeably, and white oak ultimately disappeared from the Penobscot Bay coastal area. By the Civil War, mast pine, mentioned in 1846 as plentiful on the Penobscot, was difficult to find within a practical ox-drawing range of navigable water.⁵⁰

Small farmers, who for generations had counted on a winter income supplying timber to local shipyards, were quickly marginalized and squeezed from the shipbuilding economy or relegated to the market for small fishing and coasting vessels. Additionally, the nature of consumer demands and industrialization quickly overwhelmed the old capitalism of communitarian partnerships that had prevailed for more than a century. The quality of economic life, for the small artisan and entrepreneur, became much more complicated. In 1821 roughly twenty-nine percent of Portsmouth's independent adults (497 of about 1730) were directly or peripherally concerned in the maritime trades. Just 13 years later, in 1834, about 534 of a population of about 1685, or 31% of Portsmouth's independent adults were directly or peripherally linked with the maritime industries. Five years later, in 1839, there were 720 in the industries, of an independent adult population of 2,329, or again 31%. (For a quantitative portrayal of these changes see Appendix G.)⁵¹

boys to cultivate the ground.

A few of the young and middle-aged men go on mercantile voyages, and sail from Boston, but most are fishermen. Twenty-five schooners, from twenty-five to seventy tons, are employed in the cod-fishery. They are partly owned in Boston and other places, but principally in Chatham. Also five coasters going to Carolina and the W. Indies.

⁵⁰ See John G. B. Hutchins, American Maritime Industries and Public Policy. (Cambridge: Harvard University Economic Series, 1941), p. 98.

⁵¹ Data above and in Appendix G compiled from Wibird Penhallow's Portsmouth Directory of 1821, Nathaniel March & Co.'s Portsmouth Directory of 1834, and Joseph Edmonds' Portsmouth

During the same period there had arisen a new class of worker in Portsmouth, whose labor and skills were more valuable to the new textile mills, iron foundries and tinworks that had appeared since the turn of the century. In 1834 only one worker could be identified in the metal industry outside of blacksmithing, and he owned his home. That year there were 4 black men listed as mariners, none of whom owned his home, and 2 black boarding house owners. In 1839 there were 12 workers clearly in metal industries outside of blacksmithing, and 9 owned their own homes. In 1839 there were 71 workers in textile industries, of whom 35 were women, and one was black. Of those 71, 29 owned their homes, and of the homeowners, 5 were women. That year, there were 13 black mariners, none of whom owned a home, and one black boardinghouse owner. As blacks entered the maritime industries from the bottom, whites left those industries for more promising (albeit less independent) jobs as employees in mills and foundries. These laborers, possessing skills that gave them economic perspectives and economic utility different from those of the men who had comprised the old communitarian maritime economy, were the region's future. The 19 men who had called themselves Traders, some of whom owned several vessels, disappeared from the directory altogether between 1821 and 1834. The number of men who called themselves Merchants declined from 86 in 1821, to 56 in 1834, to 43 in 1839, while the number of shopkeepers and textile workers increased dramatically.⁵²

Directory of 1839.

⁵² All data are from the above-mentioned directories in the Portsmouth Athenaeum collection.

During the half-century after Lexington, port facilities improved around the Atlantic, and larger ships became practical, not just in the trading centers such as Boston and London, but also in mid-sized ports like Portsmouth and Newburyport. Although the new ships consumed larger and larger trees in greater and greater quantities, a demand for smaller vessels continued to provide winter employment to many farmers from Ipswich to Penobscot, beyond the Boston-Salem axis, but they were apparently no longer an integral part of the maritime process. The key to the preservation of the colonial coastal forest had been that the maritime industries had provided the most profitable market for the landowner. Nearly every landowner was at least a part-time farmer, and every farmer instinctively practiced eugenics, even if the term had not yet been coined. Farmers managed their resources for the optimum return. Just as the best milk cows brought the best return per acre of pasture, prime trees brought the best return per acre on forested land. And as long as there was incentive to keep a substantial amount of land in forest, the streams were healthy.

Although milldams had always been recognized as culprits in the decline of the anadromous fisheries, their proliferation at this time began region-wide to block anadromous fish from their spawning grounds. Until after the War for Independence, reactions were local, and subject to market pressures. Already in 1741 the residents of Hingham had experimented successfully with restoring the local population of alewives by putting fishways into the milldams, and conveying fish in a wagon into their native pond. In time they found that the expense in mill down-time from seasonal mill-closures, and in dredging shoals

recently formed by erosion into the river, exceeded the value of the alewives thus propagated. They abandoned the project after some years.⁵³ However, dams of the earlier period were flimsy timber and plank constructions that washed out frequently. Many streams opened sufficiently in flood years to maintain a population of anadromous fish, so though many were aware of the need to preserve natural fisheries resources, for many years there did not seem to be a regional crisis. Weirs were considered to be a greater threat to the fisheries, and as long as dams were unstable structures, the problem seems to have been addressed locally. The New Hampshire Gazette of Friday, May 11th, 1764, published a full-page edict by the Governor and Council forbidding any fishing in the Merrimac River except on Tuesdays, Wednesdays and Thursdays, leaving the river open four days a week for the unhindered passage of fish, and forbidding the erection of weirs "or any works or edifice on the said rivers, (Merrimac & Winnepesaukee from the lake to the Pemigewasset) which has a

⁵³ Letter of General Benjamin Lincoln to Jeremy Belknap, Dec 12, 1791, History of New Hampshire, vol. III. pp. 334-5: "...river fish never forsake the waters in which they were spawned, unless some unnatural obstructions are thrown in their way...The practice is not novel in this State, when from some unnatural obstructions, the fish have been totally expelled from a river, to re-establish them in their former numbers. About fifty years since (1741, that is) it was well known, that at the first settlement of this town, the Alewives had a passage through it, into Accord pond, and were in such plenty as to give a full supply to the inhabitants. This induced the people at that time to attempt the re-establishment of them, in which they succeeded by opening fish ways through the mill dams, and conveying the fish, in the spring of the year, in a proper vehicle to the pond; this was done by keeping it near the bank of the river, and frequently shifting the water in the vessel. After this, the fish increased annually until there was a pretty good supply; but as there were many shoal places in the river, which required very constant attention, the expense of which and the loss sustained by stopping the mills, exceeded, in the opinion of the town, the advantages of the fish, the business was neglected; so that for a number of years they have been perfectly cut off from the pond. Notwithstanding some of the fish annually return to the mouth of the river urging a passage, but they are decreased in number and reduced in size...(if something in the water doesn't draw them) how shall we account for the Salmon being in the Connecticut River, and in Merrimac and the rivers lying in between being perfectly destitute of those fish?"

tendency to destroy or drive the fish out of said rivers..." violators were to pay a fine of £4 in British sterling, not "country pay."

To Sum Up

It was in fact the advent of the fashion industry, and its offspring, the industrial revolution, that was indirectly responsible for the demise of the fisheries and the great forest trees. In the course of the eighteenth century, clothing evolved from a necessity to a consumer good. Moreover, sheep had some advantage over forest products in that after they had been shorn for several years, they could get to the urban market under their own power when they were sold for meat. Farmers consequently saved only so much woodlot as they needed for firewood, and cleared the rest of their land for sheep. Sheep not only kept pastures from coming back into forest, but they also trampled or ate the seedlings of the last generation of forest giants.⁵⁴ In many sections of the New England coast, forest species survived only in specimens that were already undesirable because of genetic qualities in form and size, and then only in relatively inaccessible places. Because they far outnumbered descendents of the old dominants in the pre-contact forest, in time they provided the majority of reproducing individuals.

With the disappearance of the forest, waterpower became less reliable, and erosion occurred so quickly that some of the Founding Fathers commented on the prospective dangers to the country from loss of the soil. A contemporary

⁵⁴ See General Benjamin Lincoln, "Remarks on the Cultivation of the Oak," Appendix H.

example of this erosion may be found at the border of Vaughan Woods and the Hamilton House, in South Berwick, Maine. The previous chapter related that the area had supplied great mast pines in the seventeenth and early eighteenth centuries. Later, it was partially cleared, and the first few generations of settlers on the hillside interred their dead between their home and the river. When the land was converted to sheep pasture in the early nineteenth century, subsequent erosion started ravines that nearly opened up their graveyards, but in the late nineteenth century most of the land was allowed to return to forest. Very large, old spreading oaks within the edge of the pine woods, and a few more deep in the pines, attest to its pasture state in the last century. Few of the pines in the area have avoided the weevil, though they are as tall as pine gets today. The new forest has obviously halted erosion. At the edge of the forest, on the border of the Hamilton House property, is still open pasture. Between the forest and the pasture is a ravine whose origins were contemporaneous with the ravines now sheltered by the returning forest. This ravine, however, is five or six times as long as those protected by forest. After a single rainstorm of 13 inches in the fall of 1996, the alluvial fan where this ravine meets the waters of the Salmon Falls River had accumulated a new silt deposit seven inches deep and many square yards in surface. There was no observable siltation at the mouths of the forested ravines.⁵⁵

Following the conversion of so much coastal land from forest to pasture, erosion silted up many spawning grounds of anadromous fish and their riparian

⁵⁵ Author's measurements at the site, autumn, 1996.

approaches, and in places doubtless altered the fertility of the salt marsh downstream.

The widespread harvest and dwindling supply of large trees meant that many mill sites along the coast became more valuable for year-round fulling and other textile-related mills than for occasionally sawing timber. But vanishing forests on the drainages of those streams caused a loss of reliable waterpower at many of the millsites. With so much capital invested, mill buildings would have to find another source of power to retain their commercial value. Steam-powered machinery filled that need, but it required enormous quantities of imported coal, which in turn generated a new problem--water pollution, especially through acid rain.

Through the early nineteenth century some patchy forests persisted, even in the long-settled coastal area, and the great fisheries continued well into the nineteenth century. An Italian visitor travelling in New England in the years 1785-1787 remarked that the hills west of Boston still were forested with oak and pine, and that between Portsmouth and Dover, New Hampshire, on July fourth, 1785, the river banks were still "in some places...cultivated, but for the most part they are covered with white pine and spruce trees that can be seen standing among the rocks."⁵⁶ Timothy Dwight, writing in 1796, reported that New England white pine then grew "to six feet in diameter and frequently to 250 feet in height. A gentleman of Lancaster, New Hampshire, told me he had seen one

⁵⁶ Luigi Castiglioni, Viaggio, or Travels in the United States of North America, 1785-1787. (Syracuse, NY: Syracuse University Press, 1983 reprint), pp. 25 (west of Boston), 55 (Piscataqua River).

which measured 264."⁵⁷ A map of Exeter New Hampshire, dated 1802, shows "a large section of woods" in the western part of the town. A contemporary observer in Wells, writing in 1825, stated that nearly one third of the town was still forested:

Wells had 10,000 out of 35,000 acres "capable of improvement, but covered at present with wood and timber." Principle export from town was wood, sent to Boston, Salem, Newburyport. 1,500 cords each of hardwood & pine exported annually from Wells, of which one-half cut in town. Total amount of shipping owned in the town is about 600 tons. Considerable ship timber cut in the town, & vessels of various sizes are built there from year to year.⁵⁸

The historian of Saco, writing in 1830, noted that the lumber mills of Saco, which then exported over 21 million feet of boards, had not even strained the timber resources of the local forests until 1772, when men began to float logs down from Fryeburg.⁵⁹ At that time, the mills had been in operation for a century and a half, between wars. Nor were New England's remaining forests mere scrub. A report to the Massachusetts Legislature on the trees and shrubs of that state, presented in 1846, claimed that as recently as fifty years earlier, there had still been a few two-hundred-and-fifty-foot pines in the Massachusetts proper, excluding Maine. It went further to say that just five years earlier, a mast pine had come out of the Penobscot River that measured 90 feet long, and 36 inches at the butt by 28 inches at the top *after it had been hewn to eight sides* . The author of this report claimed pines were still found in the Massachusetts forest with a height of 130-140 feet, and a hundred-foot clear run to the nearest branch. He also related

⁵⁷ Timothy Dwight, Travels in America, (Cambridge, MA: Belknap Press edition, 1969), vol. 1, p. 21.

⁵⁸ MEHS Collections, Series 1, vol. I, p. 339.

⁵⁹ George Folsom, History of Saco and Biddeford, (Saco: 1830; 1975 reprint), pp. 308-9.

seeing in Massachusetts until that present decade, white oak of nearly four feet in diameter at breast height, and the stump of a white oak then still standing measured over seven feet dbh.⁶⁰ All this suggests that in the face of adversity, the forests persisted here and there.

Henry David Thoreau delivered an address titled "On the Succession of Forest Trees" to the Middlesex Agricultural Society in Concord in 1860, and recounted watching squirrels replant woods by burying nuts in the vicinity of standing trees.⁶¹ He befriended a local woodcutter who lived in the Concord forest, and quoted one of his more elderly friends in 1851 as saying "he used to know all about the (wood) lots, but since they've chopped off so much, and the woods have grown up, he finds himself lost." One of his friends had even rebuilt a sawmill on the site of one that had stood in Concord a century before, and was sawing second-growth logs from local forests, when his dam gave way. Another of his friends owned a ten-acre woodlot together with his sister; it had supplied them with their necessary eight cords of firewood a year, and bid fair to do so indefinitely. (At this time Ralph Waldo Emerson burned twenty-five cords of wood and fourteen tons of coal a year, while a local woodsman burned less than two cords, mostly scavenged from the river).⁶²

⁶⁰ George Emerson, Report on the Trees and Shrubs Growing Naturally in the Forests of Massachusetts, (Boston: Dutton & Wentworth, State Printers, 1846) pp. 61 (White Pine), 131 (White Oak).

⁶¹ Thoreau, Henry David, Excursions, (NY: Corinth Books, 1962), pp. 135-60.

⁶² Henry David Thoreau, Men of Concord, (Boston: Houghton Mifflin company, 1936) pp. 56, 134, 162, 173.

Coda

The final blow to the forests seems to have coincided with the widespread appearance of railroads, coal smoke, and the introduction of chemical industry into the industrial revolution. Railroads opened up all of the old forest, for there was scarcely a location in New England more than a day's haul from either a river or a railroad. In the Merrimac Valley, the railroad took the mast and shiptimber business away from the Middlesex canal, putting the canal itself out of business by 1851. Aniline dyes for textiles brought a new component to the industrial revolution, the beginnings of chemical pollution. As deforested streams were unable to drive old hydropower sites, coal-fired steam engines appeared at those sites to supply the missing power, and they generated smoke which returned downwind as acid rain.

From the middle of the nineteenth century on, the reports on the fisheries were increasingly grim. Fishermen were particularly hard on their surroundings when the fishing was poor. In John James Audubon's time, island fishermen sometimes augmented their income in poor fishing years by egging, a practice which depleted much of the coastal bird population. They would descend on an island bird rookery in breeding season and methodically stamp on all the eggs. Then they would return in a couple of days and harvest all the newly-laid eggs for the urban food market, a market that had not existed a generation earlier.⁶³ Audubon describes the process in Labrador, but on some of Maine's offshore islands, fishing families used this technique to supply themselves with eggs in

⁶³ John James Audubon, Delineation of American Scenery and Character, (London: Simpkin,

hard times well into the present century.⁶⁴ Fishermen also augmented their income in slow years by commercial seafoal hunting for the urban meat markets and fashion industry, killing billions of birds in the nineteenth century.

The fisheries picked up locally in Maine during the Civil War years, probably as a result of less pressure on the stock.⁶⁵ They declined again after the war, and the anadromous fisheries never recovered, even many decades after dams had been removed from some of their former spawning rivers. Over a century of restoration efforts has failed to bring back the salmon and the sturgeon, although lesser anadromous fish are again found in recreational quantities in some rivers. The maritime industries have put no real pressure on the forest since the first World War, but consistent high-grade overcutting by lumber interests, and the suppression of natural lowgrading through fire control, have ensured that the forests have even less chance of coming back with their old genetic vigor, though they now cover more of the coastal area than they have for one hundred and sixty years. Perhaps the soil and the groundwater have been irrevocably changed by one hundred and thirty years of acid rain and industrial chemical dumping, and the conditions that nurtured the old dominant gene pools of each species, whether in the forest, the stream or the salt marsh, are gone forever. That remains for someone to determine in future research.

Marshall et al, 1926), pp. 253-8.

⁶⁴ Communication of Raymond Ames, a late fisherman raised on Matinicus and Vinalhaven during the Great Depression.

⁶⁵ Goode, G. Wilson, Report on the Fisheries of the United States, (Wash.: USGPO, 1883), 5 vols.

APPENDIX A

TRELAWNEY-WINTERS CORRESPONDENCE, RICHMOND ISLAND

1: July 30, 1638: "Our carpenter (Arthur Gill) hath drawn out a draught for a new vessell, & saies he Cannot worke by the draught you sent...Our old bootes & repairing & building of houses doth vse nailes every day, & I deliver them with myne owne hand. The propotion that our Carpenter hath laid downe for our new vessell is 48 foote by the keell, 18 foote at the beame, & 11 foote in the hold.¹

2: July 10, 1639: "Arthur Gill is gon from vs, & is goinge into the Bay as he tells me to dwell their. I would agreed with him to stay longer, but he would not but at these rates: his demand is 15s. a weeke, and a boye passage out of England, & will binde me to fetch him out of the Bay & to pas him their againe, and at this rate he would worke with vs the next sommer. Now he doth promyse me to be heare againe the next springe about the begininge of Aprill, & will stay heare 2 moneths & will promyse no more, & will trust vnto your Curtesy for that, being you write to him to that effect. He hath made me a note of such provisions as he thinkes will serve for the endinge of this ship, & I shall send yt with my accounts. We must have another sufficient workman to Com over the next springe to end this ship, for Henry Hancocke is not Insighted in the carriege of the worke. I thinke Samson Jope will be a very fytt man to Com, & he tells me he is willinge yf you will agree with him...This ship is framed vp to the top timbers, som 10 or 12 of a side: all the groad timbers, stiddell timbers, & Navell tymbers ar in, & her two bends. Planke I want, but sawinge still. George Dearinge...for the last yeare he promysed me to saw som planke for the ship...& he never came neare since...Our planke must haue most of the next sommer's dryeth to season yt. Our trees for most parte of the planke was Cut 2 yeare since & all the last winter. She is very well timberd ffor a ship of her burden. She is betwixt 49 & 50 foote by the keell, 18 1/2 foote to the beame, & I purpose to bringe her to 2 deckes with a fore Castell & a quarter decke, 9 foote in hold, & 4 1/2 foote betwixt the deckes. The tymber was all moulded before I had your last letters by the *Herculus*, otherwise I would have brought her at 20 tonnes greater. The tymber was all first moulded for to build her with on decke, which would not be good for these westerne Courses."²

3: Dec. 12, 1639: "After I had Reconned with [Arthur Gill], I desired him to giue me his answere, whether he did purpose to Com the next sommer to end the worke he had begann. His answere was, he was to build a boote at Strattons Islands & then he would Consider of yt. Being lack 5 or 6 daies, he writes his answere to Mr. Sargent to tell me

¹ Trelawney Papers, pp. 140-3.

² Ibid., pp. 164-6.

his mind, & as I Conceau, did scorne to write unto me...⁷ or 8 daies after, he returnes to the Iland againe, and never Comes neare me.”³

4: June 27, 1640: “Our new ship doth go onward well now; I haue 4 men to worke on her still; the frame is all up, & the beames of the lower decke placed & kneed & boulded fast, & the ground planked & 3 strakes betwixt & vnder the bends all planked; but we want many boults for to make all fast. I haue formerly advized you that I wanted 20 double head boults of the count vppon the Invoize which was sent by the *Samuell*.”⁴

5: October 7, 1640: “Our new ship is all planked vnto 2 or 3 strakes of the hire worke of onside, which they do forbear before the beames of the hire deck be placed. Arthur Gill hath not been with vs this thre moneths & more, & doth not purpose to Com any more to worke with vs, for he writes me he hath vndertaken to build a ship in the Bay 8 or 9 score tonns.”⁵

6: June 21, 1641: “Our new ship was lancht the 15th of this moneth; I hope she will proue a good ship. She swimbed as vpright as might be when she was lancht, and very styff of her side. We had much worke to do on her when she was lancht; both decks to Calke, the hatches to make, her head to sett vp, & our masts to make, & her boote to build. We haue all things in place, but all lies on the Carpenters to dispatch yt. We haue had 2 ship Carpenters & 2 house Carpenters, & would haue gott more yf I Could haue gott them for money. Arthur Gill did promise me to Com againe to worke, but did not. After our hier decke is Calked & our maine mast in, I do purpose to gett in our fish as fast as I Cann whiles the Carpenters ar doing the other worke.”⁶

7: July 29, 1641: “I wrote to Arthur Gyll often to procure me som Carpenters, but none Came from him. Then I saw none Came, the beginning of February I tooke passage & went into the Bay, & then Could gett but 2 Carpenters & a Joyner...I would willingly haue sold most of our Cattell, goats & swine, but heare is no buyers for want of money...Our Carpenters heare worke very sparingly, but yett they must haue great wages, & the must not be spoken vnto to hasten their worke. Yf the be, presently they ar out of patience & they will be gon, so that he which hath occasion for worke men heare in this Country is in a strait, & knowes not which way to helpe himselfe, being the(y) know heare is no other to be gotten...The ship was lancht the 14th of June. We made vse of the men after the gaue over going to sea for to dig the docke & fetch trees for waies to lanch the ship uppon...They haue put aboard good store of woode, but to Cutt timber to put aboard to lade the ship the would not, I could not perswade them to yt.”⁷

³ Ibid., pp. 204-5.

⁴ Ibid., p. 216.

⁵ Ibid., p. 243.

⁶ Ibid., p. 258.

⁷ Ibid., pp. 279-84.

APPENDIX B:

RICHARD HOLLINGSWORTH'S PROBATE INVENTORY.¹

Inventory of Richard Hollingsworth of Salem, taken 26.3.54 includes 1 acre with house and outhouse-£24, 4 ten acre lots on Darby Fort side-£12, one and one-half acres in the neck-15s, 2 acres bought of Stevens-£2, 20 acres of land given by the town-£1, a great ketch on the stocks-£130, a lighter on the stocks-£18, a lesser ketch on the stocks-£7, 7 loads of timber on the key at 8s p. load, 6 loads of sawn timber at 10s p. load, 3500 of oak plank at 12s p. 100, 585 foot of pine plank at 10s p. 100, trunnells-£1 4s, 400 of inch boards-£1 2s, 966 foot of oak boards at 7s 6d p. 100, 487 of inch and half at 9s p. 100, 3 barrels of tar-£3, more 536 foot of oak plank at 12s p. 100, 784 foot of pine at 10s; a rudder, keel, stem and stern post for a boat-£1; 1,000 of oak plank in the woods-£3 15s; hewn timber lying on the deputy's farm £3 15s.

According to later depositions (30th, 4th, 1654) Hollingsworth had already given a house to his younger son William, and left his dwelling to his son Richard, intending to have a new house built for himself and his wife.

¹ Probate Records of Essex County, vol. I, p. 172.

APPENDIX C:

A LIST OF VESSELS BUILT AND/OR OWNED BETWEEN THE BAY AND MAINE, 1630-1650.¹

About 43 ships (one or two may have been counted twice):

- 1) the *Rebecca*, 60 tons built at Cradock's plantation in Medford;
- 2 & 3) two others of over 100 tons, built in the same place by 1635;
- 4) the *Desire* of Salem, 120 tons, built by Hollingsworth in 1636;
- 5) the ship mentioned in the Dorchester town records in 1636;
- 6) the ship built at Winter Harbor (Saco) in 1636-38, and wrecked in Ireland on her first voyage;
- 7) the *Richmond*, 100+ tons of Richmond Island, built 1638-1641;
- 8) a 300-ton ship built in Salem between 1640 and 1642 (this is the one which occasioned the death of Hollingsworth's employee);
- 9) another Salem-built ship of 200 tons, 1642;
- 10) a 160-to-200-ton ship, the *Trial*, built in Boston in 1645;
- 11) another ship, the *Seabridge*, built also in Boston;
- 12) ship, the *Philip & Mary*, owned in Boston;
- 13) ship, the *Increase*, owned in Boston;
- 14) ship, the *Hopewell*, owned in Boston;
- 15) ship, the *Sarah*, owned in Ipswich;
- 16) a 250-260-ton ship (probably *Endeavor*) built in Cambridge in 1644;
- 17) a 200-ton ship built in Boston in 1644;
- 18) the ship *Rainbow* sold to Boston merchants in 1645;
- 19) a 70-ton ship *Separation*, owned in Boston;
- 20) the ship *Supply*, called "*True Dealing* alias *Supply*" in 1648, owned in Salem, and possibly the one that precipitated the accident in Hollingsworth's yard;
- 21) a 300-ton ship (possibly Bourne's *Malago Merchant*) built in Boston in 1646;
- 22) the 350-ton ship *Planter* mentioned in 1639 and 1647;
- 23) the ship *Expectation* built in Boston, probably by Benj. Gilom, 1650, mentioned Aspinwall p. 356;

¹ Compiled from Winthrop's Journal, Thomas Lechford's Notebook, Aspinwall Notarial Records, and contemporary Court and town records cited in the Bibliography.

- 24) the ship *Adventure* of Boston 1647;
- 25) the 70-ton ship *John* of Boston 1647;
- 26) an 80-ton unnamed ship of Boston 1647;
- 27) the 300-350-ton ship *Welcome* owned in Charlestown & Boston in 1648, later partly owned by Capt. John Allen & Thos. Broughton;
- 28) the *Bride of Boston*, ex-*Bride of Enchusen*, a Dutch-built ship sold into Boston in 1648;
- 29) the ship *Jane*, 100 tons, of Piscataqua 1648. Mentioned again in Aspinwall, p. 325;
- 30) Bourne's ship *Malago Merchant* of Boston 1649;
- 31) the ship *Recovery*, owned at least in part in New England, 1649;
- 32) the 120-ton ship *Fortune* of Charlestown 1649;
- 33) Ship *Johns Adventure*, 180 tons, mentioned Aspinwall p. 332;
- 34) Ship *William & George*, 180 tons, mentioned Aspinwall, p. 357, when the master acknowledged that his crew had deserted, and sold her to Edw. Gibbons in 1650 for £642 14s;
- 35) Ship *Mayflower*, 135 tons, at least partly owned in Boston 1650, mentioned in Aspinwall, p. 368;
- 36) Ship *Defence*, Boston, 1645, mentioned Aspinwall p. 397;
- 37) *William*, Boston, 1646 mentioned Aspinwall p. 400;
- 38) Ship *Fortune*, Charlestown, 1649, mentioned Aspinwall p. 411;
- 39) Ship *Trades Increase*, Charlestown, 1650, Aspinwall p. 411;
- 40) *Artillery*, Boston, 1650, Aspinwall p. 418;
- 41) Ship *Anne*, Boston, 1649, Aspinwall p. 234;
- 42) Ship *Content*, Boston, owned by Edw. Tyng, deemed unfit for a winter crossing by her captain, 1649, Aspinwall, p. 260;
- 43) ship of 160 tons contracted for in 1649 by a consortium of 8 Boston merchants, to be built by Richard Thurston of Boston. Only two of these were foreign-built--the ex-*Bride of Enchusen*, a Dutch-built merchantman whose presence among the Boston vessels gives more weight to the possibility of Dutch influence in the rise of the Bay shipbuilding industry, and the *William & George*, English-built.

At least 13 **barks**, some not named: *Blessing of the Bay*, built in Mystic, for John Winthrop, no doubt by Matthew Craddock's shipyard, in 1631; *Speedwell*, *Greyhound*, *Alligator*, of which one was built by subscription in Plymouth, one owned in Boston, another in Massachusetts, two partly owned at Cape Ann in 1647; 40-ton *Hopewell* in Charlestown and the 40-ton bark *Hope* of Boston 1648; the new bark abuilding by Jonathan Baulston in 1648, referred to in Aspinwall p. 161; the bark *Sea Flower* sold from Hull into Rhode Island in 1649; 20-ton bark *Charles* of Boston, 1649; *Pretty*, 12 tons, mentioned in sale in Aspinwall, p. 319; *Beginning*, owned by Thomas Savage & Joanna Parks, Boston 1650, also called a ship, mentioned Aspinwall p. 367.

6 **ketches**, of which one was the *Adventure*, possibly owned jointly in Boston and Virginia in 1646, and another the 25-ton *Judith*; of New England; a third of 40 tons owned in Salem; the *Ann & Margret*, 30 tons, contracted to

freight fish from Newfoundland, 1650, Aspinwall, p. 303; and the two left incomplete by the death of the Plymouth shipcarpenter, which were probably later completed; **6 pinnaces**: *Coach* of Salem; *Makeshift* and the Marblehead pinnace which was lost on Thacher's Woe in the 1635 hurricane; the 35-ton pinnace or bark *Planter* owned by Samuel Maverick, and the pinnace built at Strawberry Banke by Walter Neale; the 60-ton **bark or pinnace** from Cape Ann which capsized in 1647 losing all hands; **2 lighters**: 1 of 20 tons belonging to Selleck in Boston, and one built in Plymouth, one **bark** of 40+ tons referred to as a frigate, built at the Fore River in Dover, NH; the 40-ton **frigate** *Content*, sold in 1647 to David Selleck of Boston, and possibly the same built at Dover; the *Defence*, no rig or registration given, but possibly built by Nehemiah Bourne, and if so built in Boston; the *William*, no rig or tonnage given, owned in Boston 1646; a **ketch-pinnace**, so-called, which John Treworgy lost in a mortgage foreclosure executed at Boston in 1647; **7 shallops** which Treworgy kept at the Isles of Shoals in 1647, which were only a small part of the Shoals fleet; the *Susannah*, no rig or tonnage listed, contracted to be delivered to David Selleck at Boston by December, 1649.

There were, additionally, numerous unnamed shallops, which were clearly the pickup trucks of their times and were never noticed except when they made news through an accident or a lawsuit. They are often mentioned in passing, but it would be impossible to distinguish among all of them by size, owner, or home port, and therefore impossible to count them. Christopher Levett, in 1627, estimated that in there were 300-400 fishermen on the Maine coast in season, who left their shallops there from one season to the next. At a ratio of one shallop to four or five men, that would place about **60-100 shallops** on that coast in any year during the 1620s. Some of those were undoubtedly built there to replace any lost or destroyed in the fishermen's absence.

APPENDIX D:

COMPANY DIRECTIVE TO THE SALEM STATION

The charge of these 3 shippes now sent, though every man that hath any private adventure in them is to pay for his particular, yett the hazard of profit and loss by the freighting of them all and men's wages and victual with victual for the passengers is to be born one-half by the Company's general stock and one-half by the Governor and his partners, their private stock, so is also the fishing to be returned to them as the Salt sent in them is, wherefor we pray you awhen your ships are discharged, if any surplus shalbe in victuals that they can spare as also of other provisions that was provided for the passengers accomodation, let the same be equally divided one-half to the governor there for the company, the other half to Mr Samuel Sharpe for the use of Mr. Craddock our Governor and his partners, all provisions for the fishing at sea is here equally born in halves, so are all the provisions for shipping of all the cattle in these 3 ships, and accordingly we desire the deals and Cask may be divided there.

The provisions for building of ships as pitch, tar, rosin, oakum old ropes for oakum, cordage & sailcloth in all these ships with 9 firkins and 5 half-barrels of nails in the 4 Sisters are two-thirds for the company in general, and one-third for the Governor Mr Craddock & his partners, as is also the charge of one George Farr now sent over to the six shipwrights formerly sent...so soon as 3 shallops shalbe finished, two of them to be set out for the company, by lot or as you shall agree there to make an equal division, and one for our Governor & his partners, with whose Agent Mr. Sharpe, if you shall think fit to agree upon equal terms either in thirds or in halves to fish together when you shall have vessels fitting, or for setting any other design forward that may conduce to the good of all parties....¹

The provisions for building of ships as Pitch, Tarr, Rozen, Okum old ropes for Okum, Cordage & Saylcloth in al these shippes wth 9 firkins and 5 halfe barrells of Nayles in the Four Sisters, are 2/3 for the Company in genall, and 1/3 for the Govnor Mr Craddock & his ptners, as is the Charge of one Georg ffarr now sent over to the six shipwrights formerly sent, or desire is a storehouse may bee made apt for the provisions of the shipwrights and their Tooles whereof Robert Moulton to have the cheif charge, and an Inventory to bee sent of all the tooles, the new by themselves and the old by themselves that are sent over for the use of the said shipwrights or any of them in these and the former shippes, In the like manner of all provisions any way concerning shipping to the end wee may heere examine & fynde that the Company may bee duly charged with their 2/3 parts of the Charge & noe more, and our desire is that these Men bee kept at worke together, adding to heir helpe such of the Companyes servants as you shall find needfull & proportionably 1/2 as many of Mr Craddocks wch course

¹ Suffolk Deeds, Liber 1, pp. xvii, xviii, xix.

wee hold most equall, and that accordingly as any vessels bee built, first that both parties may bee accomodated for the present occasiohn, but soe soone as 3 shallops shalbe finished, two of them to bee sett out for the Companie, by lott or as you shall agree there to make an equall division, and one for our Govnr & his prtners....²

² Suffolk Deeds, Vol. I, pp. xvi, xvii.

APPENDIX E:

CASUALTY LISTS OF THE INDIAN WARS NORTH OF CAPE ANN

Casualties in Oyster River (Durham) between 1675 & 1712

<u>DATE</u>	<u>DAMAGE</u>	<u>KILLED</u>	<u>WOUNDED</u>	<u>CAPTURED</u>
<u>1675</u>				
?	5-6 houses burned	2		
Nov. 1	2 houses, 1 barn	1, beheaded & head impaled		
?	2 houses	2		2
<u>1689</u>				
July 29	several houses burned			
Sept. 15	1 garrison burned	18 killed or captured		
<u>1690</u>				
July 4 (Lamprey River)		8	?	1
July 6 (Wheelwrights Pond)		16		7
<u>1694</u>				
July 18	13 houses burned	48		46
<u>1696</u>				
Aug. 27 (Lubberland-west Oyster River)		1		
<u>1697</u>				
Nov. 15 (Johnson's Creek-Oyster River)		1		1
<u>1704</u>				
April 26 (Lamprey River)		1		2
Spring (Oyster River)			1	
Aug 12? (Oyster River)		Several killed in their fields		
<u>1706</u>				
April 27 (Oyster River)		8	2	
<u>1707</u>				
May 22 (Oyster River)				2
July 8 (Oyster River)		2		
Autumn (Oyster River)		9 at work cutting timber in woods		
Spring (Oyster River)		1 killed		
	a mill & "a great many thousands of boards" burned three miles upriver.			

¹ Collated from Penhallow's Indian Wars, Mather's Decennium Luctuosum, Belknap's History of New Hampshire, Frost's Indian Wars of the United States, Church's Diary of King Philip's War, and Charles H. Lincoln, ed., Narratives of the Indian Wars, 1675-1699, (New York: Barnes and Noble, 1952 reprint of Charles Scribners Sons ed, NY, 1913).

<u>DATE</u>	<u>DAMAGE</u>	<u>KILLED</u>	<u>WOUNDED</u>	<u>CAPTURED</u>
<u>1723</u>				
Spring	(Lamprey River)	2	4	
<u>1724</u>				
Spring- Summer	(Oyster River)	4 (one a church elder)		

Thus, between 1675 and 1724, there were 22 attacks against Oyster River, in which at least 115 settlers were killed, and at least 74 captured.

Attacks along the Merrimac River, 1676

<u>DATE</u>	<u>TOWN</u>	<u>KILLED</u>	<u>WOUNDED</u>	<u>CAPTURED</u>
March 9	Groton	1		1
March 13	Groton 40 houses burned	2, (1 infant fed to swine)	3	
Spring	Andover 1 house burned			1
March 10	Concord	2		
March 18	Chelmsford, 3 houses burned	2		
April 8	Andover, cattle killed	1		1
April 15	Chelmsford, 14 houses burned			
May 3	Haverhill	1		
May 3	Bradford	1		6

Or a total of at least 22 killed, wounded or captured.

Approximate casualties among all eastern towns. 1675-1677

DATE	TOWN	KILLED	WOUNDED	CAPTURED
<u>1675</u>				
Summer	English seamen overset canoe with wife and child of eastern sagamore Squando, whereupon child dies.			
Autumn	Clarke & Lake sent a messenger to the trading post at the Indian fort at Taconock (Winslow) to bring back the powder and shot there, and tell the Indians that they would be supplied if they came down to Arrowsic, but the messenger told them that the English would kill them if they didn't come down, whereupon they left for the eastward to get reinforcements.			
Autumn?	A gentleman at Pemaquid tried to bring the Indians to parley, but was silenced and threatened by radical "refractory English." The Fishermen at Monhegan offered £5 per Indian brought in, but refused to go out and fight them. General Court finally tried to calm the situation, but hotheads were anxious to go slaving.			
Sept.	Casco Bay (family)	6 (1 pregnant)		1
Sept. 18	Saco		2	
	Capt. Bonython's & Maj. Philips' houses assaulted, Bonython's burned, 2nd house burned, sawmill & corn mill burned.			
Sept. 19	Blue Point	several killed		
Sept.	Saco, all houses above the fishermen's stages destroyed.			
Sept.	Saco River	5 later died		1
Sept.	Oyster River	2		2
	2 houses burned			
Sept.	Exeter-Hampton	1	1	1
Sept.	Newichewannock	1	1	1
Sept.	Newichewannock, next day, another house & barn burned with 100 bushels of corn.			
Sept.	Newichewannock, mill shot at.			
Sept.	Oyster River	2		
	4-5 houses burned			
Oct. 7	Newichewannock	3		
Oct.	Oyster River	1, head impaled		
Oct. 16	Newichewannock	3-4		1
Oct. 17	Newichewannock 4 killed in ambush while retrieving bodies.			
Oct. 17	Newichewannock, 3 houses, 2 barns burned.			
Oct. end	Newichewannock, Mill burned belonging to Boston merchant Mr. Hutchinson.			
	Sturgeon Creek,	2		
	1 house burned.			
"next day"	Kittery, 1 house burned.	1		
Autumn	Cocheco, 1 house, 2-3 barns burned.			
Autumn	Lamprey River	1		
Autumn	Hampton-Exeter	1-2		
Autumn	Casco,	2		
	many houses burned.			
Autumn	Black Point	2		
Earlier	Yorkshire-Devonshire (Scarborough)	2-3 volunteers killed under Capt. Wincol, 11 men of Saco killed coming to their rescue.		
Autumn	Yorkshire-Devonshire, 7 houses burned.			
Autumn	Black Point,	"some persons" killed.		
	7 houses burned			
Winter	Wells	2		
Winter	Wells	2, separately.		

DATE	TOWN	KILLED	WOUNDED	CAPTURED
<u>1676</u>				
Spring	Laughton & one other Boston Englishman kidnap several Cape Sable Indians & sell them for slaves in Fayal, using a warrant issued by Major Waldron to sieze any Indians to the eastward.			
Aug. 11	Casco,	11 + men killed, 23 + women & children killed or taken.		
Aug 13	Kennebec	9+ houses burned. Some escaped to an island in the Bay (Munjoy's [now Peaks] Island). 15 killed or captured in one house (Hammond's), at Woolwich. Hammond had cheated the Indians in trade. 1 escaped to Sheepscot.		
Aug 14	Arrowsic	38 killed or taken,	1	
Aug.	including Capt. Lake. Kennebec, Sheepscot, Sagadehock, Damariscotta all abandoned. All outlying settlements at Windgins (Winnegance?) Corbins Sound, New Harbor & Pemaquid were burned. Survivors scattered south to Piscataqua, Salem & Boston.			
Sept.	Jewell's Island	3		5
Sept.	Spurwink	1	1	1
Sept. 6.	Dover, Maj. Waldron & others sieze 400 Indians under false pretext of war game. Two hundred sent to Boston, where 7-8 were hanged, others sold into foreign slavery.			
Sept. 23	Munjoys(Peaks) Island	30 men, some women	6 escaped,	one wounded.
Sept.	Wells	4		
Sept.	Cape Neddick	all inhabitants of 7 houses killed or taken. Suckling infant nailed to its mother's body.		
Oct. 12	Black Point, fort surrendered to Mogg.			
Oct.	Richmond Island,	1 mortally wounded, the rest taken. One of 3 who had gone for ketch lostransom killed by other Indians on their return.		
Oct. 16	Wells	2	3	
Sept. 24	Wells	1	1 (a woman, fatally)	
Sept. 25	Cape Neddick	"most of the poor people belonging thereto" killed.		
Sept. 27	Wells	1		
Oct. 19	Wells	2	1 (fatally)	
(aprox.)				
<u>1677</u>				
Feb. 19	Casco, 1 house burned.			
Spring	Arrowsic	9 killed when they came from Kennebec Fort to bury the dead of the past year. Garrison withdrawn, April 19.		
April 6	Wells	3		
April 7	York	6-7 at work 2 miles from town		
April 12	Wells	2		
April 14	Portsmouth, 1 house burned			2 taken, but escaped
after	Portsmouth	3		
April 14				
April 29	Wells	2	1, fatally	
May 16	Black Point	3		1 taken and tortured to death in 3-day siege.
May 19	York	6		1
May 23	Wells	1		1
June 13	Hampton	2	2 mortally wounded	

DATE	TOWN	KILLED	WOUNDED	CAPTURED
June 28	Black Point	40, plus 12 friendly Indians, in an ambush of relieving troops under Capt. Swett. Most survivors wounded.		
July 15	Eastward, 20 fishing ketches taken with their crews. All who resisted were killed. The crew of one ketch (of 5 taken near Cape Sable), took back their boat and sailed it to Marblehead, turning the two surviving Indians over to the townswomen, who tore them to pieces. Thirteen of the ketches siezed were from Salem. Andros, fearing that a foreign power would take advantage of the conflict to sieze the coastal resources, sent a garrison to Pemaquid, and pacified the region.			
Sept. 19 after Sept. 19	Hatfield, MA Deerfield MA	20 killed or captured		several captured

The total casualties for this war came to more than 330 killed in New Hampshire and Maine.

**Chronology of losses in Piscataqua area
& eastward in King William's War.²**

<u>DATE</u>	<u>TOWN</u>	<u>KILLED</u>	<u>WOUNDED</u>	<u>CAPTURED</u>
<u>1689</u>				
June 28	Dover	23	?	29
August	Oyster River, Hucking's fort destroyed	18	?	0
August	Andover, MA	2 (plus 4 at E. Andover)	?	0
Sept. 21	Falmouth, ME	11	10	
Sept. 26	Blue Point, Foxwell garrison attacked, 1 house, 1 shallop burned	2		
Oct.	Saco	2		1
<u>1690</u>				
February 2	Schenectady, NY	60	?	2
March 18	Salmon Falls, ME, Burned most of the houses, all mills except grist & tucking mills, killed most of cattle, burned much cloth.	27	?	52
May 16-20	Casco, ME	roughly 200 killed or captured, including 80 militia. Town completely wiped out.		
Aug. 22	York, ME	0	0	1
Aug. 22	Fox Pt. (Newington)	14	?	6
July 4	Lamprey River	8	?	1
July 5	Exeter	8	?	0
July 6	Wheelwright's Pond, (Lee, then Oyster River)	16	?	0
July 7	Amesbury, MA	3	?	0
summer	Maquoit, ME (head of Casco Bay)	1	1	0
Sept. 21	Maquoit	8	24	0
<u>1692</u>				
Jan. 25	York, ME only 4 houses withstood the attack	48	?	100
July 18	Lancaster, MA	6	1	0
Aug. 1	Billerica, MA	6	?	0
Sept. 28	Newichewannock, ME	2	?	0
Sept. 29	Sandy Beach (Rye)	21 killed or captured (Some have this in year 1691)		
<u>1693</u>				
May 10	Dover	1		
<u>1694</u>				
July 18	Oyster River 13 houses burned	48		46
July 21	Portsmouth	4	?	0
July 27	Groton, MA	22	13	0
Aug. 20	Spruce Creek & York, ME	5	?	
Aug. 24	Long Reach (Kittery, ME)	8 killed or captured		
Sept. 4	Pond Plain, MA (Haverhill -Amesbury)	2		

² Belknap, History of New Hampshire, vol. 1, pp. 144-5, and MEHS documentary history.

<u>DATE</u>	<u>TOWN</u>	<u>KILLED</u>	<u>WOUNDED</u>	<u>CAPTURED</u>
<u>1695</u>				
March 28	Saco Fort, ME	1	1	
July 6	Kittery ME		1	
July 7	York ME	1		
July	Exeter	2		
July	Lancaster, MA	1		
July	Haverhill, MA		2	
August 5	Billerica, MA	10	5	
August	Saco Fort, ME	1		
Sept. 9	Pemaquid, ME	4	6	
Oct. 7	Newbury, MA		1	9
<u>1696</u>				
May 7	Dover (vicinity)	1		
June 24	York, ME	2	1	
June 26	Sagamore Creek,	24	1	4
June 26	(Portsmouth)			
July 26	Dover	3	3	3
Summer	Pemaquid Fort reduced by Castine & Indians			
Aug. 13	Andover, MA	2		
Aug. 15	Haverhill, MA			5
Aug. 25	Oxford, MA	5		
Aug. 25	Sandy Beach (Rye)	1		
Aug. 27	Lubberland (Durham)	1		
Oct. 13	Saco Fort, ME	5	1	
<u>1697</u>				
March 15	Haverhill, MA	40 killed or captured, plus 14 more killed later that year.		
May 20	York, ME			1
May 20	Groton, MA	1		
June 10	Exeter	1	1	1
June 10	Salisbury, MA			2
July 4	Kittery, ME			
July 29	Dover	3	1	
Aug. 7	Saco Fort, ME	3		3
Sept. 9	Damariscotta, ME	12	12	
Sept. 11	Lancaster, MA	21	2	6
Nov. 15	Johnson's Creek (Durham)	1	1	
<u>1698</u>				
Feb. 22	Andover, MA	5		5
Feb	Haverhill, MA	2		2
May 9	Spruce Creek, ME	1		3
May 9	York, ME		1	

Total casualties in this war at least 488 killed.

Penhallow's chronology of losses. Queen Anne's War

<u>DATE</u>	<u>TOWN</u>	<u>KILLED</u>	<u>WOUNDED</u>	<u>CAPTURED</u>
<u>1703</u>				
Aug. 10	Wells	39 killed or captured		
Aug. 10	Cape Porpus destroyed (all fishermen)			
Aug. 10	Winter Harbor surrendered			
Aug. 10	Saco Fort	11		4
Aug. 10	Spurwink	22 killed or captured in Jordan family.		
Aug. 10	Scarborough besieged			
Aug. 10	Purpoosuck, ME	25		8
Aug.	Casco, , many houses	3		
	destroyed, 1 sloop & 2 shallops captured, 8-day siege.			
Aug.	Hampton NH	5		
Oct. 6	Black Point, survivors	19		
	forced to abandon fort by sea.			
Oct.	York	6		2
Autumn	Berwick	5		
Autumn	Casco	4 killed, 2 wounded on store ship as it entered the harbor.		
Autumn	Berwick, 2 houses	1	1	1 captive burned alive.
	burned, another besieged.			
<u>1704</u>				
Feb. 8	Haverhill	1 killed, several captured		
Feb. 29	Deerfield MA	60, 9 more killed in pursuit.		100
April 7	Indians came privateering in a shallop, which was cast away on Plymouth shore.			
April 25	Berwick	1		
April 26	Lamprey River	1		2
April	Wells	2	1	
May 13	North Hampton	several		several
May 15	Piscataqua, 550 men sail eastward, where 6 died in the expedition to Nova Scotia, but many settlements were destroyed.			
Spring	Oyster River		1	
Spring	Dover, ambush			
Spring	Casco fort	1		
Summer	Amesbury attacked			
Summer	Haverhill attacked			
Summer	Exeter attacked			
Aug. 11	Dover	1		1
Aug. 11	York	1		
Aug 12?	Oyster River	Several killed in their fields.		
Aug. 18	Newfoundland, French & Indians in 2 sloops destroyed St. Johns & 3 English vessels, killing 1 & wounding two in a vessel of 14 guns from Charlestown, Capt. Gill.			
<u>1705</u>				
Jan. 21	Newfoundland again attacked, nearly all settlements destroyed, all but a few soldiers in Fort at St. Johns killed or captured.			
Spring	Two vessels sent to destroy French fishery at Acadia.			
May 4	Capt. Hill, captured earlier at Wells, released from Montreal & brought news that there were 187 prisoners in Canada.			
Summer?	Spruce Creek	5		5

³ Samuel Penhallow, History of the Wars of New England with the Eastern Indians, (Boston: 1726, [1924 reprint]), pp. 5-84.

DATE	TOWN	KILLED	WOUNDED	CAPTURED
Summer?	Kittery?		2	
Summer?	Shallop taken from Piscataqua. Seacoast raided by Capt. Crepoa, who took seven vessels, besides a sloop, sending all but sloop (retaken at Richmond Is) to Port Royal.			
Summer		One Marblehead fisherman killed at Cape Sable.		
Oct. 15	Cape Neddick	2		2
<u>1706</u>				
April 27	Oyster River	8	2	
April 29	Kittery	1		1
July 1	Exeter	1 (Durham Hist., p. 77)		
July 3	Dunstable	several		
July 4	Amesbury	8		
July 5?	Kingston, cattle killed.			
July 5?	Dunstable area	1		1
July 8	Reading	4		14 (recovered)
July	Exeter	4	1	3
Aug. 10	Dover	1		1

Penhallow states that "The charge of the war was by this time so great, that every Indian we had killed or taken cost the country at least a thousand pounds." cite

1707

May 22	Oyster River			2
June 12	Groton	1		
June	Kittery	entire family		
July 8	Oyster River	2		
July	Exeter-Kingston	2		
July	Casco, Indians	3		2
	intercepted a fishing boat			
Aug. 10	York-Wells	4		
Aug.	Marlborough	2	2	
Aug.	Exeter	1		
Aug.	Kingston	1		
Autumn	Oyster River	9		
Sept. 21	Winter Harbor	1, took one shallop		
Sept.	Berwick	2		

Two regiments sailed to Port Royal, but failed to dislodge the French, losing 15 killed & 15 wounded in the skirmishes. cite

DATE	TOWN	KILLED	WOUNDED	CAPTURED
<u>1708</u>				
April 22	Wells			1
Aug. 29	Haverhill	40+ killed, many captured & rescued		
		20-30 houses burned (Hutchinson, vol. 2, p. 157)		
Autumn	Amesbury			1
Autumn	Brookfield			1
Autumn	Kittery	2		
<u>1709</u>				
April 12	Deerfield			1
May 6	Exeter			5
no date	Oyster River	1 killed (Annals of Portsmouth, p. 125)		
May	Scouting north	2 (1 roasted & eaten)		1
		1 lost & never found		
June 23	Deerfield	1	1	
Summer	Brookfield	2		
Summer	Wells	1		1

Note that the regulars were still armed with firelocks.⁴

<u>1710</u>				
July 20	Brookfield MA	6		
Sept. 18	New England-England Fleet embarked to reduce Canada.			
Sept. 24	Fleet arrived at Port Royal & began siege. 3 killed at start.			
Oct. 5	Port Royal surrendered.			
<u>1711</u>				
Spring	York	1		
June?	Port Royal	26		34
	logging party attacked ⁵			
July 22	Exeter (masting party)	3 (incl. Col. Hilton)		2
July 22	Kingston	2		2
Summer	Exeter	1		5
Summer	Conn.	4		
Summer	Marlborough	1		
Summer	Chelmsford		1 (mortally)	
Aug. 2	Winter Harbor	1		2
Aug.	Winter Harbor	3 (one skinned)		6
Autumn	Cochecho	1		
Winter	Winter Harbor			1, released

⁴ Ibid., p. 50.

⁵ *Boston Newsletter*, #376 quoted in Beck, Horace P., The American Indian as a Sea-Fighter in Colonial Times, (Mystic, CT: 1959), p. 47.

<u>DATE</u>	<u>TOWN</u>	<u>KILLED</u>	<u>WOUNDED</u>	<u>CAPTURED</u>
<u>1712</u>				
Winter	Coheco	4 (working in field)		
Spring?	York	1	1 (scalped)	
April 16	Exeter	1		
April 29	Wells	2 (killed while planting)		
April	York-Cape Neddick	1		
Spring	Coheco	1		
Spring	Wells, while working teams in the woods & fields.	3	3	
Spring	Wells			2 taken from the middle of town
Spring	Spruce Creek	1	1	
Spring	Oyster River, a mill & "a great many thousands of boards" burned three miles upriver.	1 killed		
Spring	Tole-End??	1	1	
May 14	York	1		7
June 1	Spruce Creek	1	2 (1 child scalped)	
June 3	Kingston	1 (tortured)	1	
June	Newichewannick	1		
July 18	Wells	1		
July	Dover	2 children beheaded		
Sept. 1	Dover?	1	1	
Sept.	Sloop from Placentia with 45 French & Indians taken on NH coast.			
Sept.	Cape Sable, 20 (fishermen or shallops?) taken			
Autumn	Wells (at a wedding)	3		several
Summer	Fleets sailed from Boston for Canada: 15 ships, 5,351 men, 890 cannon. Nine ships & 900 men driven ashore and lost. French & Indians then revolted around Port Royal (renamed Annapolis Royal) & killed several English, wounding others, & taking 34 prisoners			
<u>1713</u>				
July 13	Indians "submit" at Portsmouth. Owners of large tracts of land to the eastward began offering 100 acres to anyone who would go settle there. "...which gave so great encouragement that several towns began to be settled, as Brunswick, Topsham, Augusta, Georgetown, &c. In which a great many fine buildings were erected, with several sawmills."			
<u>1715</u>				
July	Nova Scotia, 4 Piscataqua sloops, 1 shallop taken			

Total New England casualties were at least 1,327 killed, including the 900 lost when ships in the Canada expedition went ashore.

Losses in Eastern settlements during Dummer's War.
According to Penhallow.:

<u>DATE</u>	<u>TOWN</u>	<u>KILLED</u>	<u>WOUNDED</u>	<u>CAPTURED</u>
<u>1720</u>				
	Indians, urged by French, refused to acknowledge English ownership of Kennebec lands, and in a conference with Penhallow at Padishall's Island opposite Arrowsic, gave the English three weeks to vacate the area or be killed, and their houses burned.			
<u>1722</u>				
June 13	Merry Meeting Bay (Kennebec)			9 families taken, all but 4 men set free
June	St. Georges, sloop burned.			several
July	St. Georges, fort besieged 12 days	5		
July	Damariscope Is., fishing boat attacked.			
July	Kennebec		1 from Salisbury found dismembered when Indians were surprised following a celebration.	
summer	Nova Scotia, fisheries interrupted, 16 vessels taken at Canso, most retaken over summer, with losses on both sides.			
Sept. 10	Arrowsic	1		
	26 houses burned, 50 cattle killed.			
Sept.	Kennebec		1 killed on his sloop	
Sept.	Richmond Is. besieged, no losses			
Autumn	Berwick	1		
<u>1723</u>				
Spring	Scarborough	5		3
Spring	Cocheco	2		3
Spring	Lamprey River	2		4
Spring	Northfield	2		
Spring	Rutland	3		2
Spring	Canso	2		
Oct. 13	Northfield, fort besieged.	2	2	
Oct.	Mt. Desert. Boat's company killed or taken.			
Dec. 25	St. George, garrison besieged 30 days			2
Winter	Berwick			1
<u>1724</u>				
April 17	Scarborough	1		2 boys taken while plowing fields.
April	Kennebunk		Sloop belonging to Lynn taken & whole crew killed.	
Spring	St. George, 2 whaleboats ambushed, several killed including a Capt. & grandson of Governor Winslow of Plymouth Plantation.			
Spring	Oyster River	1 (a church elder)		
Spring	Berwick	1	1 (his son)	
Spring	Portsmouth? many cattle killed.			3 taken driving cows to pasture
Spring	(Penhallow Garrison)			
Spring	Kingston		4	
May 24	Oyster River	2		
May 27	Perpoduck (ME)	1		1
May 27?	Saco	2		

° Penhallow, pp. 85-end.

DATE	TOWN	KILLED	WOUNDED	CAPTURED
May 27?	Chester			2 taken but escaped
Summer	?Moses Davis?	2		
Summer	Groton attacked, casualties not mentioned			
Summer	Deerfield	3		
June	eastward	22		23
	11 fishing vessels taken			
July	eastward	4 killed, several Ipswich fishing vessels taken.		
July 17	Spurwink	1		
July 1	Isles of Shoals? 2 shallops taken			
Summer	"The enemy...were now resolved to turn pirates, and accordingly intercepted several of our fishery as they went in and out the harbors for wood and water, or in case of storms, and accordingly made up a fleet of 50 canoes," which siezed 8 vessels at anchor in the Fox Islands (ME), killing 20 crewmen & keeping the other 20 to man the boats. Then reinforced by Indians from Cape Sable, they took another 14 vessels, and terrorized the coastal fisheries. They tried to burn the garrison at St. Georges using two shallops for fire-ships, but failed, and sailed to Annapolis Royal, which they besieged without taking, but inflicted losses on the English defenders. Chased into Penobscot by two well-armed shallops from Portsmouth, they resisted and wounded two of the English leaders.			
Summer	Rutland	3	1	1
Summer	Dover	1		
Summer	Oyster River	1		
Summer	Berwick	1		
August 12	Norridgewock sacked,	Father Rasles killed		
Summer	Dover	8 in 1 family (Quakers) killed or taken		
Sept. 4	Dunstable	2		
Sept. 5	Dunstable	9	4	
Sept.	Kingston	2 (father & son in field)		
Sept.	Northampton	1		
Sept.	Westfield	1 wounded		
	(all but 1 English gunmissed fire in defense) French governor at Montreal disclaimed responsibility for Indians, saying they were an independent nation, the British arguing that all Indians belonged either to England or to France.			
<u>1725</u>				
April 13	Maquoit (ME)			1, who killed both captors
April	Yarmouth	2 (brothers)		
April	Cape Porpus		1	
April	Canso	10		
May 8	Lovewell's Pond	15		several wounded
June	Nova Scotia, 5 fishing vessels taken with crews			
Sept. 15	Coheco	3		1
Sept.	North Yarmouth attacked, no losses			
Sept.	Damariscove, 2 shallops burned,			7 (1 killed later)
Sept. 28	Fort Dummer (CT River)	2		3
DATE	TOWN	KILLED	WOUNDED	CAPTURED

1726

Aug. 5 Peace treaty signed at Falmouth, Casco Bay.

Total casualties at least 150 killed.

**Casualties among eastern settlements during
King George's War and the Seven Years' War⁷**

<u>DATE</u>	<u>TOWN</u>	<u>KILLED</u>	<u>WOUNDED</u>	<u>CAPTURED</u>
<u>1747</u>	summer	Rochester, Pennacook, Suncook and Nottingham attacked.		
<u>1750</u>	Sept. 11	Richmond fort (Kennebec) attacked.		
	Sept. 24	New Marblehead attacked.		
	Sept.	Georgetown (Parker's Is. ME) attacked.		
	Autumn	Nova Scotia, attacks at Minas and Chignecto.		
<u>1757</u>		Matinicus	1	
	Aug. 9	Fort Wm. Henry	80	New Hampshire men killed.
	autumn	250 New Hampshire men sent to garrison Number Four.		
<u>1758</u>		800 New Hampshire men sent to garrisons, including 108 carpenters to Louisburg, where 92 contracted small-pox.		
<u>1759</u>		1,000 New Hampshire men sent to New York, under the brother of John Lovewell.		
<u>1760</u>		800 New Hampshire men sent to garrisons.		
<u>1761</u>	summer	Forest fire burned from Rochester and Barrington, on the Salmon Falls River, to York, on the Maine coast, lasting several weeks. "An immense quantity of the best timber was destroyed by this conflagration." ⁸ It is possible that this was an act of guerilla warfare. Total casualties at least 81 killed.		

Note that none of these totals is exact, for many records did not distinguish between killed and wounded, or simply recorded "several" or "all the members of one family" killed. Combat mortality in the principal masting towns between Piscataqua and Casco Bay was probably about 15 or 20 percent of the population for each war. On a few occasions losses in killed approached half of the population, and left the town devastated for years. The constant little losses in ambushes must have worn down morale even in the stronger towns; it certainly kept woodsmen out of the woods for months on end.

⁷ Compiled principally from Belknap's History and E. Hoyt, Esq., Antiquarian Researches, or Indian Wars. (Greenfield, Mass: 1824).

⁸ Belknap, vol. 1, p. 322.

APPENDIX F:

MAST PRICES AT PISCATAQUA OR PORTLAND 1664, 1686, 1699, 1769, 1775, 1791, 1802

The lists have been rearranged, presenting figures in a consistent order to facilitate comparison.

In 1664, (after Exeter Town Ordinance)

As noted previously, these prices are stumpage prices, and do not reflect the labor of felling, transporting or shaping the logs

Dec. 1, 1664

"The town having taken into consideration the worth of masts, and that every year they may be still of greater consequence, and that his majesty for his own shipping may cause some to be transported from hence, for the preservation of such timber as may make masts," ordered that John Folsom be authorized to mark such trees as he thought fit for masts; to impose a penalty of 20s on anyone felling a tree so marked; and to sell such trees for the benefit of the town, at the following prices: "for those of thirty inches diameter and upwards, 30s each; between thirty and twenty-four inches, 20s; between twenty-four and twenty inches, 10s." At this time masts required the length in yards to be equal to the diameter in inches.

<u>DIAMETER IN INCHES</u>	<u>LENGTH IN YARDS</u>	<u>VALUE IN LOG</u>
30 and up	30 and up	£2 10s (30s + 20s fine)
24-30	24-30	£2 (20s + 20s fine)
20-24	20-24	£1 10s (10s + 20s fine)

Spars brought out of Oyster River In 1686-87.¹

Aug. 9, 1686, records of the masting party of John Gerrish, of Oyster River. This gives no prices, but indicates the complexity of the operation.

<u>MASTS</u>	<u>BOWSPRITS</u>
1 of 37 inches diameter	2 of 36 inches diameter
2 of 36	1 of 34
2 of 35	2 of 33
4 of 34	1 of 32
2 of 33	2 of 31
4 of 32	2 of 30
4 of 31	2 of 26
<u>2 of 30</u>	<u>5 of 25</u>
23	17
	to my bid 114.

Note that there are two masts unaccounted for, probably of 29 inches or less, and that only 40 spars are specified, out of a total of 114. No doubt the balance was in smaller spars of less specific dimensions--perhaps yards, rather than masts and bowsprits.

The manuscript contains several accounts of tobacco and rum bought on Gerrish's account by 20 men in the field. They bought plug cut, roll, and loose tobacco, some of them in great quantities, and alcohol by the pint and quart. The men in the woods included at various times at least two negroes, "Black Will," who some years later was given 50 acres of land in Kittery, and "Sampson Negro."

JG paid for masting:²

to Magune	8: 6 money for one grindstone
to Dani??	for fish 3: 6 money
	to 1 bushel peas
	to 1 bushel peas
Arthur Short (Shurt?)	1 lb cut tobacco
	to 4 oxen 1 night at hayd?
	to 4 oxen 2 nights at hayd
	to hauling goods 4 oxen & 1 man
	1 day & 8 oxen W. P. hauling wood

¹ MEHS, coll 73.4. Elizabeth K Hobbs collection, Champenowne papers.

² Ibid., p. 4.

There are two lists of days worked per week (with individual weeks separated by colon), one in figures (below), one in strike marks, each denoted by (1). A question mark denotes unclear spelling.

Jno Dugby	6:6:6:5:5:3	
Jno Tomson	6:6:6:2:4:3	
Tho Davis	6:6:6:1:--	
Rich Maturin?	6:5:5:6:3:3	
Rich Millar	6:6:6:6:5:6	
Franc. Small	6:6:6:6:4:6	
Rich. Canny	6:5:6:3:6--	
Boni Cotton	6:6:6:5:6:-	
Ro. Evans Jr	6:6:6:5:--	
Trustram Hoel	5:1:-----	
Jno Russell?	6:6:6:5:6:6	
Jo Twombly	4?:6:1:6:--	
Will Arington	6:6?:1:----	
Charles Short?	5:6:3:-----	
Jno Cook	4:4:6:6:1:--	
Sam Connr?	6:4:-----	
Davis	6:6:5:6:6:--	
Blak Will	5:-----	
Sam Small	6:6:-----	
Sam Barton	6:1:-----	
Jno Dunking?	2:6:5:6:6:--	
Benj Nasson	3:6:6:-----	
Tho. Roberts	1:6:-----	
Joseph Roberts	1:6:-----	
Baker Nasson	1:-----	
Will Taylor	1:-----	
Joseph Jonkings	1:5:-----	(Jenkins ?)
ditto JJ on account	3:-----	
Jno Davis	1:-----	
his man	2:-----	
Henry Rice	2 is 4/6	
Jno Twombly	3:-----	

This indicates that 31 different men worked on one masting project for one to six days a week over a period of six weeks. One of the men was black, one was a servant, but it would appear that the others were local yeomen farmers. Joseph Jonkings must have been owed for 3 days work already.

Working from the other end of the booklet, there is an account of another masting party, perhaps in 1687, although the meaning of the first six lines is unclear:

my oxen clearing ways: 1 yoke	2:-----
Timber chains	
1 19 L h(aul?) King	
1 24 L.	
1 26 L	
1 17? L	

No.	MASTS		YARDS			BOWSPRITS		
	in dia	length	No.	in dia	length	No.	in dia	length
1	36	35 yds	1	23&1/2	34 yds	1	36	26 1/2
1	35	34 yds	1	23	33	1	35	25
1	34	33 yds	1	22&1/2	30	1	34	24 3/4
1	33	33 yds	18	21&1/2	29	1	33	24 1/2
2	32	32	21 total			1	32	24
3	31	31				1	31	23 1/2
4	30	30				1	30	23
3	29	29				2	29	23
2	28	28				9 total		
18 total								

1ST LIST OF OXEN SUPPLIED BY EACH MAN PER WEEK

Jo. Jonson	4:4:4:4:4:4:4:4:4
Ed. Small	2:2:2:2:2:2:2:2:2
Nath Hill	2:2:2:2:2:2:2:2:2
Jno Davis	2:2:2:2:2:2:2:2:2
James Davis	2:2:2:2:2:2:2:2:2
Ed Leathers	2:2:2:2:2:2:2:2:2
Doug? Davis	2:2:2:2:2:2:2:2:2
Joseph Meader	4:4:6:6:6:6:6:6:6
Jno Woodman	8:6:10:10:10:10:10:10:10
Thos & Phil Chesley	10:10:10:10:10:10:10:10:10
Barth. Stevenson	2:2:2:2:2:2:2:2:2
Will Taylor	4:
JG (Gerrish)	2:2:2:2:2

2ND LIST OF OXEN DAYS

(so labeled on next page. Because they follow sequentially in the booklet, and involve substantially the same teamsters, I assume that both lists of oxen/days represent just one of the annual masting projects)

Joseph Jonson	4:4:4:4:4:4:4:4:4
Ed Small	2:2:2:2:2:2:2:
Nath Hill	2:2:2:2:2:2:2:2:2
Jno Davis	2:2:2:2:2:2:2:
James Davis	2:2:2:2:2:2:2:2:2
Ed Leathers	2:2:2:2:2:2:2:2:2
Doug? Davis	2:2:2:2:2:2:2:2:2
Jno Woodman	10:10:10:10:10:10:10:10:10
Thos & Phil Chesley	10:10:9:9:8:10:10:10:10
Barth. Stevenson	2:2:2:2:2:2:2:2:2
Will Taylor? (Talbot?)	2:2:2:2:2
J.G.	2:2:2:2:2:2:2:2:2
Tho. Edgerly	2:2:2:2:2:2:2:2:2
Jno Dorry	2:2:
James Dorry	2:0:0:2
James Hagons	2:2:2:2:
Hen. Rice	2:
Jer. Burnam	4:4:4:4:4:4:4:4:4

DAYS WORKED, COLON REPRESENTS DAYS ABSENT (APPARENTLY)

??? Evans	11111:111::1111111111:
Jno Wood Jr	1111 11::111:1:::
Jona. Woodman	11111:11111 1:111111111
Samson Negro	11111:11111 1111111111
Doug Dorry	11111:11111 111:11::
James Davis	11111:1111111111111111
Jos. Modor	11111:111111:::
Jno Davis man	1111:1::111111111111::
Jermy?berts	11111:1111111111111111
Joseph Twombly	11111:11111111:111111
Jose Junkings	11111:11:::
Ed Lethers	11111(boy, in superscript):11111 1111111111
Nath Hill	11111:1111111111111111
Joseph Jons.	1111111:1111111 11111111111111
Tho Chesley	11111:111111111111111
Bar. Stevenson	11:1111:11111111111111
George Chesley	111:1:111111111111111
Mark Boys	111:111111111111111111
Jno Russell	1:11:1111111111111111
Will Talbot	11:1:1::11 11111111
Joseph Pitman	11111:
Jeremy Burnam	111111111
James Dorry	1:::1:
Ed Small	1
Phill Coverly?	1

From these lists we may conclude that the masting party kept oxen in the woods for twenty days. Masting may well have been a significant source of additional income for many yeoman farmers who could take their oxen away from the farm for awhile. Some men worked their own oxen all twenty days, while others worked only a day or two. The greatest number of oxen working on any one day was 56, while some days as few as 38 oxen were used. A few men apparently had several teams of oxen, and may have counted on the oxen for a substantial part of their income, so their oxen were their working capital. Thomas Chesley, for instance, who with his brother Philip contributed 10 oxen nearly every day, left an estate that was valued at £195:10:00.³ Jonathan Woodman, who had brought ten oxen, left an estate to his son that included "lands, mills, meadows and marshes." John Gerrish, the masting contractor, contributed only two oxen, but in 1704 he left an estate valued at £2,055:05:00, including a mill on the Bellamy River, land, cattle, Negro slaves, white servants, and sufficient timber for two of his sons to pay their mother an allowance of 8-9,000 feet of pine boards for the rest of her life. The frequency with which these men's names occur together in official records suggests that they worked together on a regular basis.

We may also conclude that each masting party included several men who worked from 1 to 35 days each without their own oxen. In each group there was

³ NHHS, vol. xxxi, Probate Records, vol. 1, pp. 434-6.

one Negro, in one group there was a servant, and Ed Leathers' son worked for a few days in one group, perhaps helping his father with the oxen. The total production of both groups was 162 spars, but perhaps one year they still hadn't filled their order, for another entry states: "masts yett wantin: 1—36, 1—35, 1—31, 2—30, 1—29, one bowsprit: 29."

Spar Prices, Portsmouth, In 1699.⁴

The Humble Proposall of William Partridge Lieut Governour of your Majties Province of New Hampshire and Benjamin Jackson.

Most Humbly Sheweth That if your Majestie will be graciously pleased to Employ the Proposers to Supply your Royal MTo the Kings most Excellent Majestie in Council (M)ajes(ties) Navall Stores from New England according to their Peticon herewith most Humbly Presented to your Majestie they can Provide Masts Yards & Bowsprits and all sorts of ship timber and plank fitt for your Majesties Service and as much as shall be required at the Following Prices Current money of England and to be paid there.

vizt.

MASTS			BOW-SPRITS			YARDS	
dia. in.	Lyds	Price£	dia. in.	L. yds	price£	L feet	price£
36	35	85	37	27	58	103	50
35	34	68	36	26	48	102	46
34	33.5	56	35	25	40	101	43
33	33	49	34	24 $\frac{1}{2}$	36	100	40
32	32	39	33	24 $\frac{1}{4}$	32	99	35
31	31	35	32	24	29	96	30
30	30	30	31	23 $\frac{1}{2}$	26	93	25
29	29	28	30	23	22	90	20
28	28	23	29	22.5	19	85	18
27	27	20	28	22	18	80	17
26	26	16	27	22	15	75	14

All sorts of ship timber and plank. Vizt. Oak plank of 4, 3, 2.5, 1.5, 2 inches thick. Knees, Standards, Futtocks, Treenails, Beames, and all sorts of Compass Timber at £2 10s per load. 50 feet to the load. Pine plank of 3, 2.5, 2, 1.5, 1.25, 1 Inches thick at 40s per load. Clamps at £8 per foot and Rafters at £2 per foot.

Staves of all sorts. Vizt. White oak pipe-£4, hogshead-£2, Barrell-£1 10s per 1,000. Red oak staves---pipe-£3, Hogshead £1 10s, Barrell-£1 per 1,000.

And if your Majestie will be pleased to order the building of Men of War, or Transport Ships, they may be filled full of masts and other stores and sent home Yearly. And we can build Such Ships of War as your Majestie will please to order at the following Prices, Vizt. A Third Rate at £11 per tonn, a Fourth Rate at £8 10s and a Fifth Rate at £7 10s per tonn.

As to payment for the Aforesaid Stores and Ships we desire one-third part down, one-third six months after and the remaining one-third thirty days after the said ships and stores shall be delivered in some part of England as shall be appoynted by the Principall officers and Commissioners of your Majesties Royall Navy.

Portsmouth on Piscataqua River
September 25, 1699

(signed) Wm Partridge
Benjamin Jackson

⁴ Mss Proposal to sell ship timber & masts to the British Royal Navy, in Portsmouth Athenaeum collection.

Spar prices at Portland. Sept. 5. 1769.⁵

Memorandum of agreement made & concluded upon by & between Edmund Wendell, of Portsmouth in the Province of New Hampshire, Mercht. of the one part, & John Johnson, James Johnson, David Small, William Lamb, William Porterfield, Jesse Partridge & William Webb of Falmouth and Richard Mayberry of Windham, all of the county of Cumberland of Province of Massachusetts Bay, Yeomen of the other part Witnesseth:

That the said John Johnson, James Johnson, David Small, William Lamb, Willm Porterfield, Jesse Partridge, Wm Webb & Richard Mayberry for themselves & their respective heirs, executors, administrators & assigns, do hereby covenant, promise and agree & with the said Edm. Wendell, his executors, administrators & assigns, to procure & deliver him or them, at the common & usual place of delivery at Falmouth aforesaid, on or before the thirtieth day of July, next ensuing, for the date hereof, the following number & sizes of masts, yards & bowsprits, to be sound & good fit for his Majesty's use, as shall be esteemed by him the said Edmund Wendell, or by any other person the sd Edmund Wendell shall think proper to appoint to receive such masts, etc, & to be hewed into their sixteen squares, viz:

<u>MASTS</u>				<u>BOWSPRITS</u>				<u>YARDS</u>			
#	D. in.	Lyds	Price£	#	D.in.	Lyds	Price£	#	D. in.	L. yds	Price£
2	32	32	44:16s	1	35	231/2	34:00s	1	24	34	25:12s
2	31	31	35:04s	3	34	23	32:00s	1	23	32	20:08s
6	30	30	28:00s	3	32	211/2	23:04s	2	22	31	16:16s
10	29	29	22:08s	2	30	201/2	16:00s	1	20	28	11:12s
6	28	29	18:08s	9 bowsprits				5 yards			
6	27	29	14:08s								
4	26	28	12:16s								
36 masts											

We the said parties do further agree that the above stipulated pieces are to be paid for each & every such mast, yard & bowsprit that on delivery shall be found fit for his Majesty's use, in cash, unless we should have occasion of supplies, in which case we agree to take of said Edmund Wendell (if he inclines to supply) etc. etc... (signed by all)

⁵ MEHS, Coll. S=1240, Misc box 59/4. Johnson Family Papers, 1736-1774.

Spar Prices Under the Old Contract for the British Navy. Prior to Revolutionary War, 1775⁶

<u>MASTS</u>		<u>BOWSPRITS</u>		<u>YARDS</u>	
inches	Price £	inches	Price £	inches	Price£
32	74:13:04	34	53:06:08	24	42:13:04
31	59:14:08	33	42:13:04	23	34:00:00
30	46:13:04	32	34:13:04	22	28:00:00
29	37:06:08	31	28:00:00	21	24:13:04
28	30:13:04	30	20:00:00	20	19:06:08
27	24:00:00	29	10:16:00	19	16:00:00
26	21:06:08	28	08:18:08	18	12:00:00
25	18:08:00	27	08:13:04	17	09:12:00
24	14:08:00	26	07:06:08	16	09:00:00
23	12:00:00			15	04:10:00
22	10:00:00				
21	08:13:04				
20	06:00:00				

° Saltonstall, p. 60. From Langdon Papers, NHHS.

Prices Current at Piscataqua Before the Revolution

I have obtained from the books of the late contractor, Mark Hunking Wentworth, Esq., deceased, the following account of the size and value of such sticks as he sent to England for the use of the navy.⁷

<u>MASTS</u>		<u>YARDS</u>		<u>BOWSPRITS</u>	
dia. inches	value £:s	dia. inches	value £:s	dia. inches	value £:s
25	13:08	15		25	2:10
26	16:00	16		26	3:00
27	18:00	17	6:10	27	3:14
28	23:00	18	9:00	28	8:02
29	28:00	19	11 :04	29	15:00
30	35:10	20	14:10	30	21:00
31	44:00	21	18:10	31	26:00
32	56:00	22	21:00	32	29:00
33	70:00	23	25:10	33	32:00
34	90:00	24	32:00	34	40:00
		35	42:10		
		36	45:		
		37	52:10		

It must be observed, that all these were hewn into the proper shape before the final dimensions were taken, which determined their value.

⁷ Belknap, Jeremy, History of New Hampshire, vol. 3. pp. 80-1.

Prices Current at Piscataqua, A.D. 1791⁸

PINE MASTS		PINE BOWSPRITS		SPRUCE AND PINE YARDS	
HEWN		HEWN 8 SIDES		HEWN 8 SIDES	
inches	price, £	inches	price, £	inches	price, £:s
36	147	38	64	pine	
35	117	37	56	24	34:00
34	96	36	48	23	27:00
33	75	35	44	22	23:00
32	60	34	42	21	20:00
31	47	33	32	20	16:00
30	38	32	31	19	12:00
29	30	31	27	18	9:10
28	25	30	21	17	8:00
27	20	29	16	16	6:00
26	17	28	9	spruce	
25	14	27	7	15	1:10
24	12	26	6	14	1:08
23	10	25		13	1:06
22	09	& below @ 3s/ inch		12	1:04
21	08			11	1:02
20	06			10	1:00
& below @ 6s/ inch				9	0:18

Timber

Quality, dimensions, price

Oak from 15 to 50' long, 10-21" square

Each forty cubic feet

White Oak.....20s-24s

Red Oak.....12s

Black Oak.....16s-18s

Maple.....20s

Beech.....16s

Black Birch.....16s-18s

White pine.....12s-13s

Oak ship timber measured at the end of the arm.....01s per inch.

⁸ Ibid., p. 164-5.

And 11 years later, in 1802

Value of masts shipped from Piscataqua to India 1802, derived from cargo manifest of Ship *St. Cuthbert*, Michael Hooker, master, James Sheafe & Matthew Marsh, merchants.⁹

<u>MASTS</u>			<u>BOWSPRITS</u>			<u>YARDS</u>		
Dia. inches	rate	dollar value	dia. inches	rate	dollar value	dia. inches	rate	dollar value
24	@ \$2.50/in	60.00	20	@ \$1.25/in	25.00	varied	@ \$1.00/in	
22	@ \$2.00/in	44.00	17	@ \$1.00/in	17.00			
20	@ \$2.00/in	40.00	16	@ \$1.00/in	16.00			
19	@ \$2.00/in	38.00	15	@ \$1.00/in	15.00			
18	@ \$1.50/in	27.00						
17	@ \$1.50/in	25.50						
15	@ \$1.25/in	18.75						
14	@ \$1.25/in	17.50						
13	@ \$1.25/in	16.25						
12	@ \$1.00/in	12.00						

It must be observed, that all these were hewn to eight sides before the final dimensions were taken which determined their value. Hewing a spar probably removed 4-6 inches of the original diameter, taking all of the sap-wood.

Hewing charges for 32 masts from 12-24 inches in diameter, 5 bowsprits from 15-20 inches in diameter, and 62 assorted spars:

total 99 sticks, came to \$112.40.

Oak plank: @ \$50.00 per thousand feet.

Pine plank: ditto.

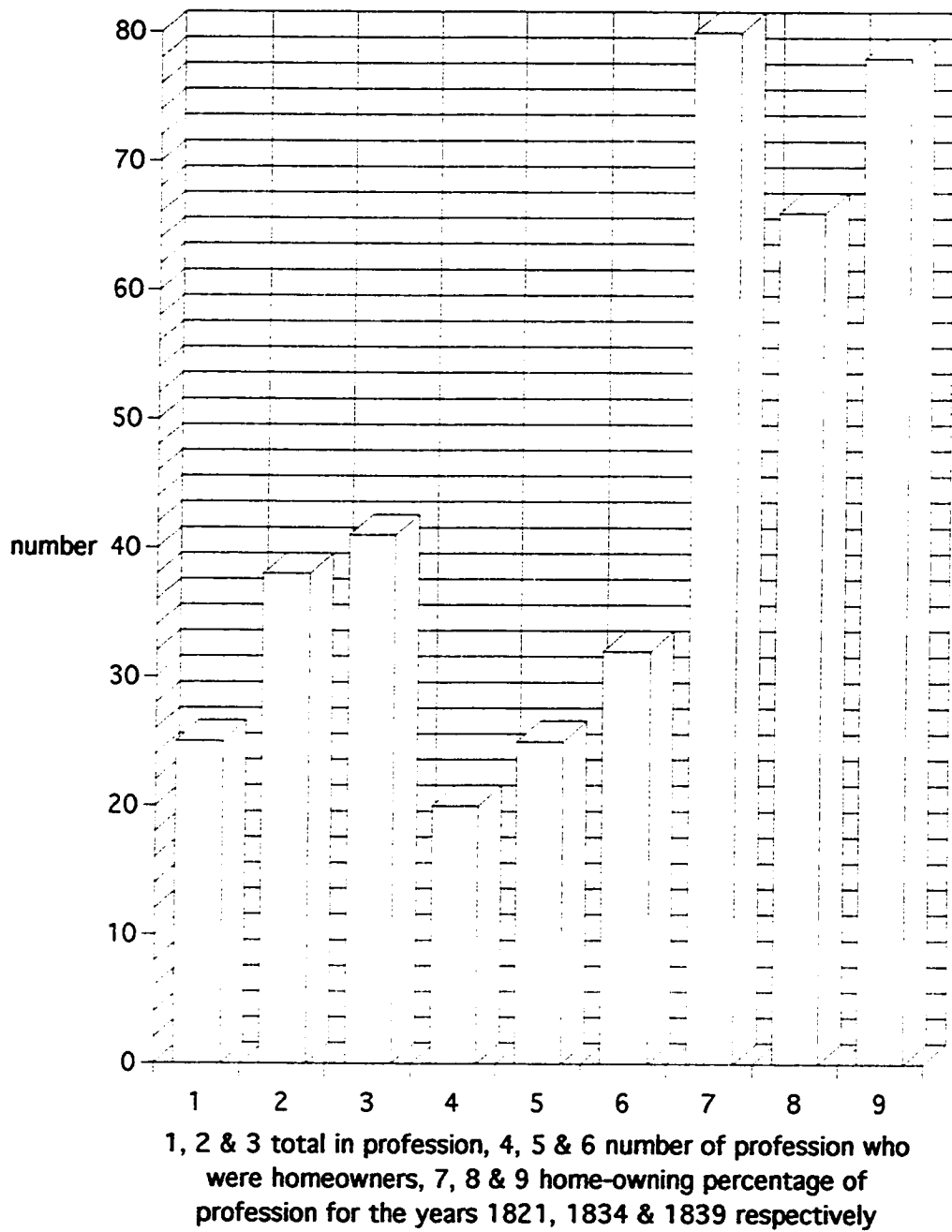
⁹ NHHS collections, Sheafe-Marsh Papers.

APPENDIX G

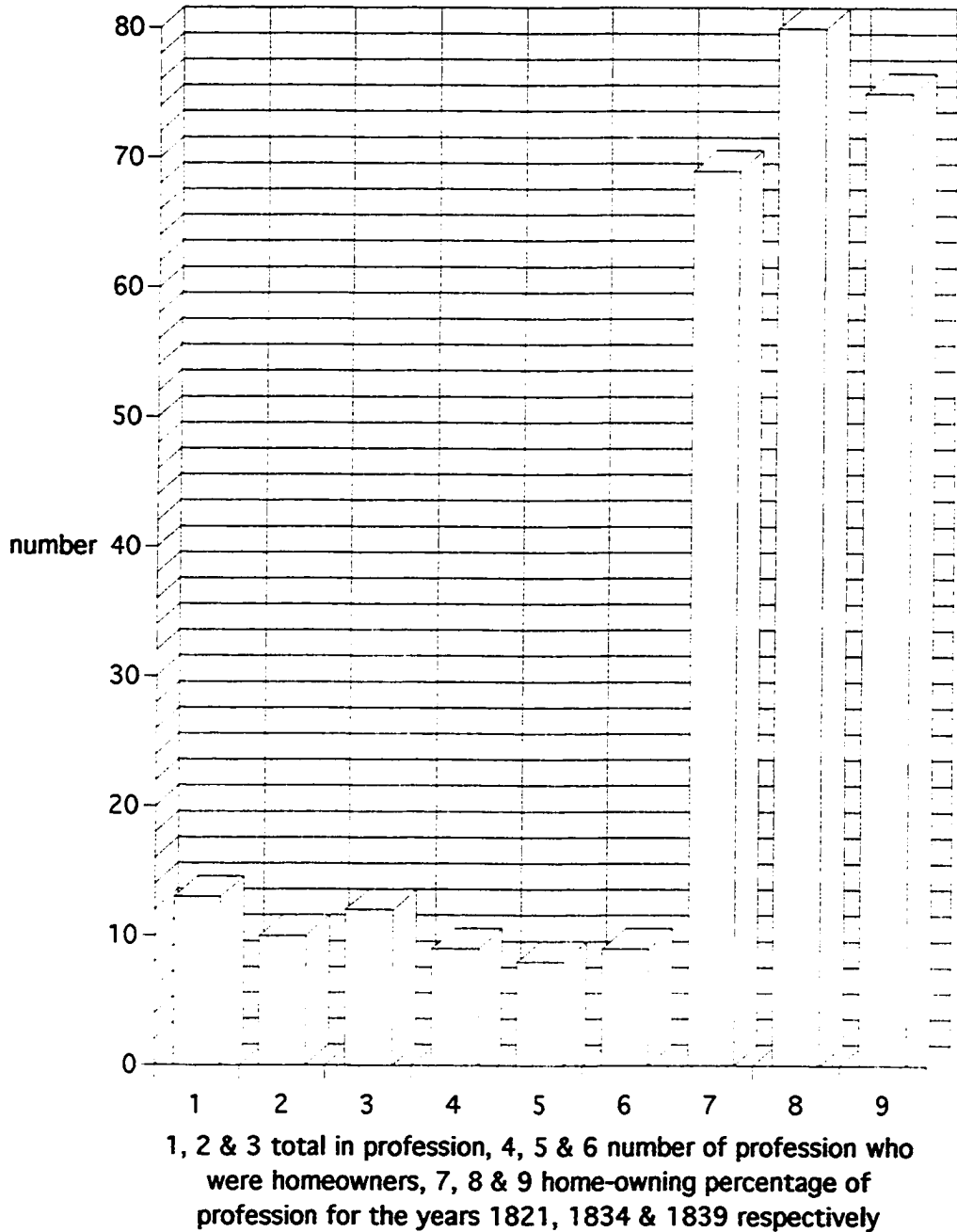
The following charts were compiled by counting the persons listed in each profession in the Portsmouth directories for 1821, 1834 and 1839, counting the number of them in each directory who were listed as owning their own homes, and then taking the second number as a percentage of the first, for each year's directory.¹

¹ Data above and in Appendix G compiled from Wibird Penhallow's Portsmouth Directory of 1821, Nathaniel March & Co.'s Portsmouth Directory of 1834, and Joseph Edmonds' Portsmouth Directory of 1839, all in the collections of the Portsmouth Athenaeum.

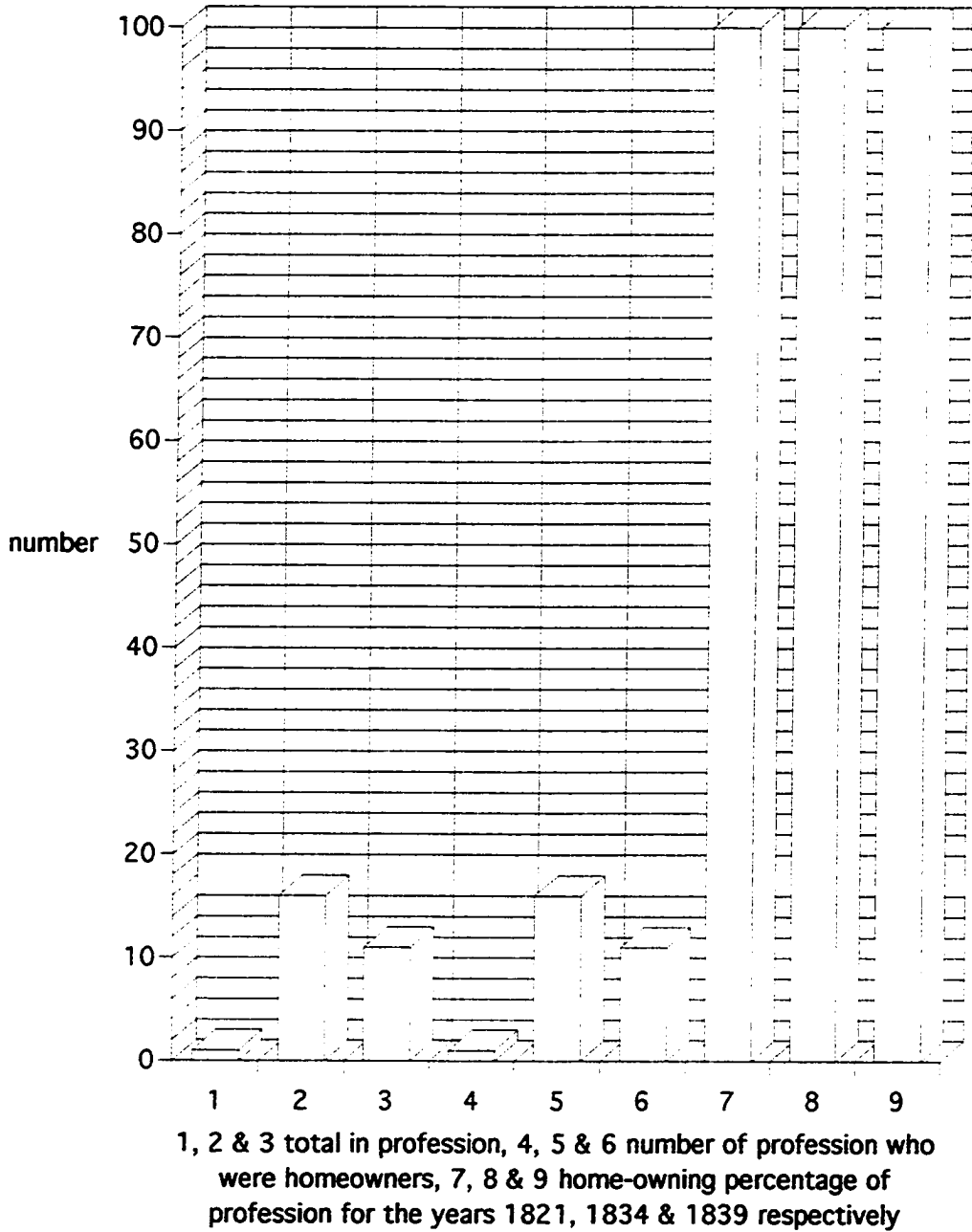
blacksmiths



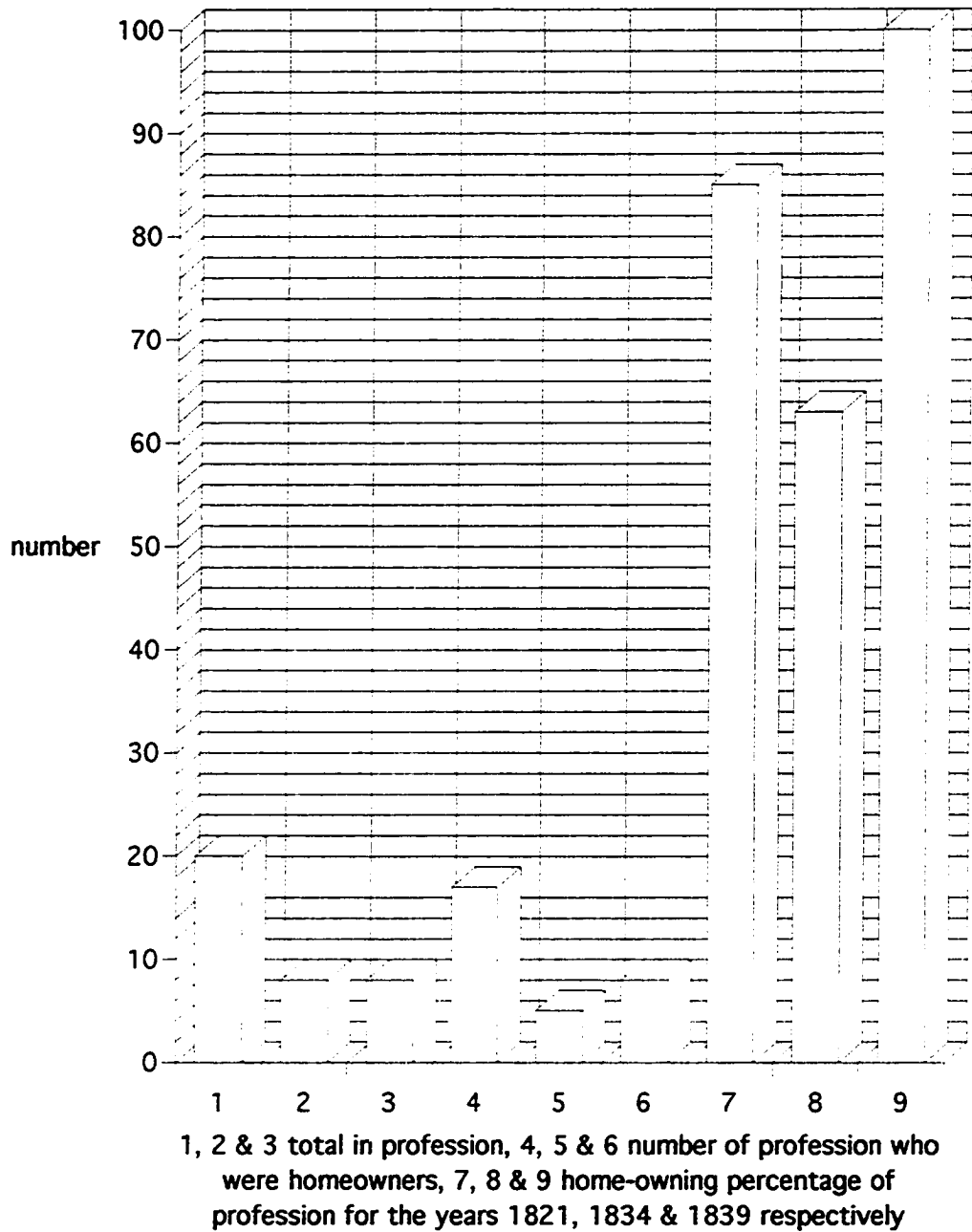
blockmakers



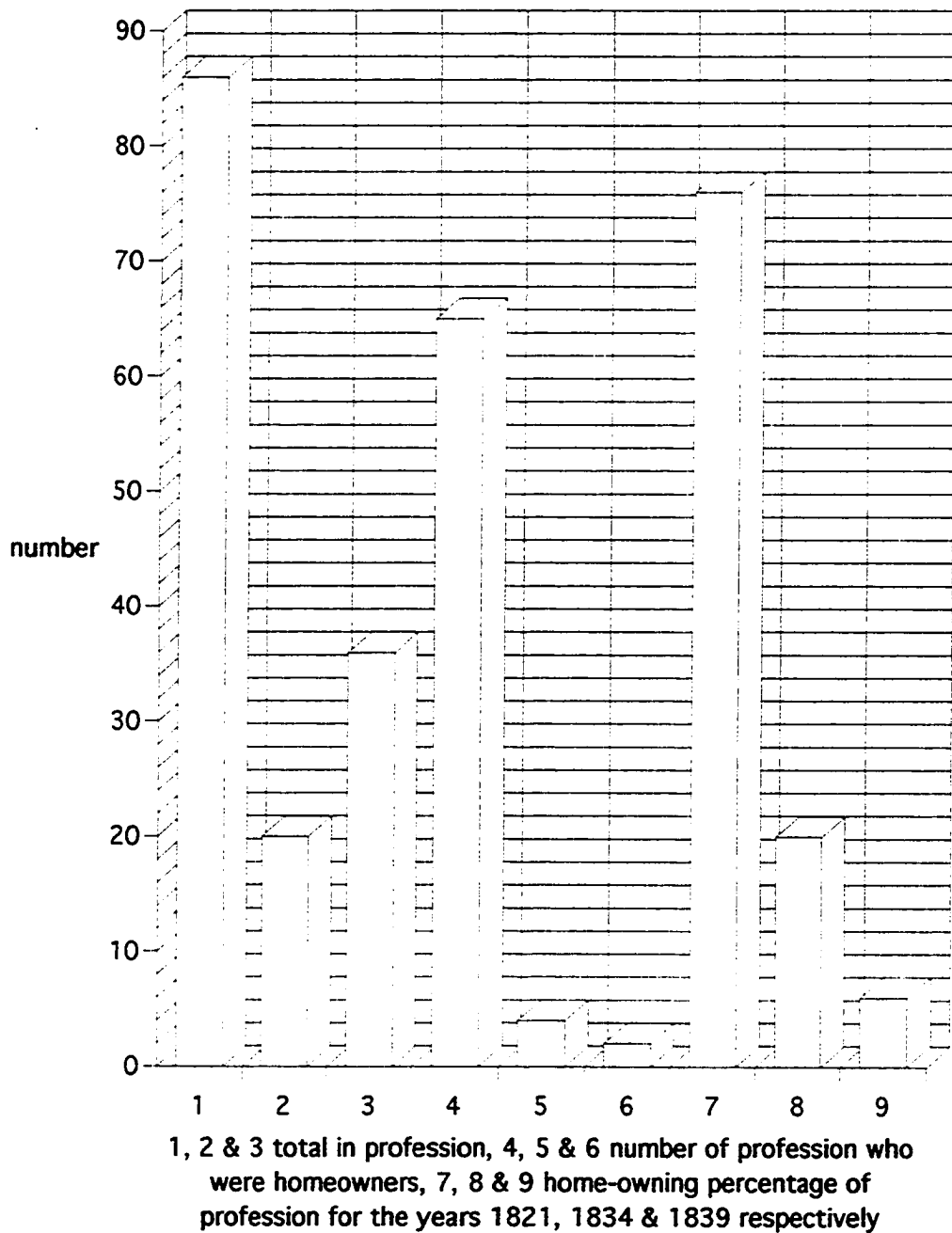
Boardinghouse Owners



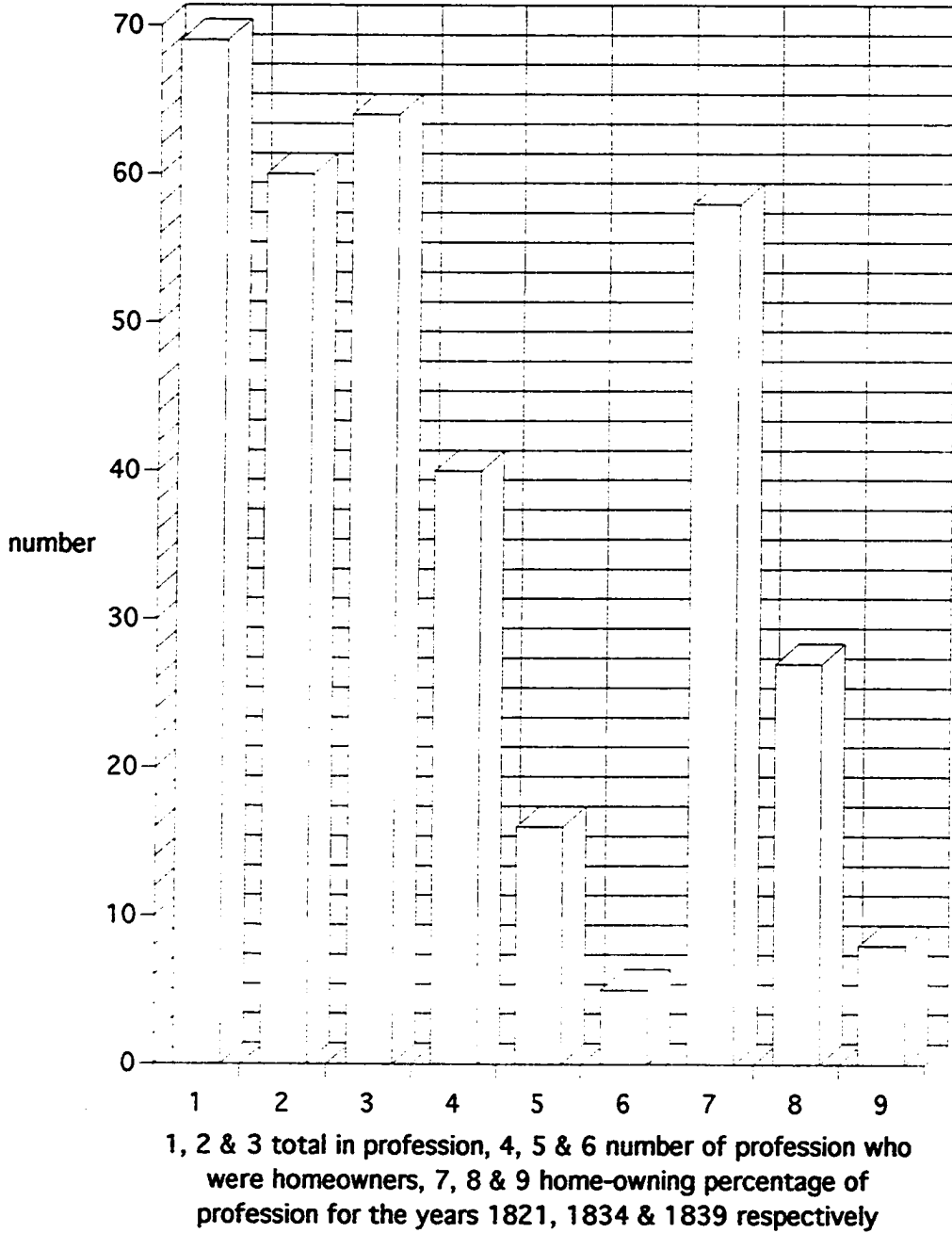
boatbuilders



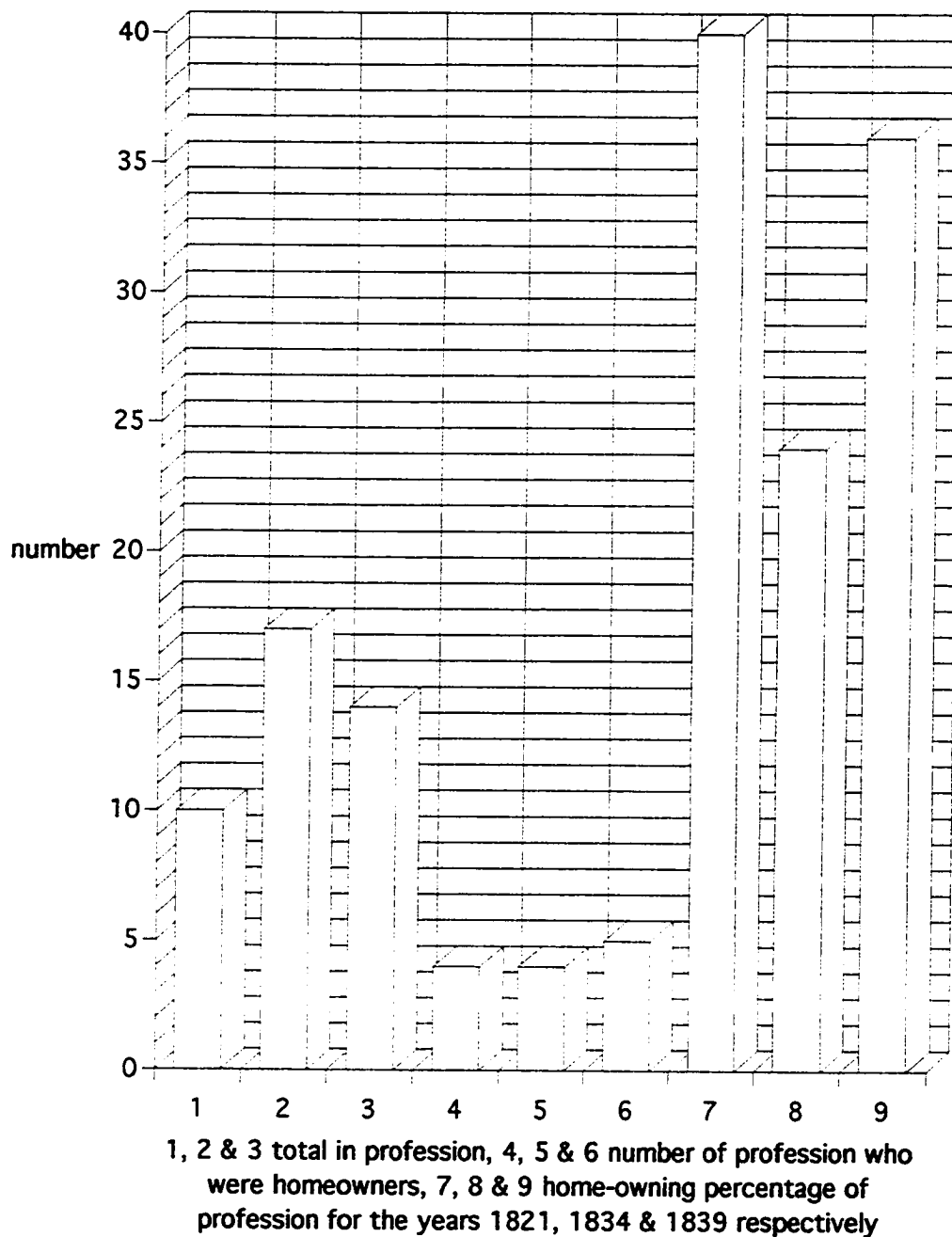
captain/packetmaster



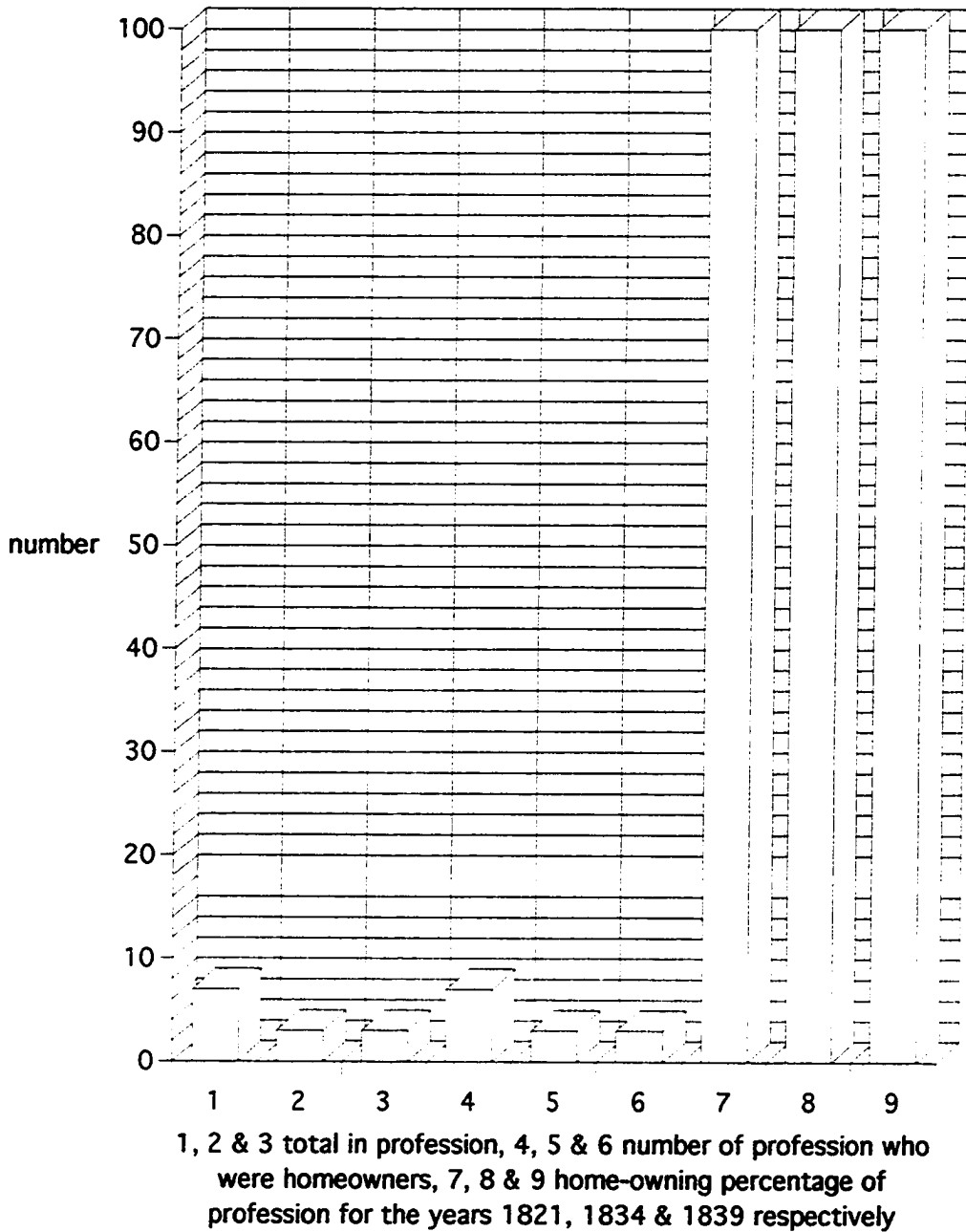
captain/shipmaster



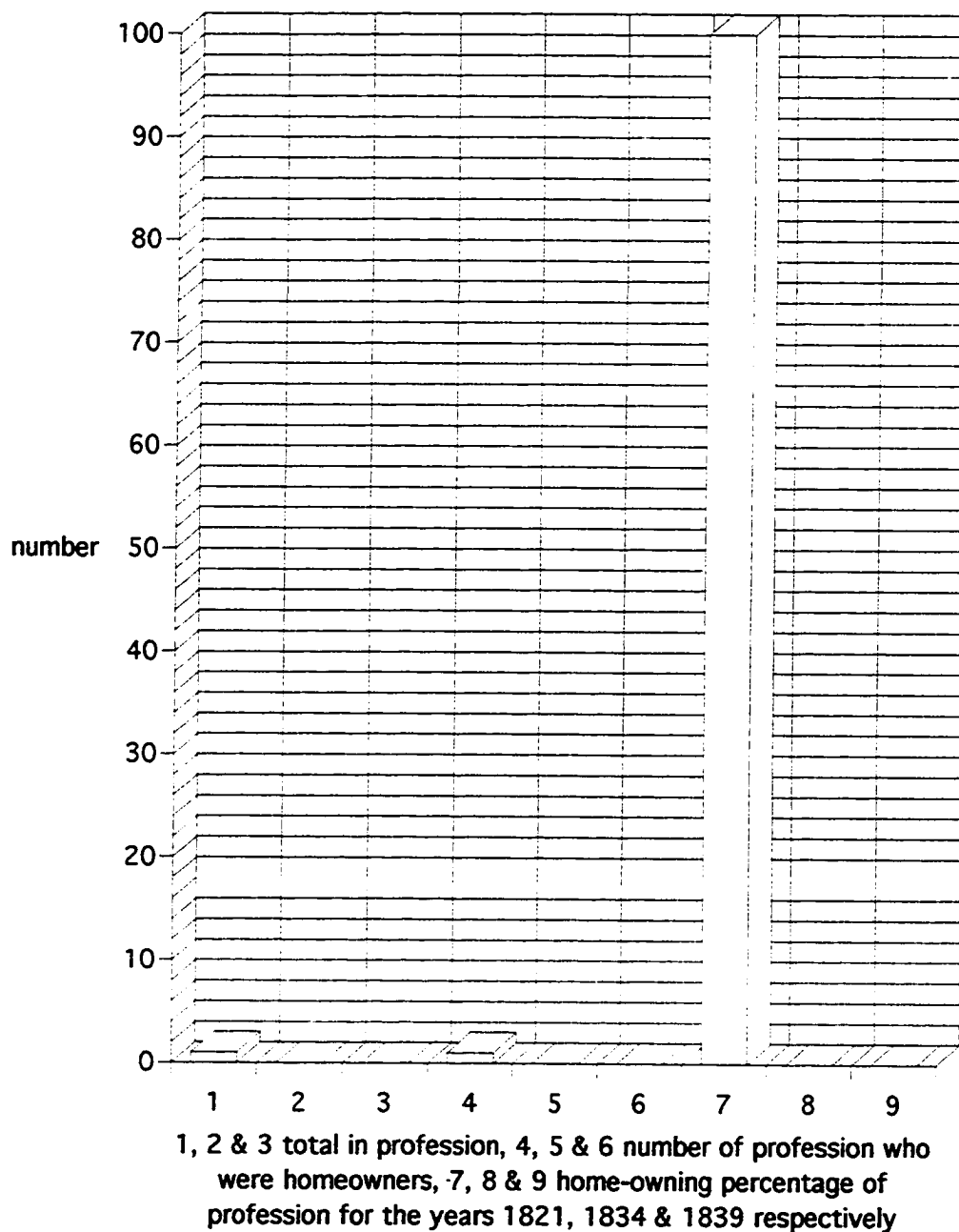
caulkers



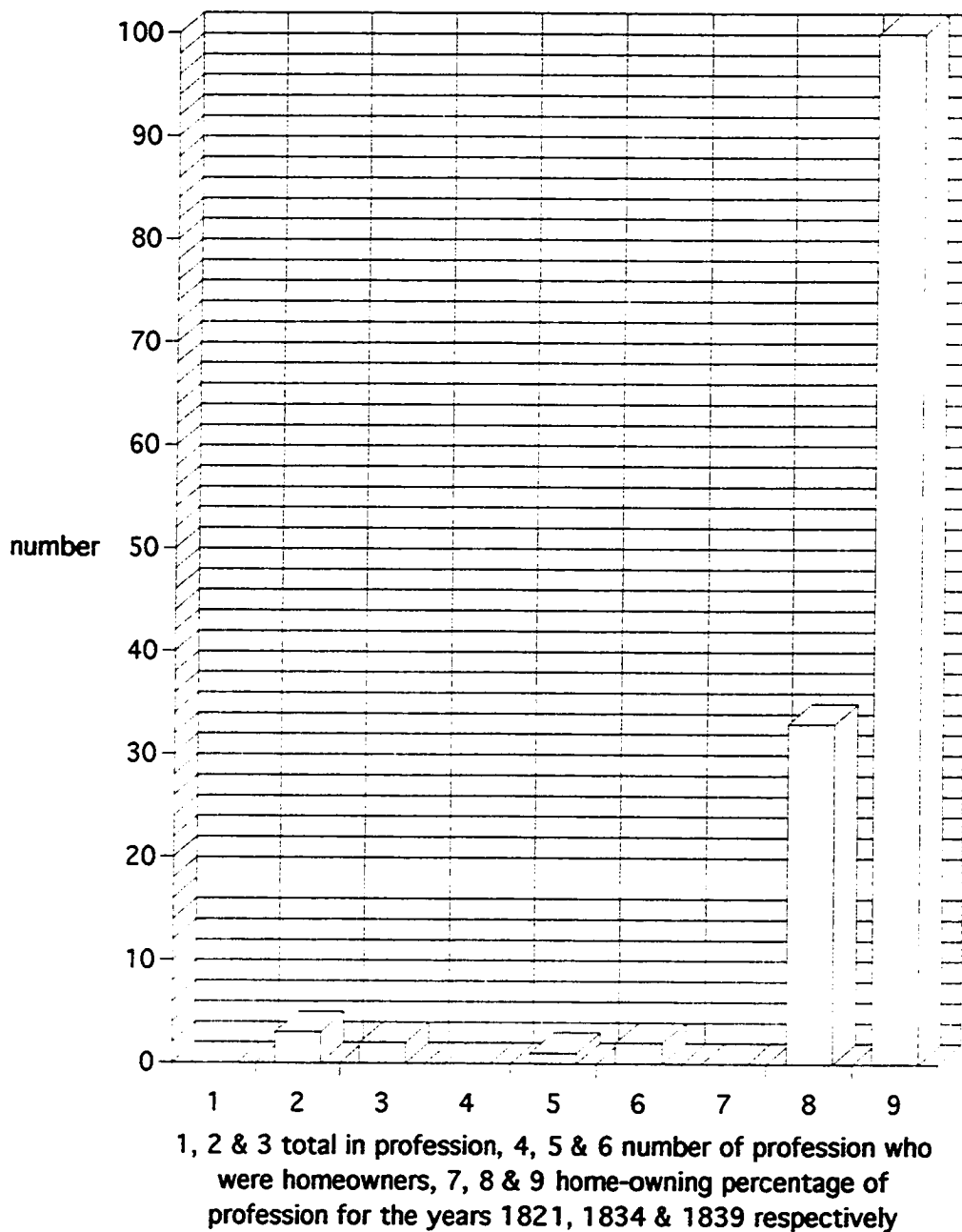
Distillers



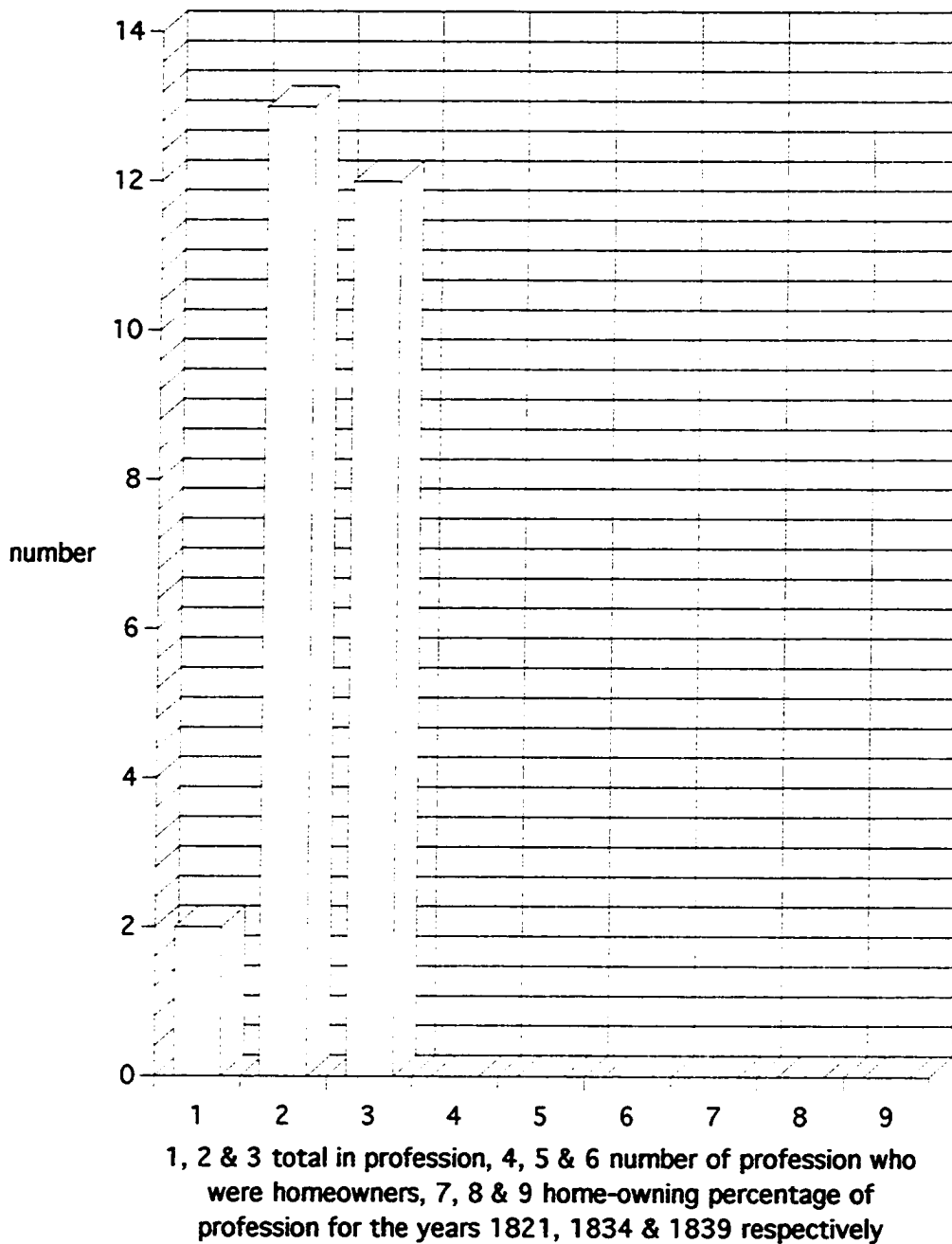
ferryman



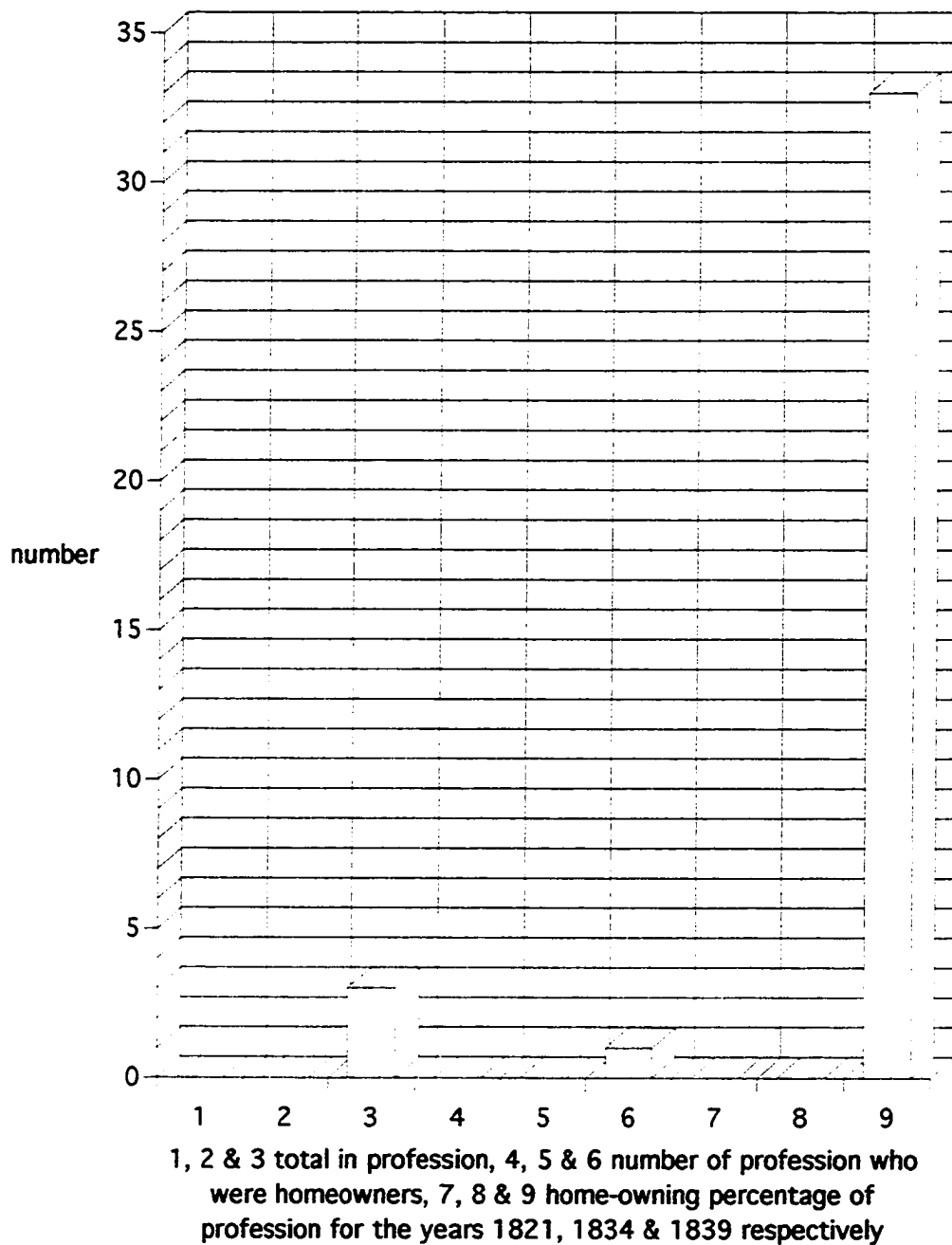
Fish Mongers



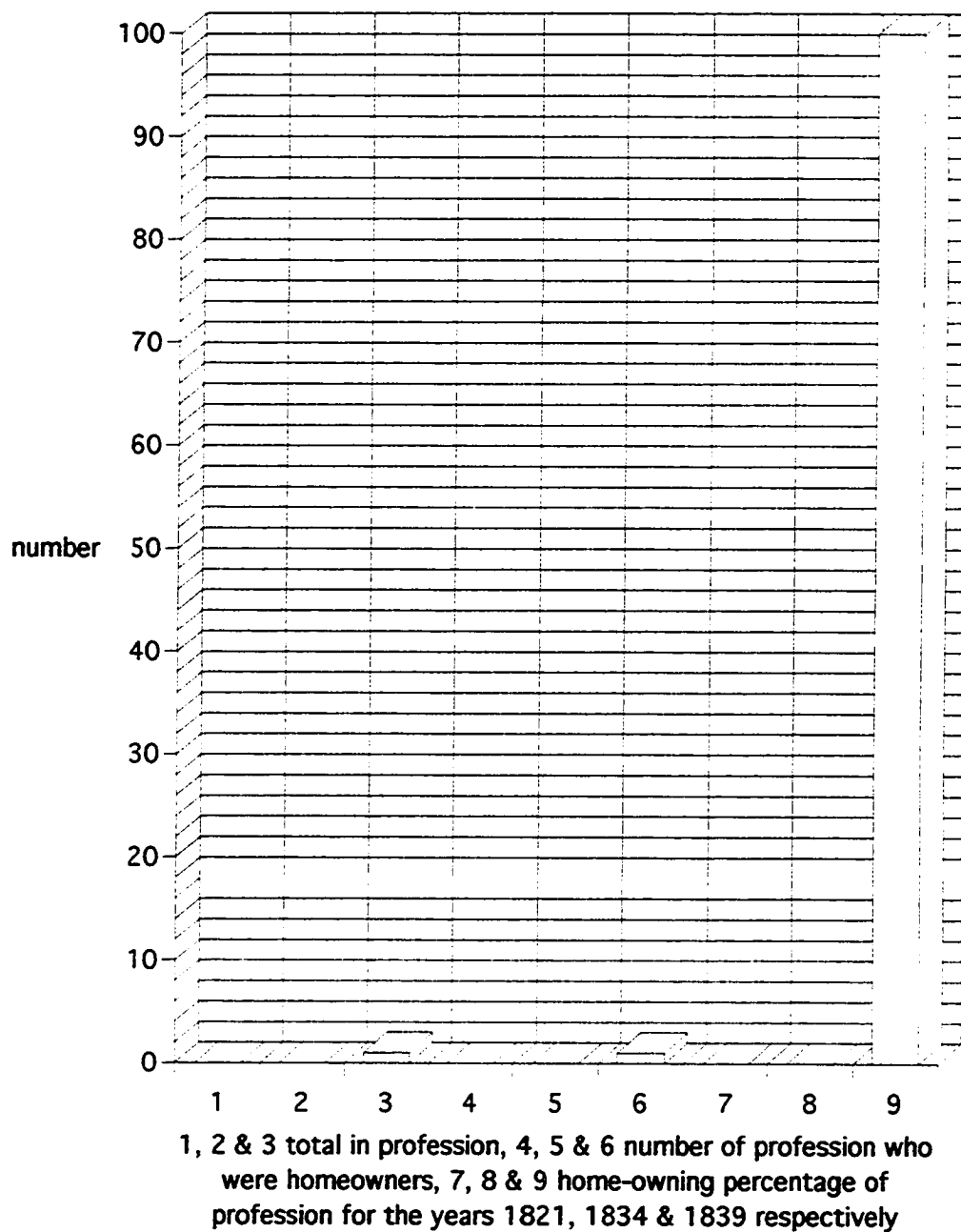
fishermen



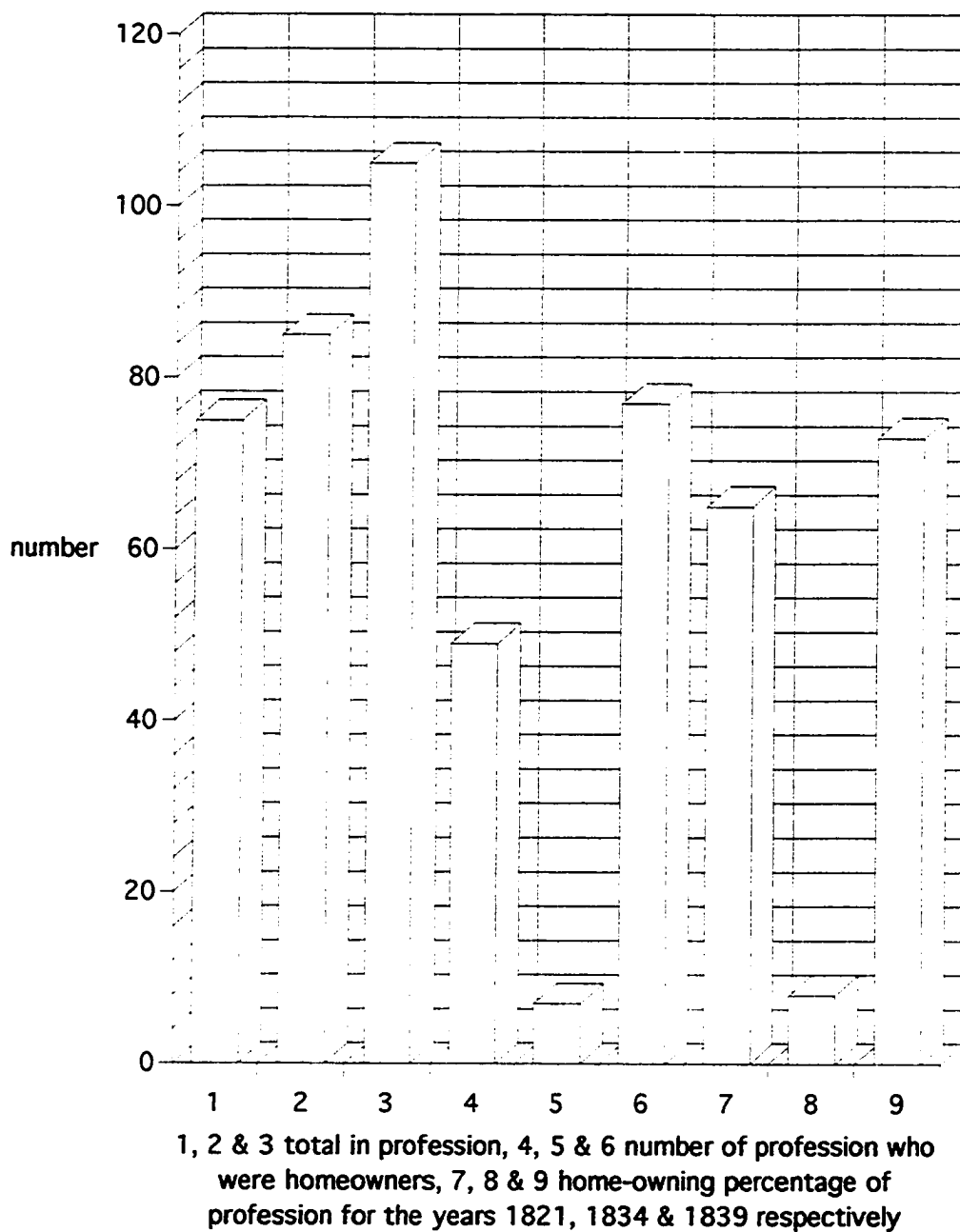
gundalowmen



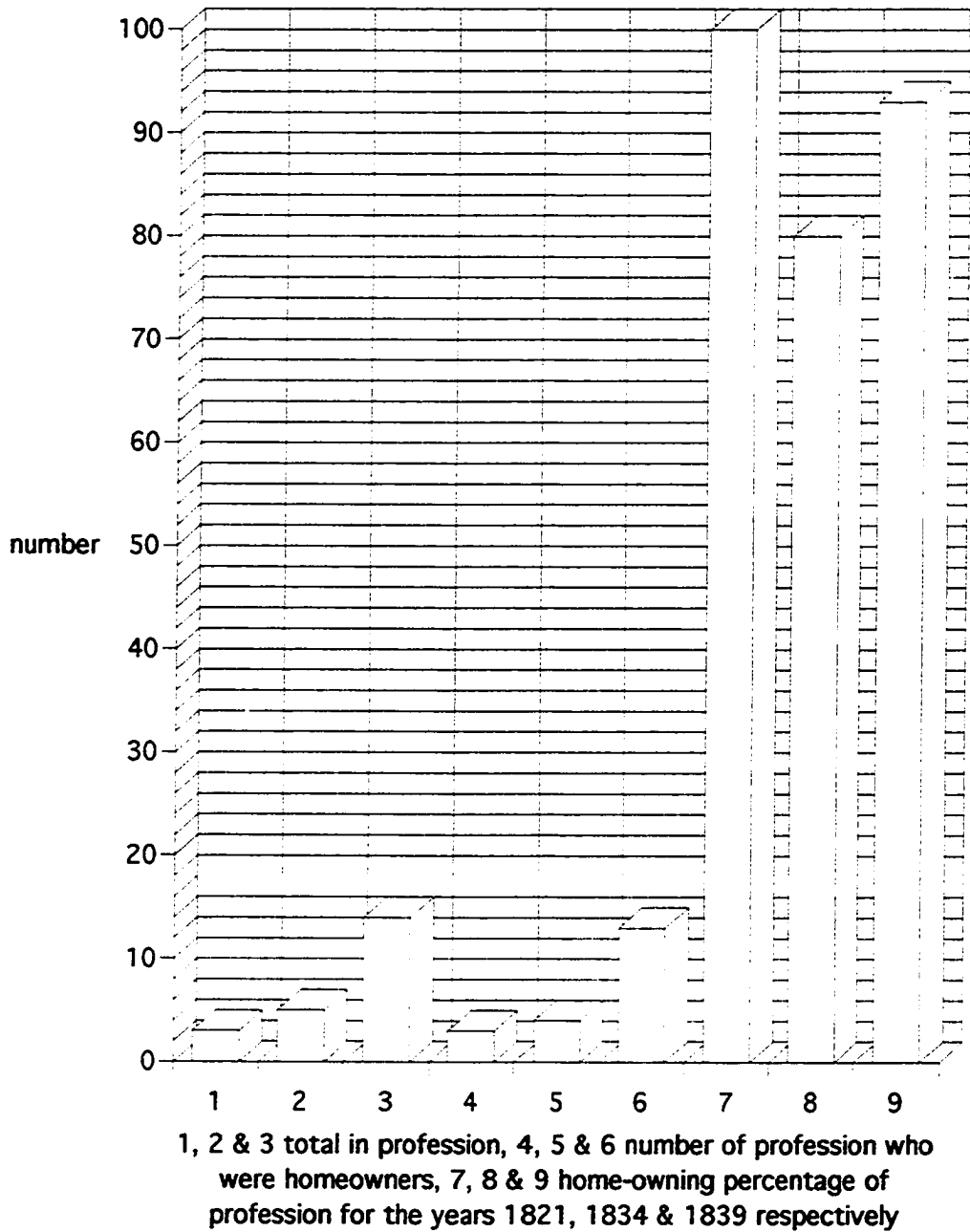
Inspectors of Fish



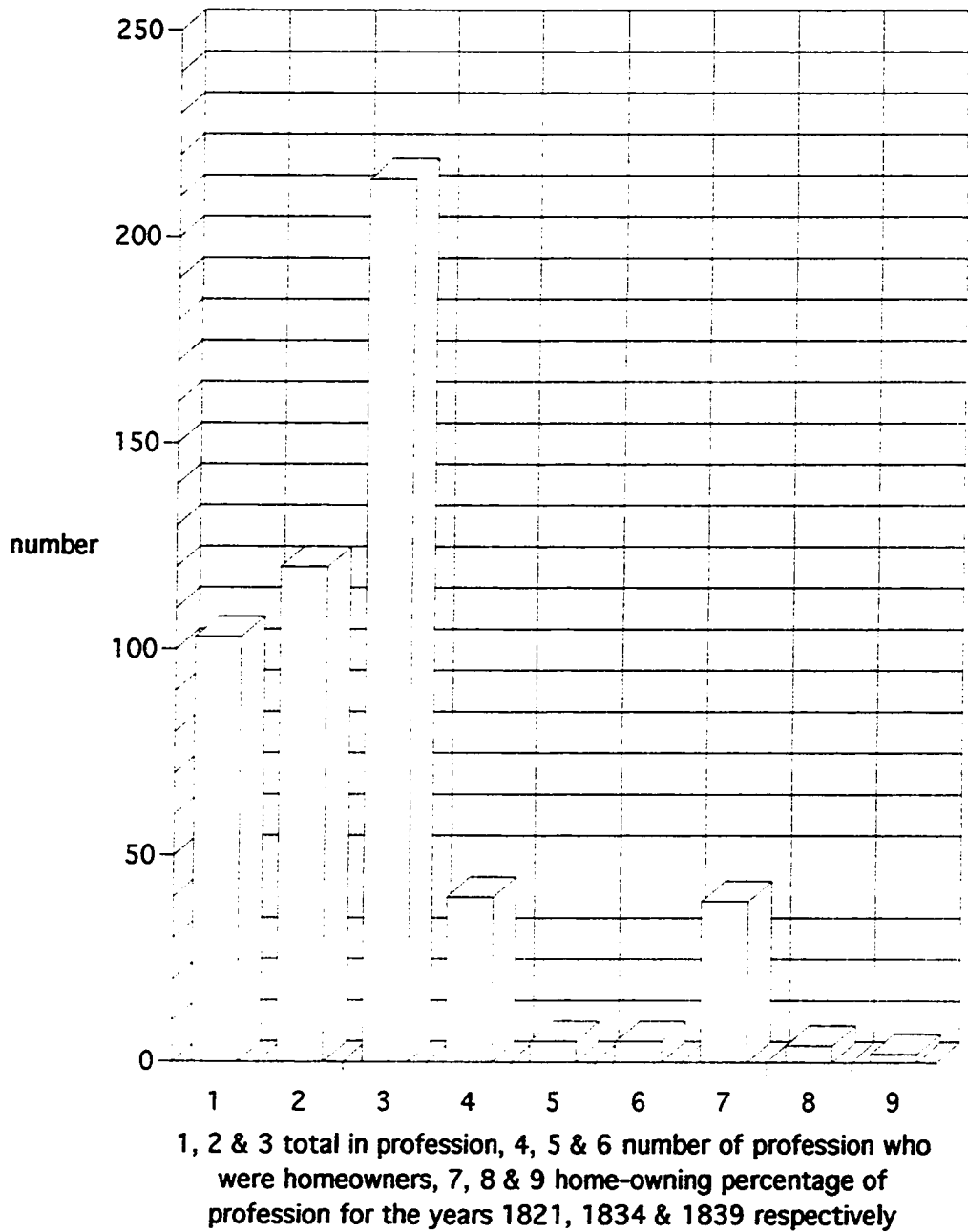
joiners



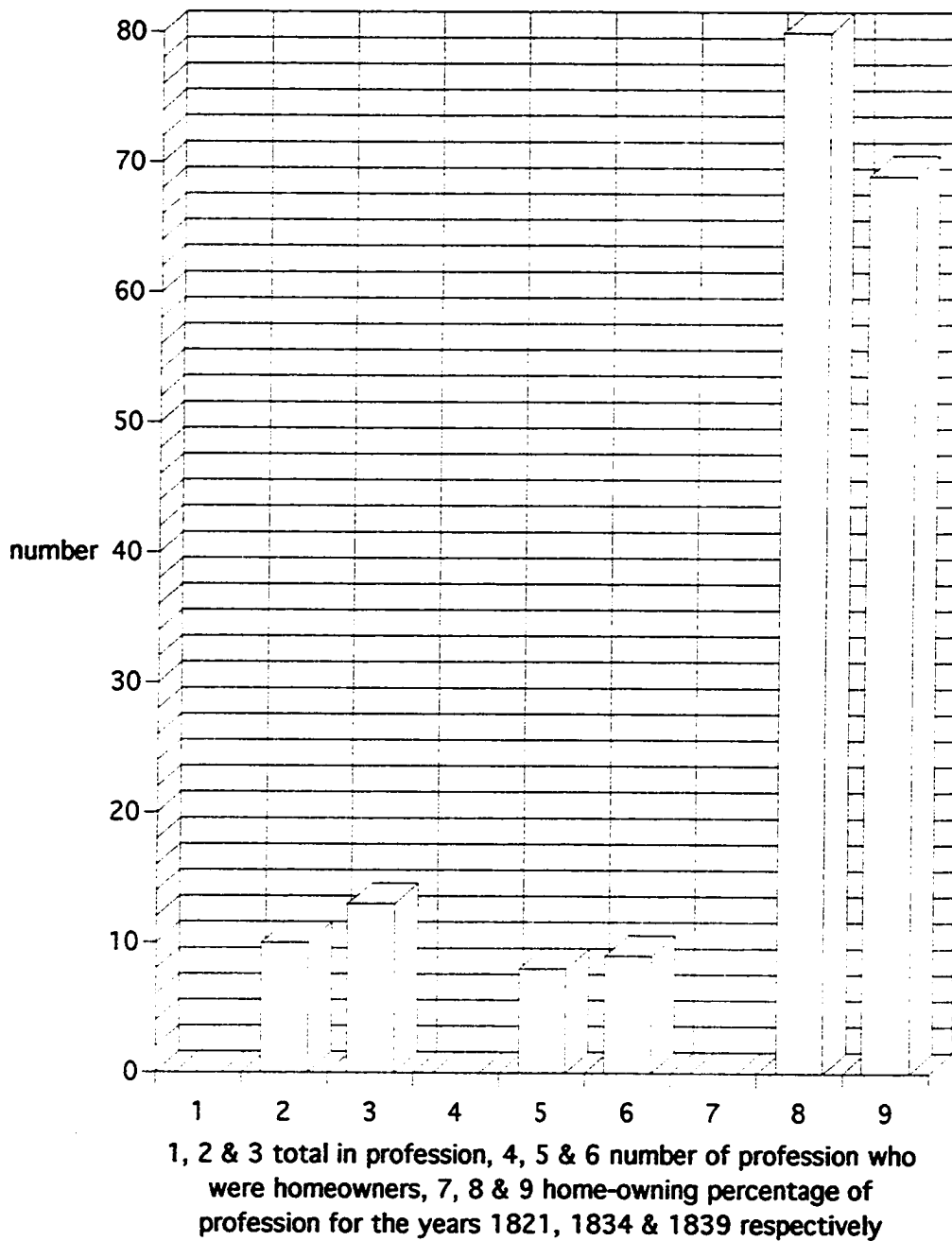
Lumber Dealers



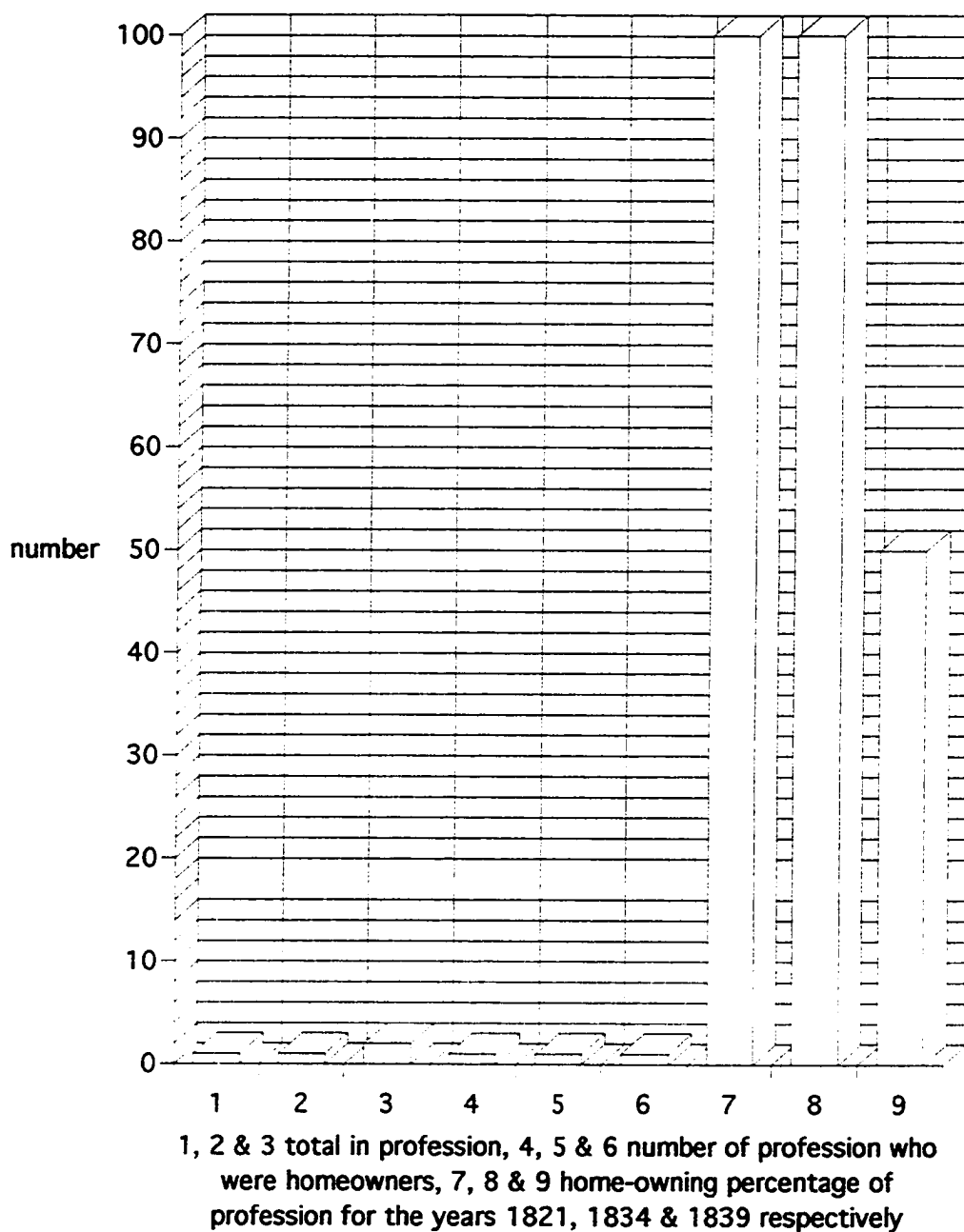
mariners



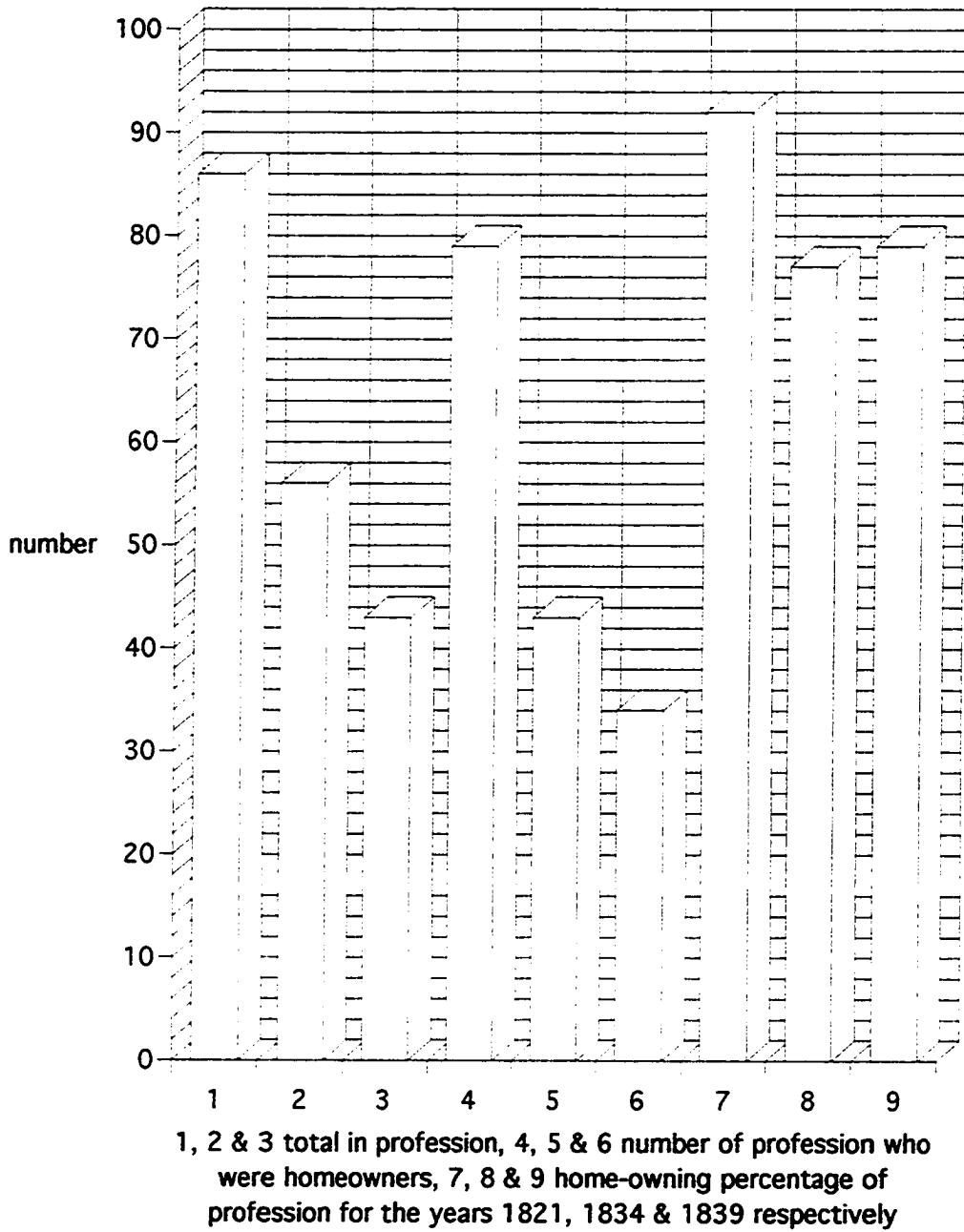
mastmakers



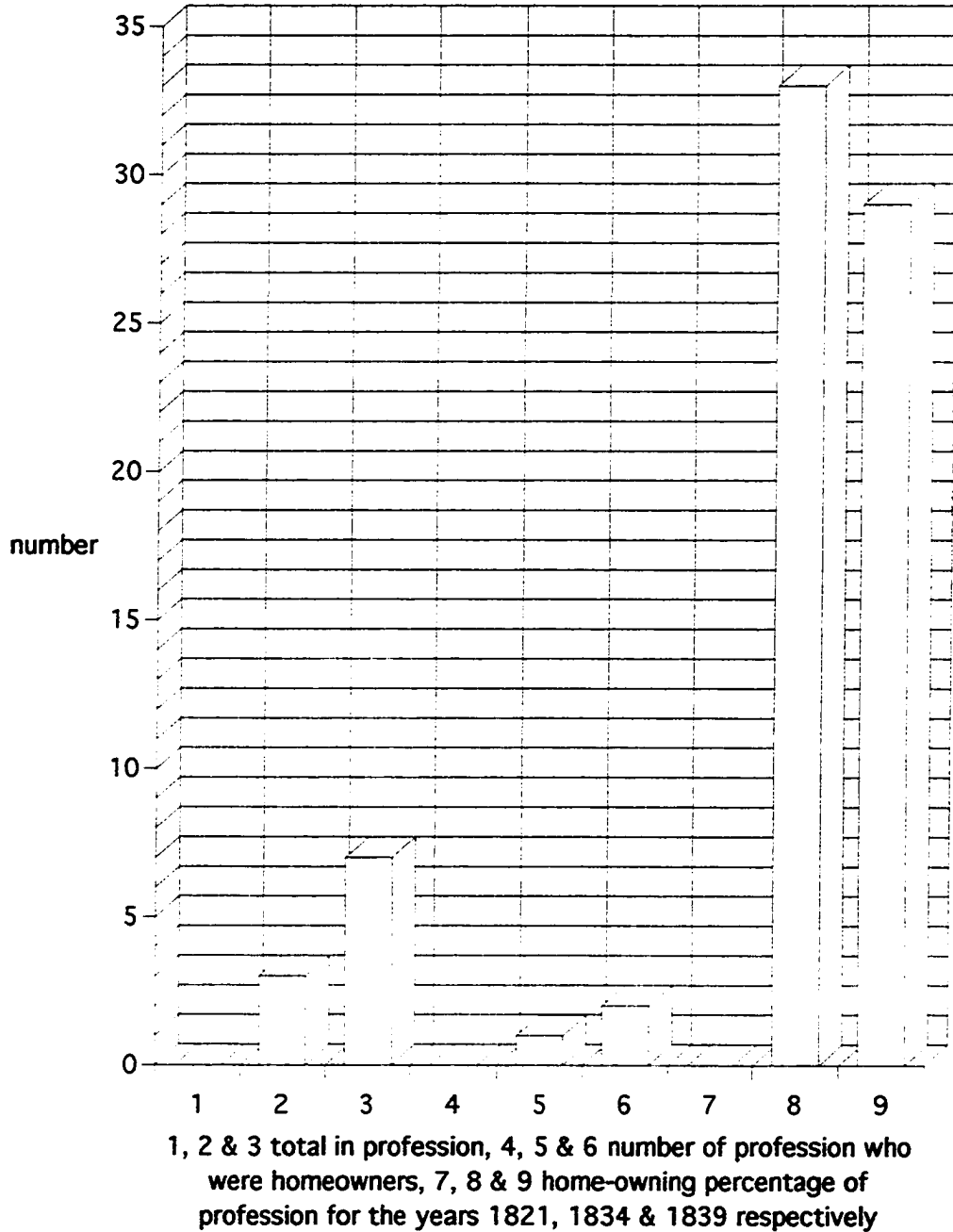
Mathematical Instrument Makers



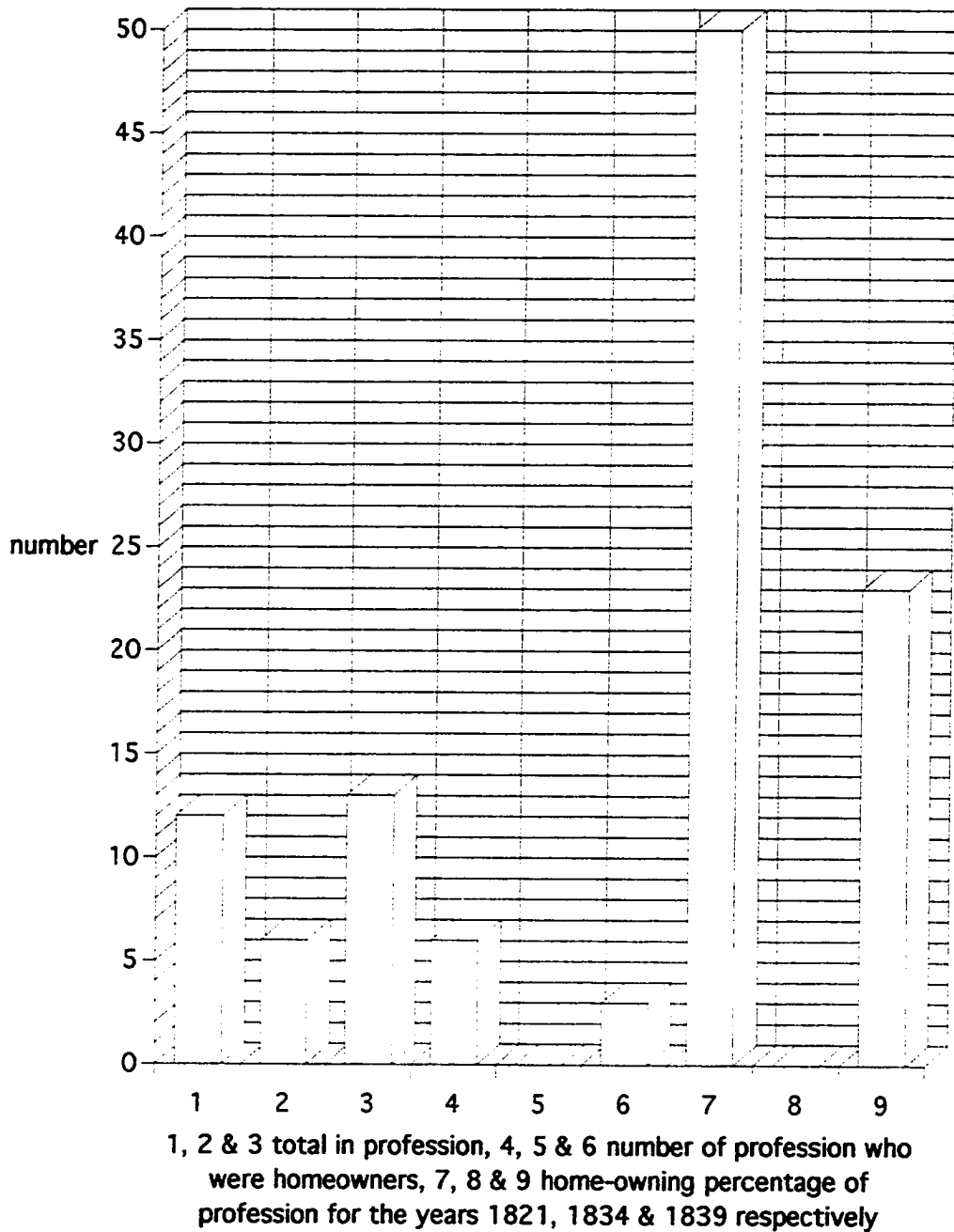
merchants



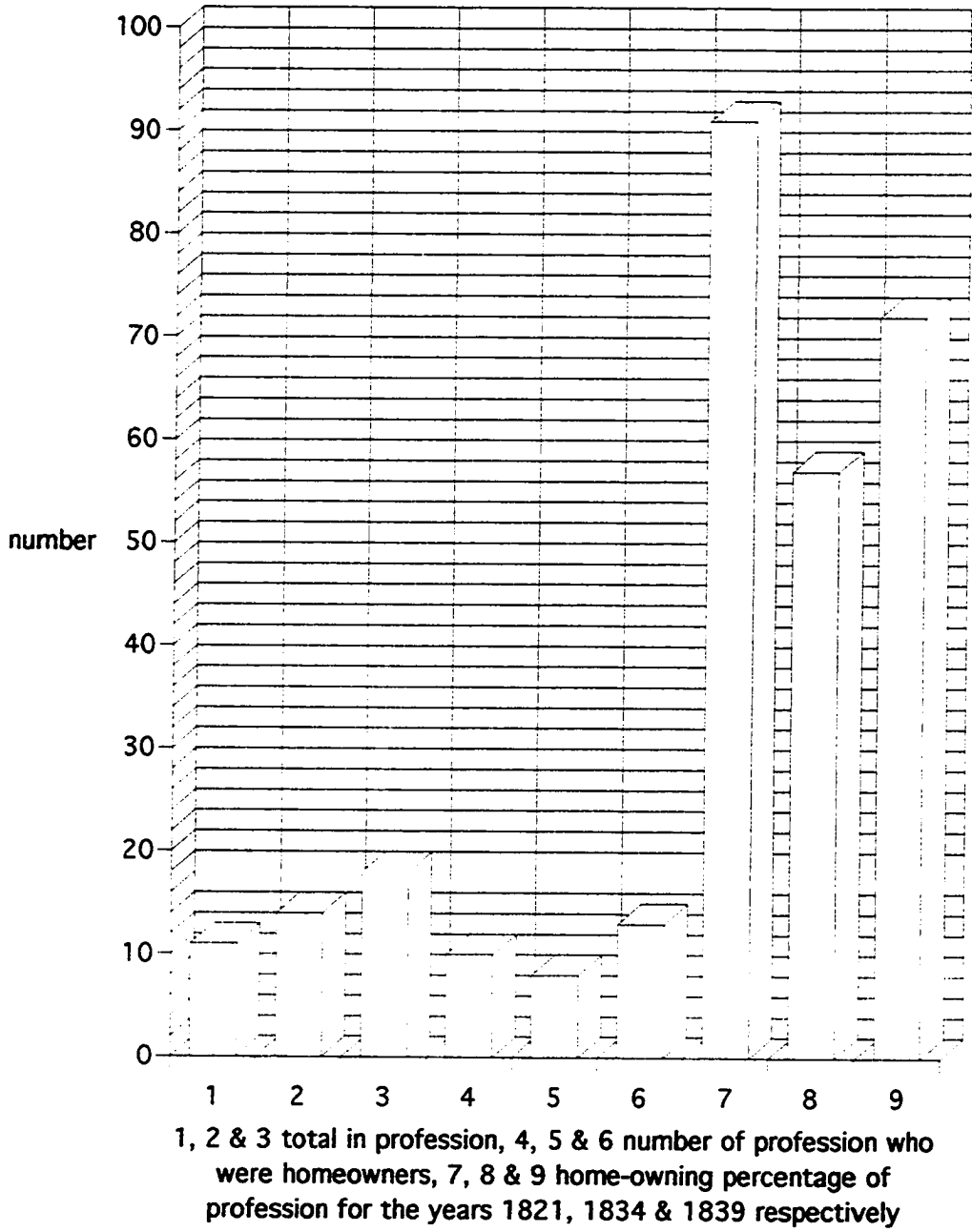
pilots



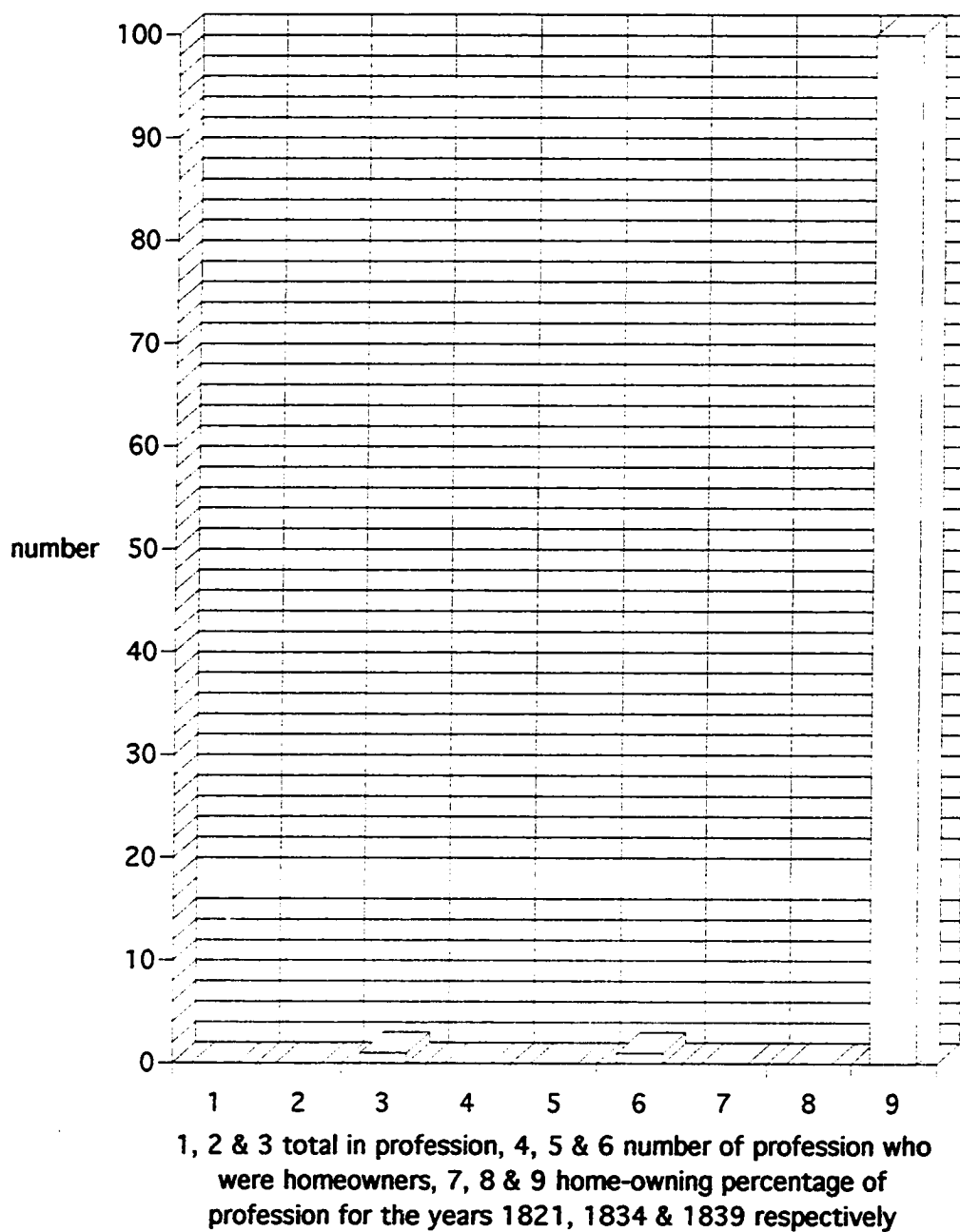
riggers



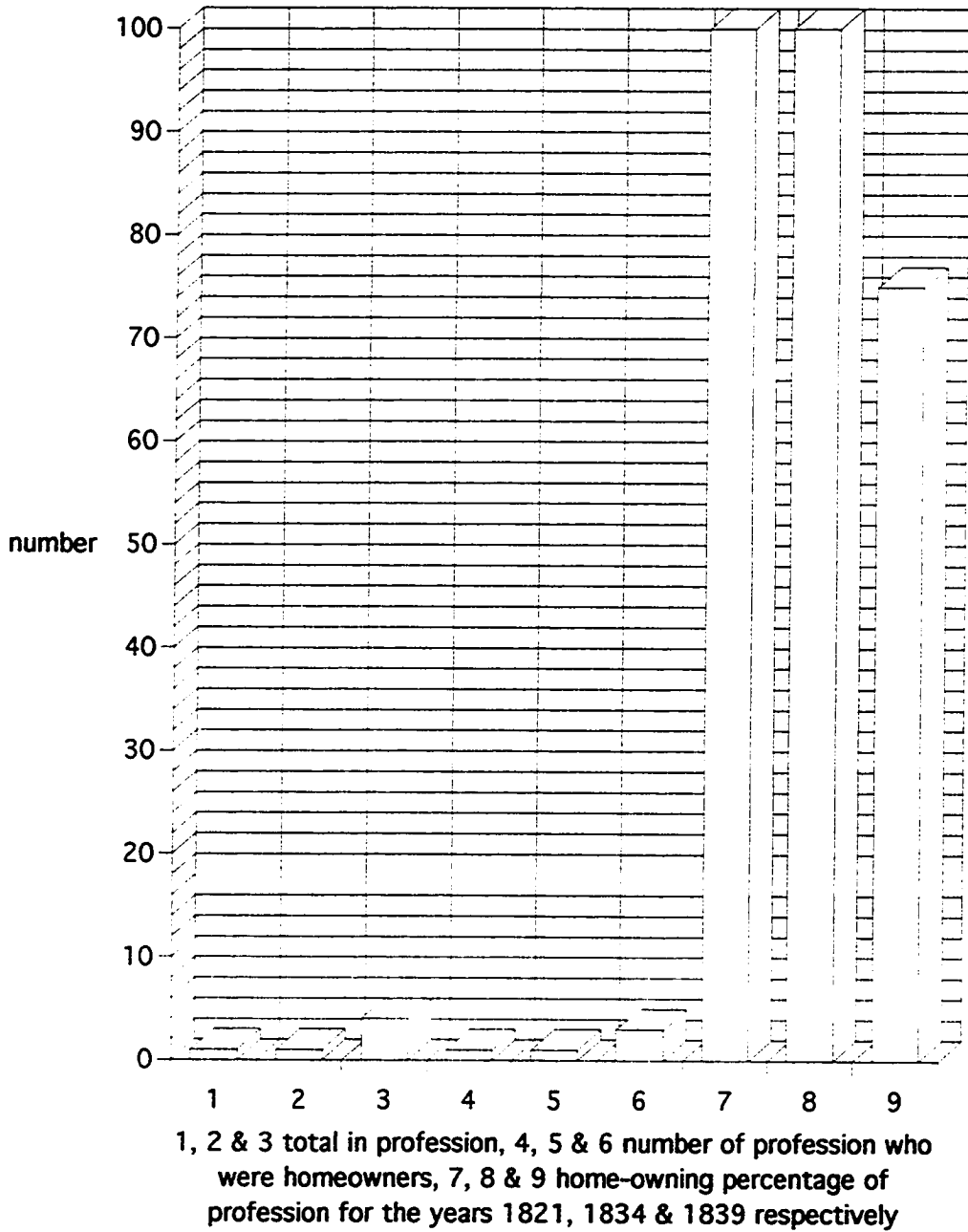
sailmakers



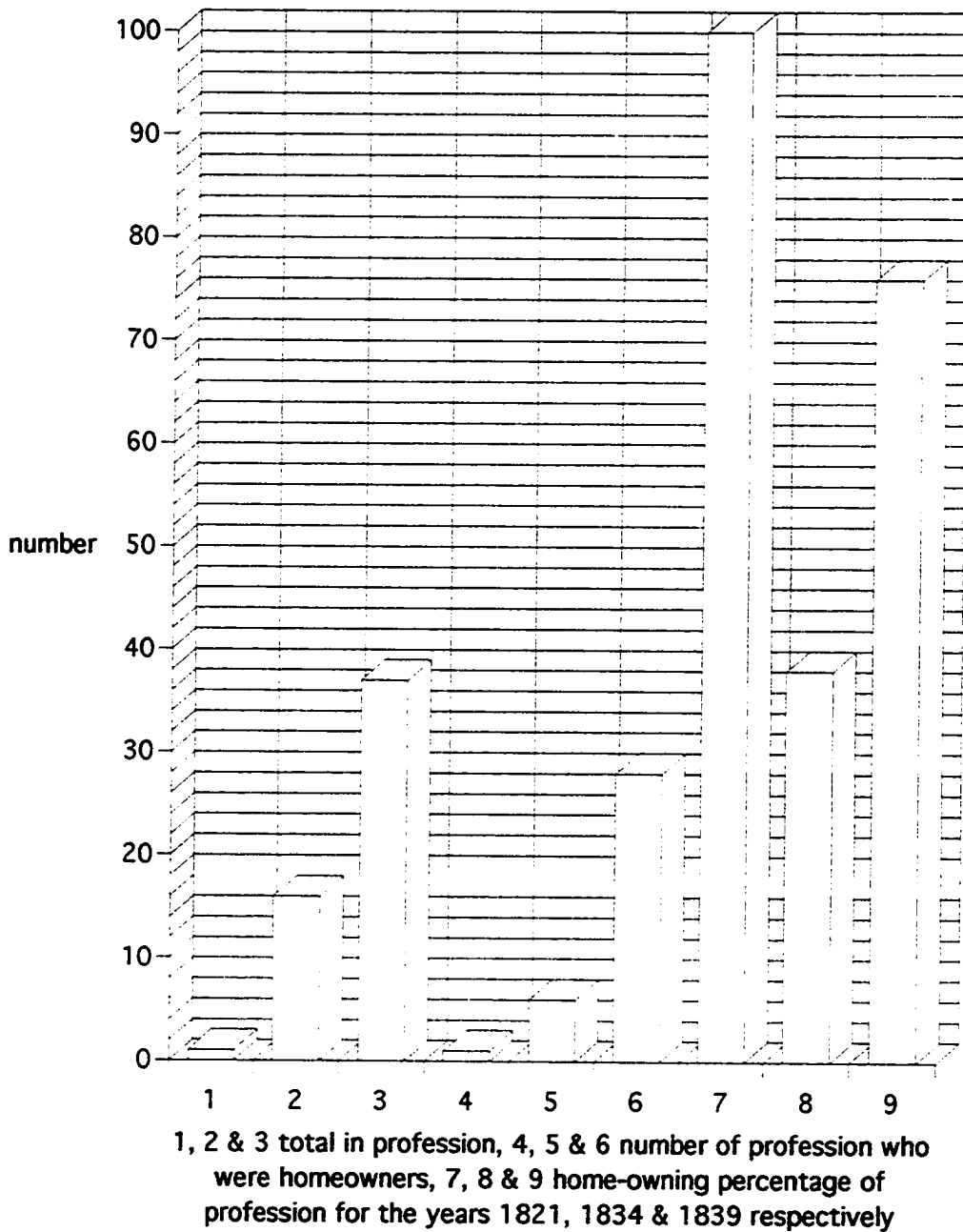
Ship Decorators



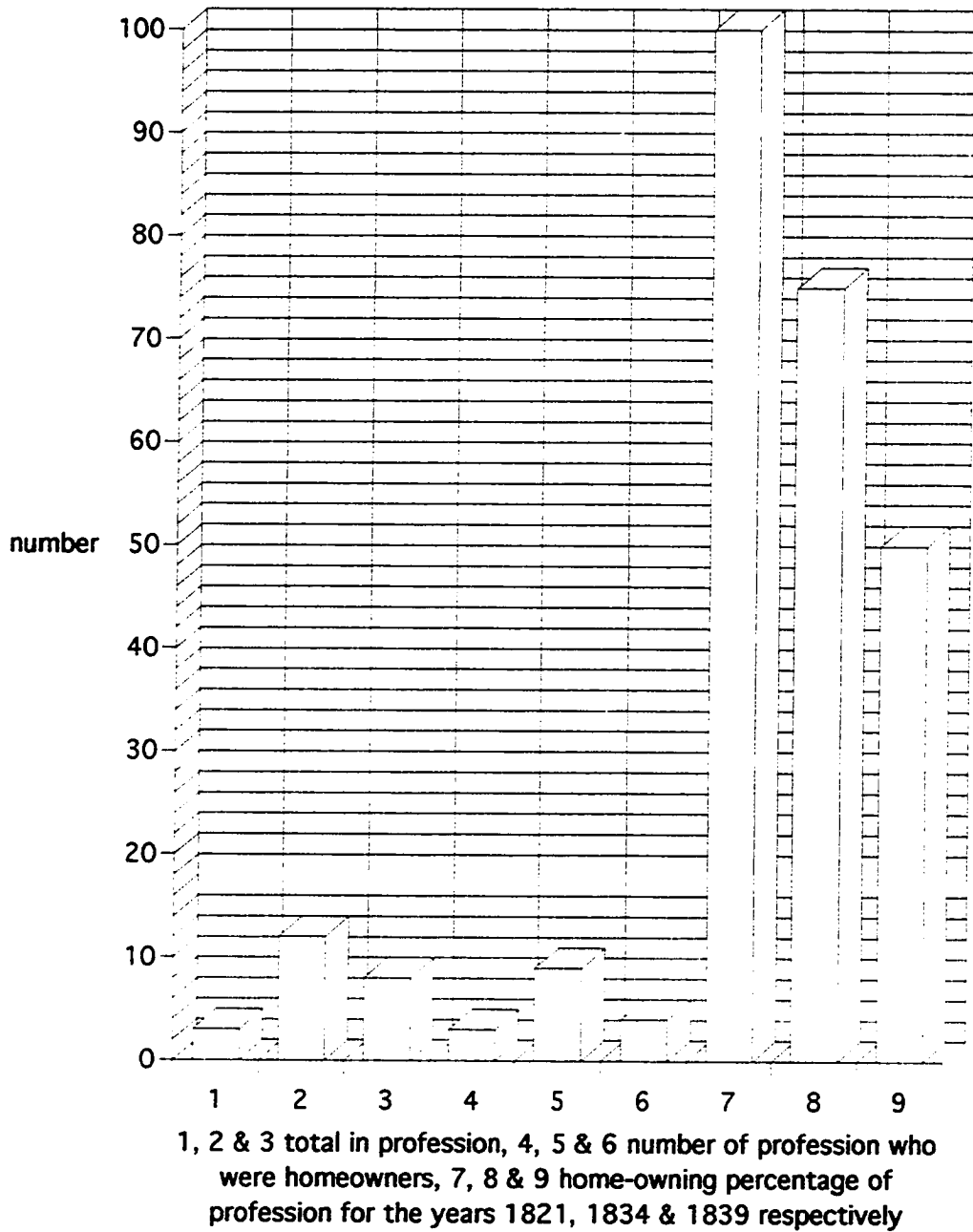
shipbuilders



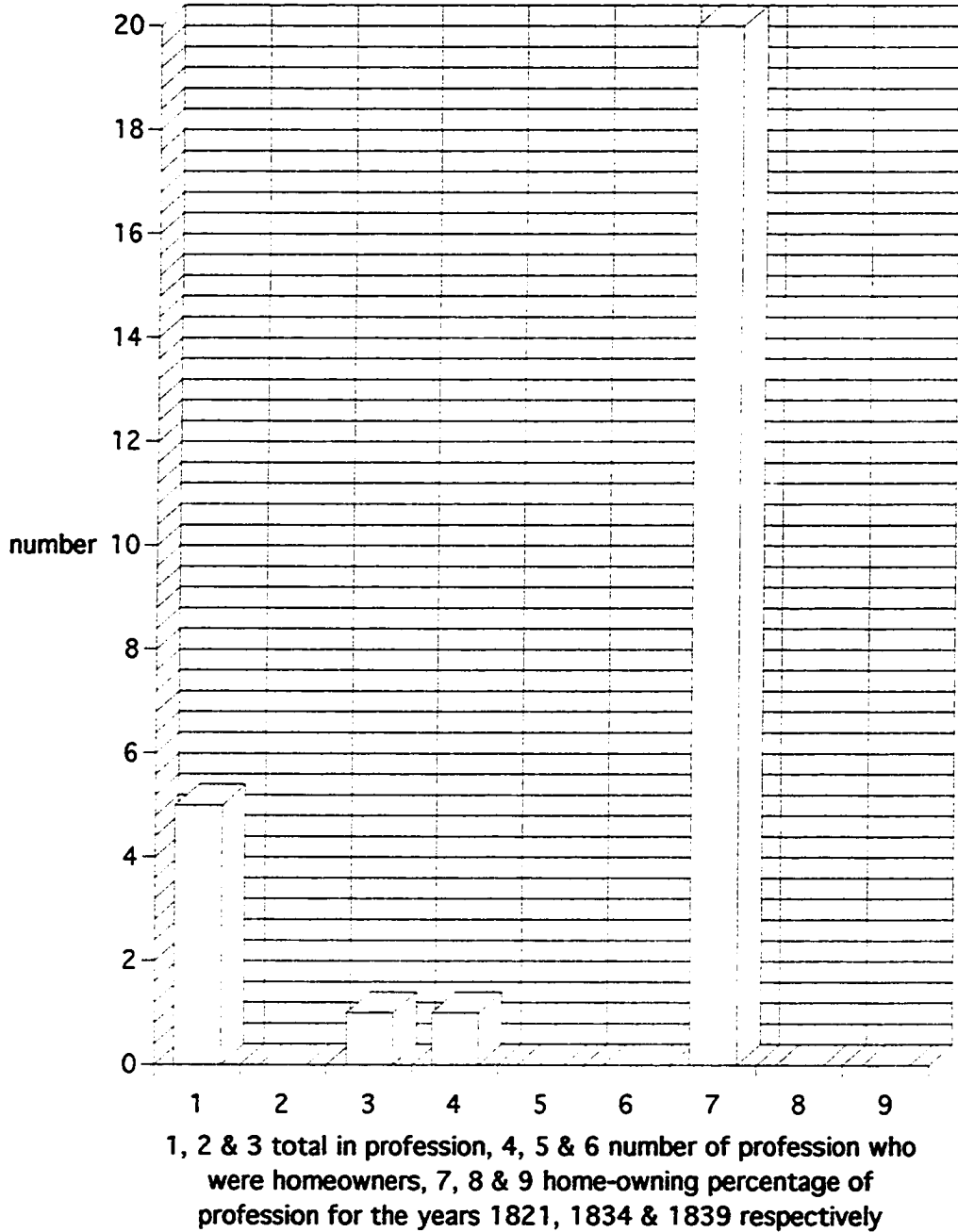
shipcarpenters



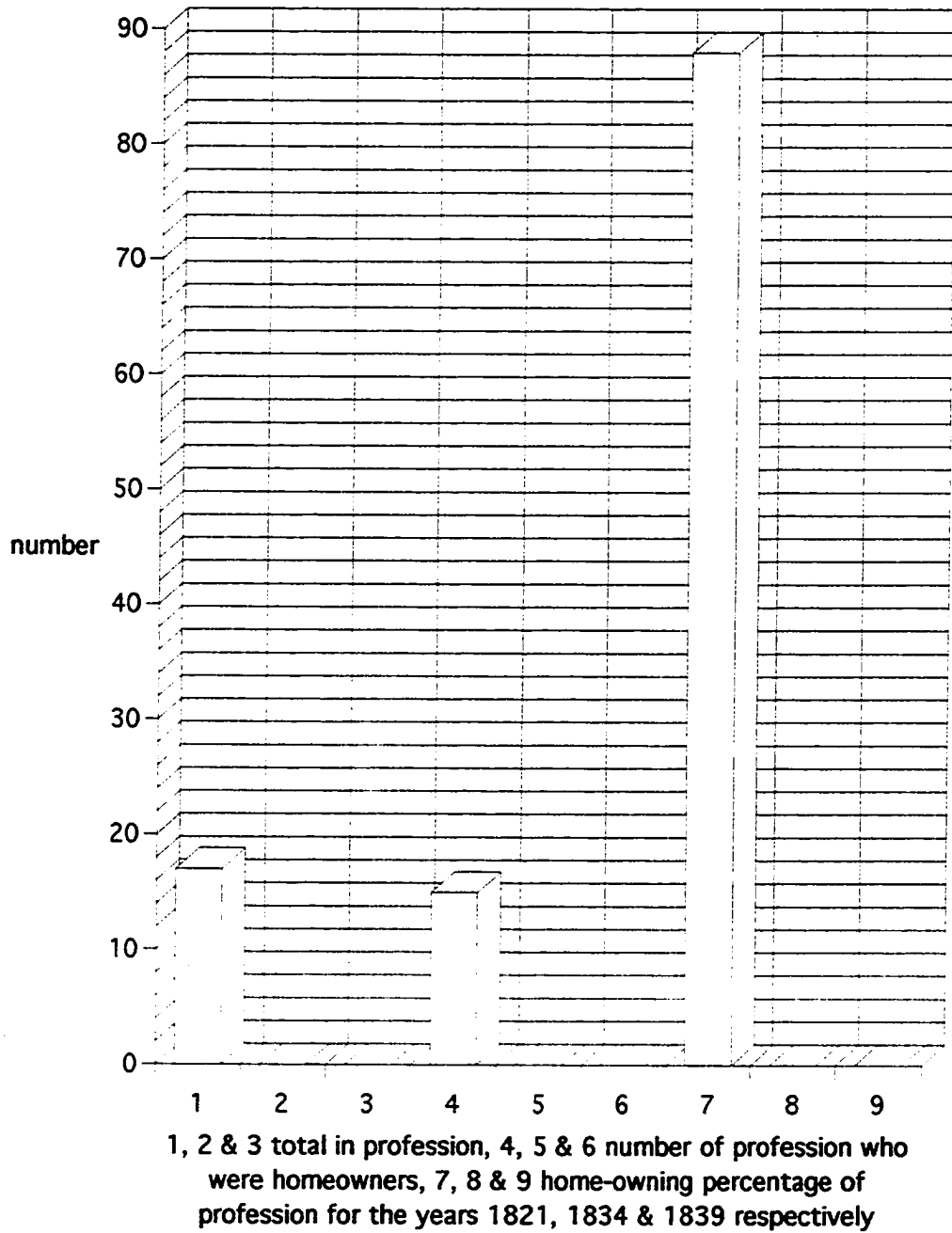
shipchandlers



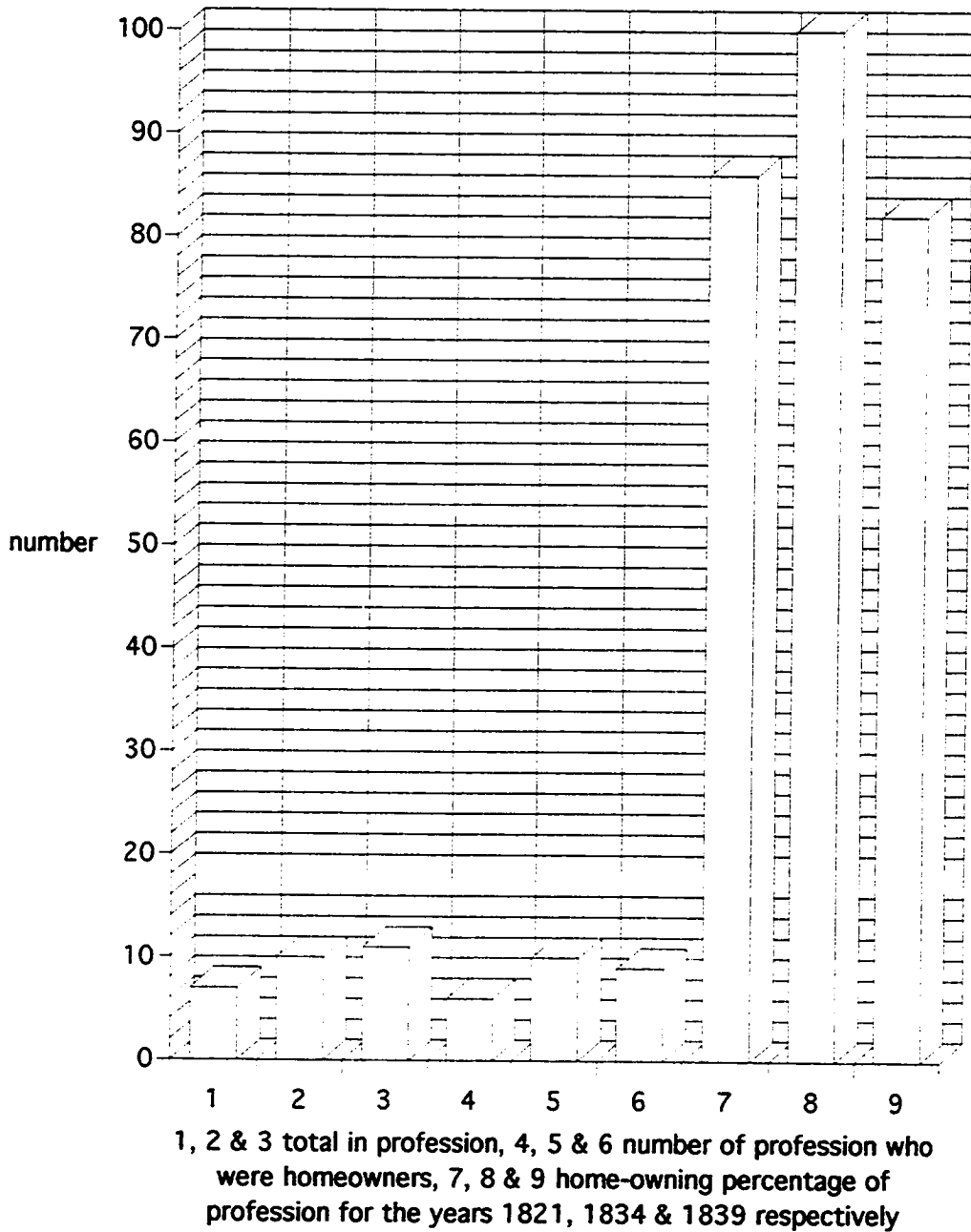
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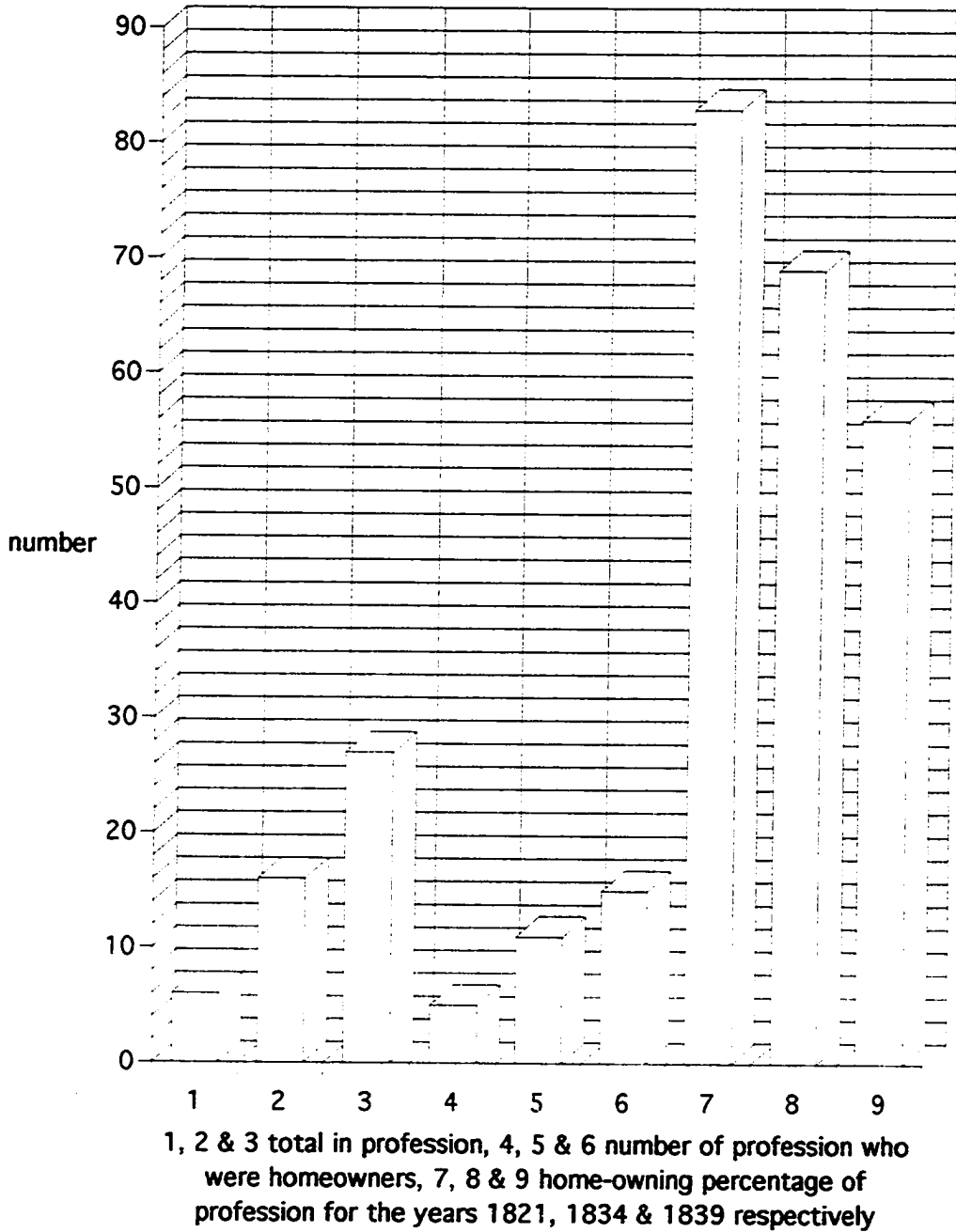
traders



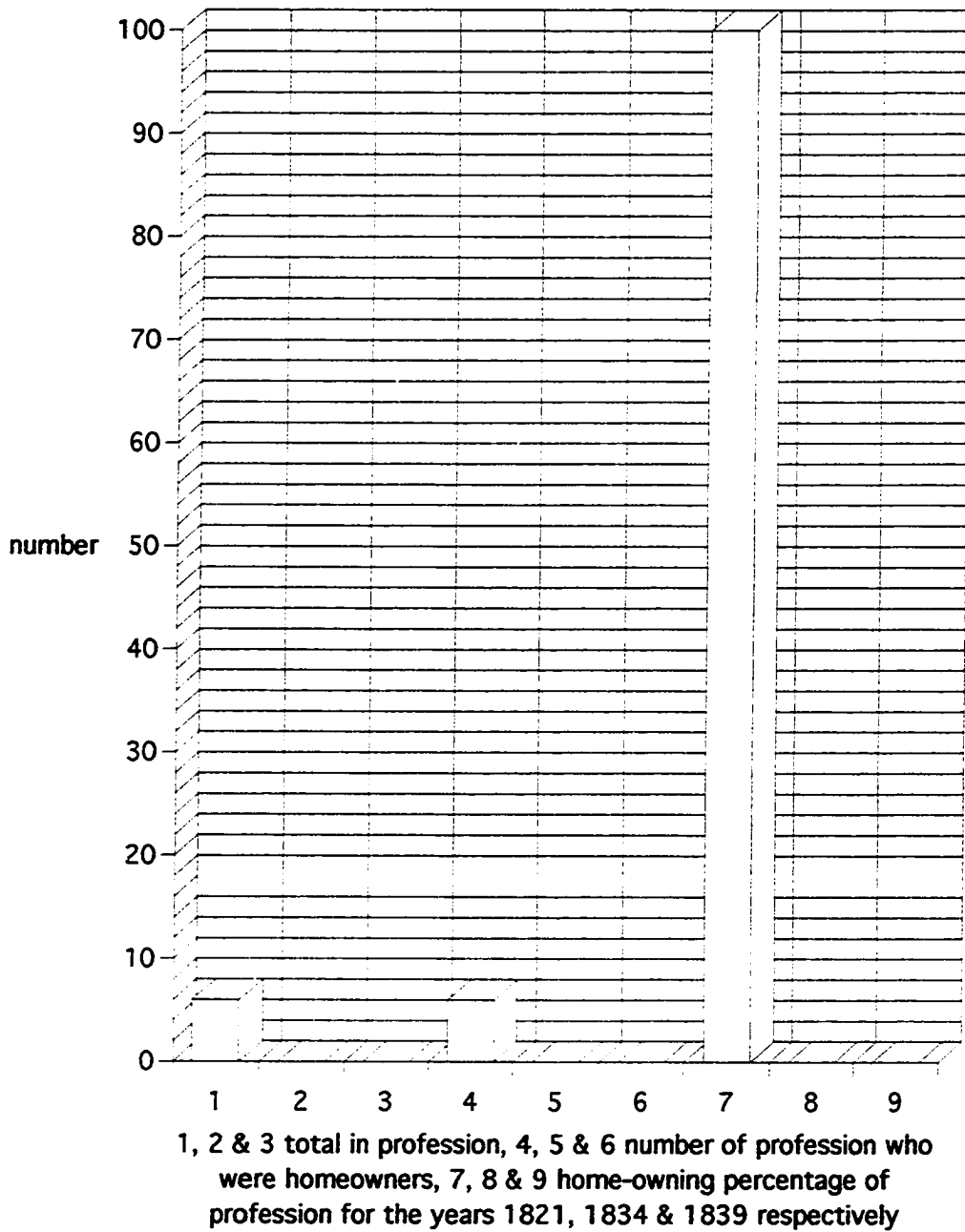
U. S. Customs Officials



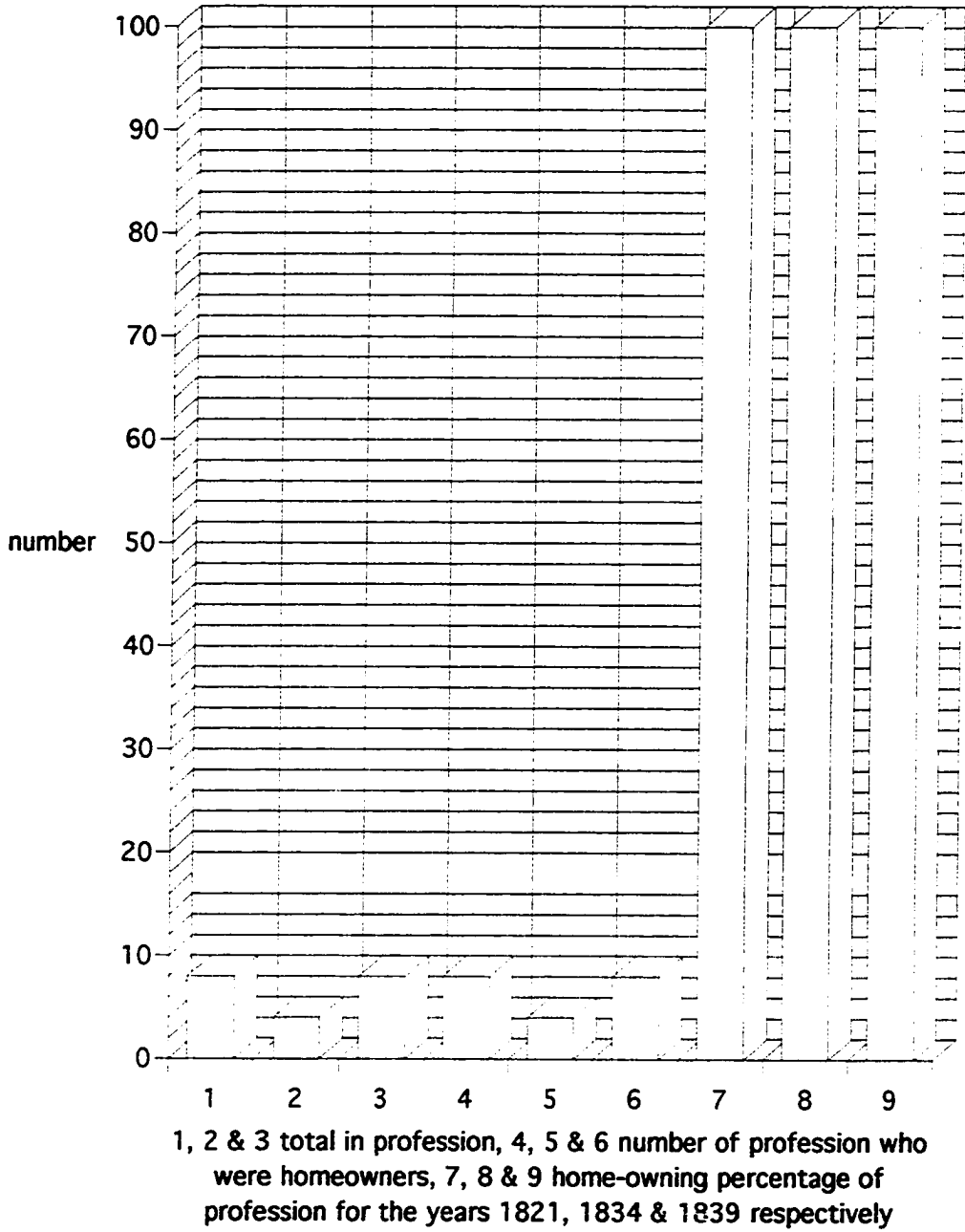
U. S. Navy



W. India Goods Dealers



Wharfingers



APPENDIX H

In a letter to the Massachusetts Historical Society in 1814, General Benjamin Lincoln urged the planting of oak forests to ensure a constant supply of timber for maritime needs. The letter is an interesting account of the depletion of woodlands by grazing animals:

...it is more than time, that we paid attention to the planting of the acorn; from which act to the time the tree will be of sufficient size for ship timber, will require, at least, a period of sixty years: for the growth of oaks, we know, is not rapid. If we reflect on the state of timber sixty years ago in this country, and compare that with the present, we shall be convinced, that the earliest attention should be paid to the planting of acorns, and to the young oaks, many of which might now be saved.

If we take a survey of the northern and eastern states, we shall find that our timber trees are greatly reduced, and quite gone in many parts. In towns near and bordering the seashore, little now can be found within the distance of twenty miles; and it is not uncommon for the builder to send at this day from thirty to forty miles for timber and planks, and the stock fast decreasing, not only from the demand of timber and planks, but from the scarcity of other fuel. The most valuable growing white oaks, from small ones up to a foot in diameter, are cut daily into cord wood for the market and private families. In the country generally these trees are cut down, and the land cleared up as fast as it is for the interest of the husbandmen to do it, without regard to the general interest, or without reflecting how or whether a marine can, at some future period, exist. I am perfectly of opinion, that there is little hope these things will change for the better, since the tenure of our land cannot secure them in the family for any distant period. Thus is destroyed one great motive which would lead the grandsire to plant the acorn...

Where shall the United States look for supplies of shiptimber but within her own borders? If we survey eastward of the District of Maine, on this side of the Atlantic, we shall find little or no oak, and that generally of the sour kind, unfit for building; and what there is between us and the Saint Lawrence is the property of a power which needs the whole and will defend it...

At present we draw some of the best timber from Georgia, but that source, could we always command it, must soon be exhausted; and it cannot be considered as a national supply...

In the towns near the sea, and from which timber may be drawn for our shipping, it will require for this purpose (shipbuilding), timber for our buildings and fences, and wood for fuel, about one-fourth of the land; for this the rocky, the hilly, and even mountainous should be occupied; on these lands the growth will be less rapid, but more firm; and the timber more durable...in every town lands may be appropriated for these important ends...There are some thousand acres of land in (Hingham) which will not keep more than one sheep to an acre; and I know that to be the case in some neighboring towns. These lands...*formerly were covered with an excellent growth of valuable oak timber; after that was cut off, these lands, laying common, were fed so closely as to prevent the wood from getting up.*

The consequence has been, that it is now covered with bushes on which niether the black cattle nor sheep will feed.

These lands are worth, in their present state, (most of them being fenced) about seven dollars an acre. It will cost three dollars more an acre to seed them. The interest of that sum for four years (the term that sheep and all cattle must be kept out) two dollars and forty cents."¹

Just two years later, an anonymous correspondent in a report to the Massachusetts Historical Society about the town of Abington mentioned that oaks were in fact being grown there in an abandoned field:

"Abingdon and its vicinity formerly offered large supplies of square and ranging timber, as well as masts, to the numerous ship yards seated below. The hurricane or gale of October, 1804, prostrated an extensive tract of timber forest trees, chiefly white pine, of which it was remarked, that the second growth fell while the first then survived the gale. The loss of one or two persons only in this place, in timber trees, was then estimated at \$10,000 (FN: In a tract of 500 acres, owned by the Mr. Reeds, the gale of Sept 23, 1815, caused similar and more extensive destruction of timber trees). *Forest trees, have in some instances become an article of nurture; one lot of oak, now of size to be felled as fuel, was, in 1780, in part of a tilled field.* (Italics mine).²

¹ MAHS Collections, series 2, vol. I, (Boston: John Eliot, 1814; John H. Eastburn, 1836 reprint), pp. 187-94,

² MAHS Collections, series 2, vol. 7, pp. 114-19.

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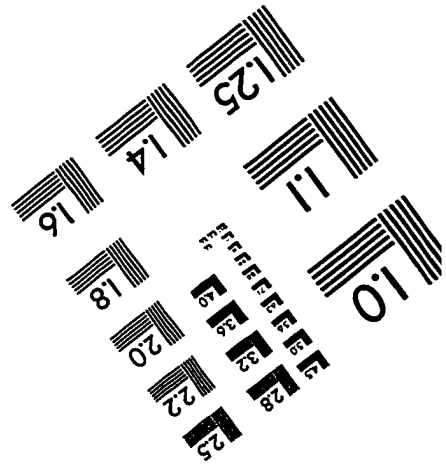
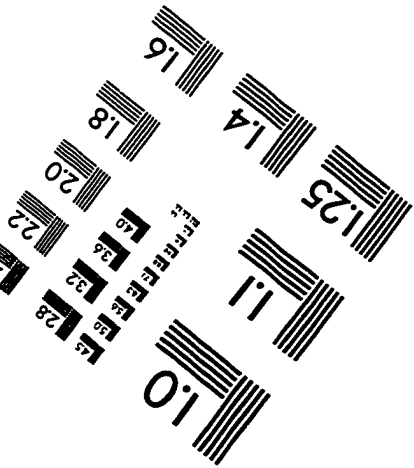
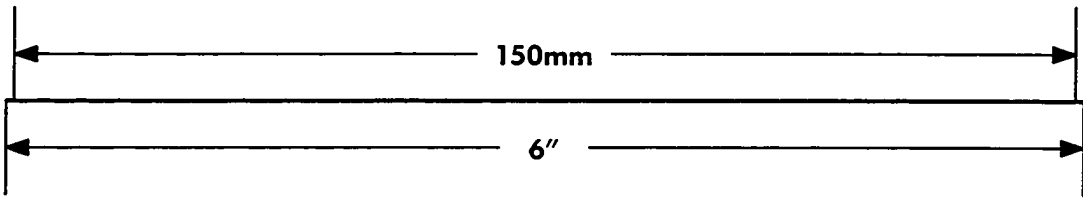
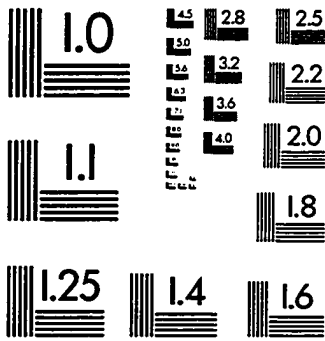
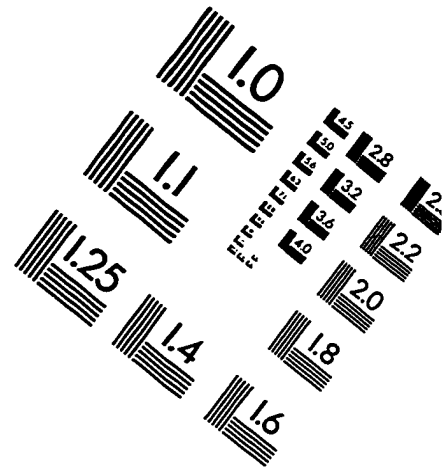
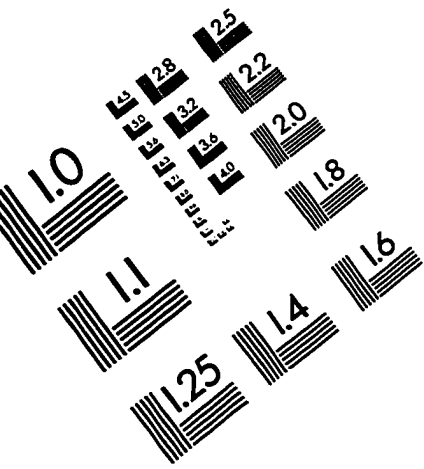
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IMAGE EVALUATION TEST TARGET (QA-3)



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