

# Stew Onboard Ship in the 16<sup>th</sup> Century

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The Honorable Tomas de Courcy (JdL, GdS)

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## Introduction

Military and shipboard rations are a frequent source of curiosity to historical reenactors<sup>1</sup> and history enthusiasts; and the axiomatic saying “an army marches on its stomach”<sup>2</sup> is often invoked in any academic discussion of military supply and diet.<sup>3</sup> Although for broad swaths of Middle Ages we have little to no information on specifics of the military diet; the Renaissance and Early Modern periods provide us with a great deal of information in the form of receipts, order papers, and resupply requests.

With that in mind, what would a typical meal onboard a 16<sup>th</sup> century English naval ship have been? In order to answer that one must first determine what rations naval ships of the 16<sup>th</sup> century carried and in what form, then the methods of food preparation and cooking must be determined, specifically if there were any special methods used on board ship that were not as common on land. From that information common recipes of the time may be selected and examined based on their ability to be recreated with the supplies and methods available on board ship. To answer these questions I examined navy regulations in England and Spain from throughout the 16<sup>th</sup> century, researched the food and cooking equipment which would have been onboard a ship, and compared them with recipes from 16<sup>th</sup> century English cookery books. A great deal of this work was focused around evidence found on the Mary Rose<sup>4</sup> while the majority of the cookery books I’m using are from the 1570s till the 1590s. I then analyzed the recipes which included only ingredients and used only cooking methods that would have

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<sup>1</sup> The two projects I’ve done on military rations have been the most popular posts on my website, accounting for almost half of the traffic to it.

<sup>2</sup> Though attributed to Napoleon it’s more likely a paraphrase of his quote: “The basic principle that we must follow in directing the armies of the Republic is this: that they must feed themselves on war at the expense of the enemy territory.” (Herold 1955, 217)

<sup>3</sup> Davies, R.W. "The Roman Military Diet." *Britannia* 2 (1971): pp 122

<sup>4</sup> The Mary Rose sank 15 years before the first of the cookery books I’m using, due to a distinct lack of English cookery books from the mid-16<sup>th</sup> century, however the recipes I’m using are very similar to a recipe that occurs in the 15<sup>th</sup> century MS. Pepys 1047: “1. To make a stew of flesh”. Also the Mary Rose represented a new innovation in English ship design, one that continued for the remainder of the century, though ships the size of the Mary Rose were rare, implying that the means and methods of cooking onboard would not have changed significantly. (Marsden 2009, 51-52)

been onboard a 16<sup>th</sup> century naval ship. A group of similar recipes that met those requirements, stews<sup>5</sup>, were then examined in depth and form the basis of this project. Unfortunately the majority of recipes remaining to us from this time are Elizabethan, while the best information we have regarding cooking facilities, due to the recovery of the Mary Rose, is Henrician.

## The Mary Rose

On July 19, 1545 an English warship called the Mary Rose sank. Although several recovery and salvage efforts were undertaken in the 16<sup>th</sup> and 19<sup>th</sup> centuries<sup>6</sup> it wasn't until the 1960s and 70s that it was fully rediscovered and a modern recovery effort began. Its recovery and preservation gives an unprecedented look at 16<sup>th</sup> century military vessels; in particular by examining the 40% that remains of it a great deal can be learned about not only how food was cooked onboard a ship, but what food was cooked. It entered service in 1512, in the first years of Henry VIII's reign and was rebuilt in 1536.<sup>7</sup> It generally carried around 400 men between sailors and soldiers, though it could carry more at need.<sup>8</sup> The Mary Rose was a purpose-built warship which had been retrofitted to improve its fighting ability; it was not designed for long trips, and would have been restocked frequently,<sup>9</sup> allowing it to have food that would spoil on a longer voyage. The amount of food stowage, known as victuals, carried on board the Mary Rose show it could have been away from port for two to four weeks, depending on if it was carrying its full complement of 415 men or not.<sup>10</sup> The full complement included 185 soldiers, up to five boatswains, up to six carpenters, a purser, a barber-surgeon, a pilot, a captain, and several cooks, in addition to the sailors.<sup>11</sup> When it was recovered in 1982 it had the remains of food, eating and drinking dishes, and cooking tools, which is incredibly valuable for helping determine what was eaten and how it was prepared on board.<sup>12</sup>

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<sup>5</sup> In cookery books of the 15<sup>th</sup> and 16<sup>th</sup> century stew was a verb, not a noun, and originally referred to the slow boiling of meat (OED), the phrase began being used in the title of recipes in the early 15<sup>th</sup> century (Austin 1964), but did not become common until the 16<sup>th</sup> century (see Appendix 2).

<sup>6</sup> Marsden, Peter, ed. *Mary Rose: Your Noblest Shippe*. Portsmouth, England: Mary Rose Trust Ltd., 2009: pp 12-14

<sup>7</sup> 10

<sup>8</sup> 368

<sup>9</sup> 368-9

<sup>10</sup> Gardiner, Julie, and Micheal J. Allen, . *Before the Mast: Life and Death Aboard the Mary Rose*. Portsmouth England: The Mary Rose Trust, 2005: pp 609

<sup>11</sup> 11

<sup>12</sup> Marsden, 2009: pp 134

## Common Ship Victualing

Victuals on board ship varied by nation of course, in England in the 16<sup>th</sup> century they had set regulations for the amount of food required on board navy ships depending on the crew. The mandated food for all navy ships during the early years of Queen Elizabeth's reign were "salted beef, pork and fish, cheese, pease, butter and biscuit",<sup>13</sup> by 1588 bacon had been added as well as a required food.<sup>14</sup> In 1553 there is a bill witnessed by the Treasurer of the King's Marine Causes, Benjamin Gonson, for the provision of "all manner of grain, oxen, beefs, mutton, bacon, biscuit, bay salt, beer and all other kinds of victuals"<sup>15</sup> for the navy. English victuals also included beer for the crew to drink and wine for officers.<sup>16</sup> For comparison, the Spanish victuals of the same time were ship's biscuits or bread, wine of various sorts, bacon, rice, cheese, beans, chickpeas, fish or shellfish of various sorts, beans, oil, and vinegar.<sup>17</sup>

It's also interesting to note that the evidence of scurvy in recovered bodies from the Mary Rose is primarily that of adolescent scurvy.<sup>18</sup> There is very little evidence of scurvy found in the bodies of sailors recovered from sunken ships that were not on extended voyages, which seems to indicate frequent stops to get fresh fruit or vegetables for onboard the ships. Along with the basic required items of salt beef, pork, fish, peas, and ship's biscuits, the Mary Rose was carrying plums or prunes, grapes or raisins, and apples; the most common fruit being plums which were found in the form of many baskets of plum stones, which may have been from either fresh or dried plums.<sup>19</sup>

One of the key locations in the provisioning of the English fleet is Portsmouth harbor, and it is from this town that we gain information about the importance of bread and beer to the fleet. For most of the 16<sup>th</sup> century there were four brewhouses in the city with the main task of provisioning up to 500

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<sup>13</sup> Friel, Ian. "Guns, Gales and God Elizabeth I's 'Merchant Navy.'" *History Today* 60, no. 1 (2010): 45-51.: pp 45-51.

<sup>14</sup> Lemon, Robert (Ed). "Queen Elizabeth - Volume 209: March 1588." In *Calendar of State Papers Domestic: Elizabeth, 1581-90, 466-472*. London: British History Online, 1865.: pp 269-275.

<sup>15</sup> Knighton, C.S. *Navy Records Society Publications : The Navy of Edward VI and Mary I*. Farnham, GB: Routledge, 2011: pp 171

<sup>16</sup> Gardiner & Allen, 2005: pp 15

<sup>17</sup> Lemon, 1865: pp 269-275.

<sup>18</sup> Stirland, Ann. "The Men of the Mary Rose." In *The Social History of English Seamen, 1485-1649*, by Cheryl A. Fury, 47-74. Woodbridge: The Boydell Press, 2012.:pp 57

<sup>19</sup> Gardiner & Allen, 2005: pp 596

barrels of beer per day,<sup>20</sup> as well as two bakeries dedicated to provisioning and four other bread ovens that could be used by the crown at need.<sup>21</sup> Beer was so important to the operation of the navy that Thomas Wyndham's ship in 1584 had to return to port due to "lack of victuals, in specially for beer".<sup>22</sup> Beer was the primary beverage on board an English ship, used because it can be stored longer than water without being contaminated,<sup>23</sup> and likely for the taste and alcohol content. On the Mary Rose they found a number of sealable drinking vessels, such as leather bottles with corks or tankards with lids, so that men could take their beer ration with them throughout the day. The bakeries in Portsmouth provided both biscuits and loaf bread for the navy. However, biscuits were the primary form of bread on a ship, and accounted for 20 times the budget of loaf bread<sup>24</sup> while being cheaper, meaning that there was only a small amount of loaf bread available in comparison to the biscuits.

On an English ship in the 16<sup>th</sup> century there were three types of "days" when it came to food: three "fish-days", three "flesh days" and one bacon day.<sup>25</sup> On any given day a man was entitled to a set amount of food between the two means of the day; this food was cooked centrally, meaning that although the amounts for each person are given it was primarily a method for calculating the amount of food needed onboard and needed to be prepared each day. In addition to the protein of the day men were entitled to one pound of ship's biscuits, four ounces of butter, half a pound of cheese and a gallon of beer.<sup>26</sup> On a flesh day a sailor would receive one pound of beef<sup>27</sup> or a half pound of bacon,<sup>28</sup> while on a fish day a sailor would be given about a pound of fish<sup>29</sup>. Although mutton is referenced in some provision lists it's clear from what was recovered from the Mary Rose that the most common meat was beef followed by pork.<sup>30</sup> There was evidence of sheep, mutton specifically, onboard<sup>31</sup> but there was not

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<sup>20</sup> Fontana, D. J Mari Arch. "Charting the Development of Portsmouth Harbour, Dockyard and Town in the Tudor Period." *Journal of Maritime Archaeology* 8, no. 2 (December 2013): pp 267

<sup>21</sup> 272

<sup>22</sup> Knighton, 2011: pp 63

<sup>23</sup> Friel, 2010: pp 48

<sup>24</sup> Knighton, 2011: pp 270

<sup>25</sup> Lemon, 1865: pp 468

<sup>26</sup> LaCombe, Michael A. *Political Gastronomy*. Philadelphia: University of Pennsylvania Press, Inc., 2012: pp 54

<sup>27</sup> 190

<sup>28</sup> 54

<sup>29</sup> Ibid.

<sup>30</sup> Gardiner & Allen, 2005: pp 603

<sup>31</sup> 569

enough of it to feed a full meal for the crew so it was likely reserved for the officers or “those at the top of shipboard society”<sup>32</sup> along with the fresh beef, venison, and fowl that was found.

On the Mary Rose they found a great deal of food remains as well as casks and staved containers that are believed to have contained victuals.<sup>33</sup> The barrels contained cattle bones, pig bones, cod bones, sheep bones, and venison bones, as well as evidence of beer or ale. They also found several dozen containers they were unable to determine the original contents of, however, as they were found with the other food stores it is believed that they were likely some sort of foodstuffs that don’t leave traces, such as peas or bacon.<sup>34</sup> Evidence of a “steep-tub” was also discovered which was used to soak salted meats before cooking.<sup>35</sup> This steep-tub could have soaked up to 400 pounds of meat at a time, enough for an entire day for the ship.<sup>36</sup>

By taking the lists of food on board ship and looking at contemporary recipes, while ensuring that the more common ingredient is chosen when given an option, general concepts for what type of meals were served can be deduced. More of this will be examined in the Recipes section.

## Cooking Onboard Ship

The kitchen on the Mary Rose, which at the time was called a kitchen and not a galley as we modernly do,<sup>37</sup> had two cauldrons which were built into a “brick furnace or oven,”<sup>38</sup> and laid out on either side of the boat’s keel in the hold in an attempt to keep the boat balanced. Both cauldrons were recovered from the ship, one of which was still intact. The kitchen area of the hold had a brick floor on which was built the two furnaces, each of which were 1.97m long and 1.6m wide.<sup>39</sup> The whole furnace was about 1.3m tall, and 0.4m from the floor were two iron bars which supported the cauldron. The furnace entry was an arch 0.45m wide and 0.75m high.<sup>40</sup> There may have been an iron bar in front of

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<sup>32</sup> 612

<sup>33</sup> Marsden, 2009: pp 386

<sup>34</sup> 386-387

<sup>35</sup> Ibid.

<sup>36</sup> Gardiner & Allen, 2005: pp 570

<sup>37</sup> Marsden, 2009: pp 129

<sup>38</sup> 124

<sup>39</sup> Ibid.

<sup>40</sup> 125

the furnace which may have been used to hang tools on<sup>41</sup> or as a dangle-spit to roast meat on with the heat escaping from the entry. Each cauldron had a flat bottom and sloped sides made of overlapping leaded brass<sup>42</sup> hammered sheets<sup>43</sup> which were riveted together.<sup>44</sup> The larger of the two cauldrons was 635mm tall with a diameter of 1.62m at the top and 970mm at base and had a maximum volume of 600l, though it likely would have only been filled to 450l in normal operation.<sup>45</sup> The smaller cauldron was 560mm tall with a diameter of 1.34m at the top and 800 mm at the base with volume of 360l, or 300l in normal operation.<sup>46</sup> The cauldrons were fully enclosed in the furnaces, with a lead lip sealing the "gap between the rim and the brickwork".<sup>47</sup> Other, smaller, cauldrons and cooking pots were also present in the kitchen. The majority of these were ceramic<sup>48</sup> while a few were cast brass.<sup>49</sup> The items found also included "a copper alloy cauldron or hanging kettle, a three legged cooking pot of copper alloy, a bronze mortar, a possible copper alloy skimmer"<sup>50</sup> and several other items and tools such as cooking knives. This type of layout was quite common on ships and they frequently had "two cauldrons in furnos"<sup>51</sup> or as it was described later "grete coper ketilles in furnous sett in lyme and breke closed above with lede".<sup>52</sup> However Later ships moved the kitchen to the forecastle, which was better for long voyages. This change can be seen in the second Mary Rose (originally built in 1555) which was retrofitted in 1589 to move the kitchen to the forecastle before she was used for a long voyage.<sup>53</sup> The forecastle placement helps both with heat dissipation causing issues over time with the caulking of the ship, as well as making a better use of space for storage of victuals.<sup>54</sup>

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<sup>41</sup> Ibid.

<sup>42</sup> Leaded brass, sometimes called latten (Blair, Blair and Ramsay 1991, 104), is a combination of copper, zinc, lead, and tin. In this case the ratio of copper to zinc was 71.6:25.5%, with the remaining 2.9% being an unknown combination of lead and tin (Marsden 2009, 134). Modern brass tends to have a ratio of either 70:30% for the best combination of "strength and ductility" or somewhere between 37-45% zinc for harder brass (Bell 2016). Though it was less common than bronze in England prior to the 15th century it was very common by the 16th century (Blair, Blair and Ramsay 1991, 104). It is unknown if the metal was originally from England, or an import of the higher quality Flemish leaded brass (Ibid.).

<sup>43</sup> Gardiner & Allen, 2005: pp 425

<sup>44</sup> Marsden, 2009: pp 128

<sup>45</sup> Ibid.

<sup>46</sup> Ibid.

<sup>47</sup> 129

<sup>48</sup> Gardiner & Allen, 2005: pp 424

<sup>49</sup> 425

<sup>50</sup> Marsden, 2009: pp 129

<sup>51</sup> 130

<sup>52</sup> Knighton, C. S., and D. M. Loades, . The Anthony Roll of Henry VIII's Navy. Cambridge: Ashgate Publishing, 2000: pp 145

<sup>53</sup> Marsden, 2009: pp 130

<sup>54</sup> Ibid.



In addition to the brass cauldrons, several raised areas were found with cooking tools near them up a ladder from the furnaces, implying that food preparation was done in more than just the hold. The written record also adds to the known types of cooking implements the cooks had access to, based on an inventory from 1514. The known used items were listed as: cawdrons in furnos, ketylles in furnos, ketilles, furnes of copper, hoke for hangyng of ketilles, cressettes of yron, trevettes of yron, spyttes of yron, cobyrons, gryde irons, frying panes, tarre ketilles, kettilles to seth in fysh, peche ketilles, rackes for hanye of ketilles, and lede. This supports the idea that although most of the food was likely boiled, the references to food being toasted, grilled, or fried<sup>55</sup> cannot be ignored.

Though fires onboard ships have always been a concern, there is ample evidence that the primary way of cooking was with firewood, and birch was the preferred wood on the *Mary Rose*,<sup>56</sup> though other woods were also used to a lesser extent. Also supporting this, passengers on merchant ships were frequently required to make their own meals, and at several maritime city states, such as Venice, had statutes specifying the amount of wood each passenger was expected to have.<sup>57</sup>

The *Mary Rose* Trust, using a recreation of the *Mary Rose*'s furnace and cauldron, determined that while soups or stews were simmering in the cauldron smaller ceramic pots could be floated in the liquid to cook smaller meals, possibly for the officers.<sup>58</sup> In addition to the use of the entry heat for roasting meat in front of the furnace, metal pots could be placed in front of it to take advantage of the high amount of radiant heat coming out, and the furnace could also be used as a baking oven when not actively heating the cauldrons.<sup>59</sup>

No tables or central mess areas have been found on the *Mary Rose*, so the crew likely ate on the orlop deck near the guns<sup>60</sup> or possibly on the main deck.<sup>61</sup> The food was likely brought from the kitchen via buckets and was ladled out to the crew.<sup>62</sup> Unfortunately, we don't know exactly how the English organized meals but the Spanish at the same time had their men eat in groups of four. Each group would receive a pile of biscuits, a bucket containing four servings of the meal and enough wine for four

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<sup>55</sup> Friel, 2010: pp 48

<sup>56</sup> 129

<sup>57</sup> Pryor, J.H. "Firewood at Sea." *Mariners Mirror* 75, no. 1 (1988): pp 96

<sup>58</sup> Marsden, 2009: pp 134

<sup>59</sup> 135

<sup>60</sup> Gardiner & Allen, 2005: pp 13

<sup>61</sup> 15

<sup>62</sup> 440

people.<sup>63</sup> The majority of the crew ate from turned wooden bowls, made from alder, beech, birch, oak or elm,<sup>64</sup> with hand carved wooden spoons. Both bowl and spoon belonged to the crewmember who used them while the serving dishes were owned by the ship.<sup>65</sup> The crew also owned either staved wooden tankards or leather bottles in which to keep their beer.<sup>66</sup> Although the majority of the food found was for the use of the kitchen there is evidence that individuals had their own supplies of fruit, nuts, and even pepper.<sup>67</sup>

## Recipes

To create my recipes I used common ingredients and cooking methods from the 16<sup>th</sup> century which were also used on naval ships of the 16<sup>th</sup> century. Stewing meat is one of the most common, in both senses of the term, ways to cook meat and appears frequently in many English cookery books from the 16<sup>th</sup> century.<sup>68</sup> It was also one of the most common methods of cooking on the Mary Rose<sup>69</sup>. Because of this I am taking several stew recipes from the 16<sup>th</sup> century and combining them to create a recipe which meets the required criteria of only including ingredients that were similar to those known to be aboard ships of the time and focusing on common ingredients rather than rare ones, as well as ensuring the recipe is easy to scale up to serve to a ship's crew.

Using the work by Daniel Myers on the prevalence of ingredients in various cookery books<sup>70</sup> I performed a meta-analysis of the English cookery books he lists from 1490-1596 (see Appendix 1) to determine some of the most frequently called for ingredients during the 16<sup>th</sup> century. Through the analysis I determined that the most commonly called for meats in cookery books of the time were fish/seafood, poultry/chicken, beef, and pork. The most common types of produce were currants, dates, onions, raisins, apples, figs, prunes, and plums. The most common spices were salt, ginger, pepper,

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<sup>63</sup> 608

<sup>64</sup> 426

<sup>65</sup> 424

<sup>66</sup> 427

<sup>67</sup> 15

<sup>68</sup> cf. *The Booke of Kervynge* by Wynken de Worde, (1508) 4v; *A proper newe Booke of Cokerie* (1575) 7, 9, 15, 34, 42, 46, 58; *A Booke of Cookrye* by A. W. (1591) 2, 3, 9, 17; *The good Huswifes Handmaide for the Kitchin* (1594 & 1597) 1a 1594, 1b 1594, 9b 1597, 13a 1597, 54a 1594; *The Good Huswifes Jewell* by Thomas Dawson (1596) f2r, f8v, f9r, f10v, f21r, f25r; *The Second part of the good Hus-wiues Jewell* by Thomas Dawson (1597) 4, 15, 49, 52, 56.

<sup>69</sup> Marsden, 2009: pp 134

<sup>70</sup> Myers, Daniel. "Statistics from Medieval Cookbooks." *Medieval Cookery*. <http://medievalcookery.com/statistics.html> (accessed May 31, 2017)

cinnamon, saffron, cloves, mace, parsley, galingale, sage, and rosemary. Finally, the most common other ingredients were sugar, eggs, wine, butter, vinegar, verjuice, and ale.

## Extant Recipes

I worked with extant recipes from five cookery books from England in the mid to late 16<sup>th</sup> century. All of the recipes I worked with are in given in Appendix 2, while the four presented here were the most similar, creating a “core” recipe based on my analysis.

Recipes	Commentary
<p>A proper newe Booke of Cokerye (1575)<sup>71</sup></p> <p><i>To make a stewed broath for Capons, mutton, beyfe, or any other hoate meate, and also a broathe for all maner of fresh fyshe.</i></p> <p>Take halfe a handefull of rosemary and as muche of tyme and bynde it on a bundel wyth threde after it is washen, and put it in the potte after that the potte is cleane skummed, and lette it boyle a whyle, then cutte soppes of white breade and put them in a great charger and put it on the same skaldyng broath and when it is soken ynoughe, strayne it throughe a strayner with a quanty of wyne or good ale, so that it be not tarte; and when it is strayned, poure it in a pot and than putte in youre raysons and prunes, and so lette them boyle tyll the meate be ynoughe. Yf the broathe be to swete, putte in the more wyne or else a lyttle vyneger.<sup>72</sup></p>	<p>Generic stew</p> <p>Rosemary</p> <p>Thyme</p> <p>Bread soppes</p> <p>Wine or ale</p> <p>Raisins</p> <p>Prunes</p> <p>Vinegar (optional)</p> <p>Meat of choice</p> <p>Make stock with the herbs in it</p> <p>Soak some bread, then break it up (strainer) and add wine or ale to it, then add it to the stock</p> <p>Add raisins, prunes, and meat and boil till tender</p> <p>Add extra wine or vinegar if desired</p>
<p>A proper newe Booke of Cokerye (1575)</p> <p>To stewe stekes of mutton.</p> <p>Take a legge of mutton and cot it in small slices, and put it in a chafer, and put</p>	<p>Mutton Stew</p> <p>Mutton leg</p> <p>Ale</p> <p>Onions</p> <p>Butter</p> <p>Pepper &amp; Salt</p>

<sup>71</sup> These recipes are from the 1913 transcription of the original and were checked against the 2007 transcription by Daniel Myers for accuracy.

<sup>72</sup> Frere, Catherine Frances, ed. A proper newe booke of cokerye. With notes, introduction and glossary. Cambridge: W. Heffer & Sons Ltd, 1913: pp 17-19

<p>therto a pottell of ale, and scome it cleane then putte therto seven or eyghte onions thyn slyced, and after they have boyled one houre, putte thereto a dyshe of swete butter, and so lette them boyle tyll they be tender, and then put therto a lyttel peper and salte.<sup>73</sup></p>	<p>Cut mutton small and bring to a boil with ale Add diced onions, boil one hour Add butter and cook till tender, then season to taste</p>
<p>The good Huswifes Handmaide for the Kitchin (1594 &amp; 1597)</p> <p><i>Stewed meates.</i></p> <p><i>To make stewed broth either for flesh or fish.</i></p> <p>TAke halfe a handfull of Rosemarie, and as much of Time, and binde it on a bundle with threed after it is washt, and put it in the pot, after that the pot is cleane scummed, and let it boile a while, then cut sops of white bread, and put them in a greate charger, and put on the same scalding broth, &amp; when it is soken enough, straine it through a strainer, with a quantitie of wine or good ale, so that it be not too tart, and when it is strained, poure it in a pot, and then put in your raisins and Prunes, and so let them boyle till the meate be enough. If the broth bee too sweete put in the more wine, or else a litle Uinegre.<sup>74</sup></p>	<p>Generic Stew Rosemary Thyme Bread Wine or Ale Raisins Prunes Vinegar (optional) Meat of choice Make stock with the herbs in it Soak some bread, then break it up (strainer) and add wine or ale to it, then add it to the stock Add raisins, prunes, and meat and boil till tender Add extra wine or vinegar if desired</p>
<p>The Good Huswifes Jewell by Thomas Dawson (1596)</p> <p><i>To make stewed Steakes.</i></p> <p>Take a peece of Mutton, and cutte it in peeces, and washe it very cleane, and put it into a faire potte with Ale, or with halfe Wine, then make it boyle, and skumme it cleyne, and put into your pot a faggot of Rosemary and Time, then take some Parsely picked fine, and some onyons cut round, and let them all boyle together, then take prunes, &amp; raisons, dates, and currans and let it boyle altogether, and season</p>	<p>Mutton Stew Mutton Ale or wine Rosemary, Thyme, Parsley Onions Prunes &amp; Raisins Dates &amp; Currants Cinnamon, Ginger, Nutmeg, Cloves Salt Cut up mutton, bring to boil with ale or wine Add herbs and onions, boil Add prunes, raisins, dates, and currants, boil Add spices and serve</p>

<sup>73</sup> 55-58

<sup>74</sup> Wallace, Sam, ed. The good Huswifes Handmaide for the Kitchin. London: Richard Jones, 1594, 1597, 2006 ed.: pp 13a-13b 1597

it with Sinamon and Ginger Nutmeggs, two or three Cloues, and Salt, and so serue <sup>75</sup>	
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The key difference between the recipes is the addition of stock in two of them. The similarities between the four are striking: meat, ale or wine, herbs, fruit, sometimes spices, and cooked in nearly the same way, two being cooked in the ale, though based on other recipes (see Appendix 2) stock or water may have been added, and two being cooked in stock. More spices and onions are used in the two cooked in ale, while the ones cooked in stock are made with bread as a thickener.

### Recipe Analysis

Although those four recipes seem to represent a standard stew or stewed meat I examined 15 stew recipes from five English cookery books ranging from 1575 till 1597. This allowed me to ensure that I was using the appropriate ingredients and was making what would be easily recognized in the 16<sup>th</sup> century as a stew. Here is a summary of ingredients by recipe.<sup>76</sup>

Cookery Book	Year	Recipe title	Ingredients
A proper newe Booke of Cokerye	1575	To make a stewed broath for Capons, mutton, Beyfe, or any other hoate meate, and also a breathe for all maner of fresh fyshe	Rosemary Thyme White bread Wine or ale Raisins Prunes Meat Vinegar (optional)
		To stewe capons in whyte brothe	Beef bones Capons Rosemary Mace Parsley Prunes Verjuice Salt Bread
		To stewe bones or gristels	Beef gristle Rosemary

<sup>75</sup> Dawson, Thomas. The good huswifes Jewell. London: Edward White, 1596: pp f8v

<sup>76</sup> For the full extant recipes see Appendix 2

			Mace Salt
		For to stewe mutton	Mutton neck & breast Raisins Bread Thyme Savory Parsley Herbs Prunes Cloves Mace Pepper Saffron Salt Poultry (optional)
		To Stewe stekes of Mutton	Mutton leg Ale Onions Butter Pepper Salt
A book of Cookrye	1591	To stue a Capon	Broth Currants Raisins Dates Onions Bread Prunes Cloves Mace Pepper Salt Verjuice Meat (Capon, Chicken, Veal, Mutton, or Beef)
The good Huswifes Handmaide for the Kitchin	1594 1597	To Boyle Mutton with Mallowes or Turneps	Mutton neck Beef broth Turnips Pepper Bread
		To boyle Mutton with Spinage	Mutton neck Mutton broth Unsalted pork belly Spinach Pepper Salt

			Bread
		How to make Hodgepot in pots	Mutton leg Mutton marrow Beef broth Nutmeg Pepper Currants Prunes Verjuice Bread
		To make stewed broth either for flesh or fish	Rosemary Thyme Bread Wine or Ale Raisins Prunes Vinegar (optional)
		To make stewed steakes	Mutton breast Marrow Wine Thyme Rosemary Parsley Onions Prunes Raisins Dates Bread Saffron Cloves Mace Cinnamon Ginger Sugar Verjuice
The Good Huswifes Jewell	1596	To make stewed Steakes	Mutton Ale or wine Rosemary Thyme Parsley Onions Prunes Raisins Dates Currants Cinnamon Ginger Nutmeg

			Cloves Salt
The Second part of the good Hus-wiues Jewell	1597	To stew Steakes	Mutton rib and neck Parsley Thyme Marjoram Onions Verjuice Wine Butter Marrow Pepper Sugar (optional)
		To stewe Veale	Veal knuckle Onion Verjuice Butter Salt Saffron sugar
		To stewe Steakes	Mutton neck Butter Onions Parsley Mutton broth Pepper Salt Verjuice Bread

The frequency of ingredients in these recipes is as follows:

Item	Recipes
Bread	10
Salt	9
Pepper	8
Prunes	8
Onion	7
Verjuice	7
Parsley	6
Raisins	6
Rosemary	6
Thyme	6
Wine	5

Broth (Primarily beef or mutton)	5
Mace	5
Mutton neck	5
Butter	4
Cloves	4
Ale	4
Currants	3
Dates	3
Saffron	3
Sugar	3
Cinnamon	2
Ginger	2



Mutton Leg	2
Meat (unspecified)	2
Mutton breast	2
Nutmeg	2
Vinegar (optional)	2
Beef bones	1
Beef gristle	1
Capons	1
Herbs	1
Marjoram	1

Mutton	1
Mutton marrow	1
Mutton rib	1
Poultry (optional)	1
Savory	1
Spinach	1
Turnips	1
Unsalted pork belly	1
Veal knuckle	1

Ignoring any ingredients that appear in three or fewer recipes the common ingredient list is: bread, salt, pepper, prunes, onion, verjuice, parsley, raisins, rosemary, thyme, wine, broth (primarily beef or mutton), mace, mutton neck, mutter, cloves, and ale. Several other meats, primarily cuts of mutton, are listed as well, but the most common is mutton neck.

Meat	Fruit/Vegetables	Spices	Other
Mutton Neck	Prunes	Salt	Bread
Broth (beef or mutton)	Onion	Pepper	Verjuice
	Raisins	Parsley	Wine
		Rosemary	Butter
		Thyme	Ale
		Mace	
		Cloves	

Mutton, though not one of the most called for meats in 16<sup>th</sup> century cookery books, is fairly common in stews, appearing 80 times in my analysis. Prunes, onions, and raisins are all among the most common fruits and vegetables; while salt, pepper, mace, cloves, and parsley are all very common spices and rosemary is relatively common. Thyme, though rare in my meta-analysis, does occur often in later 16th century cookery books. Verjuice, wine, butter, and ale are all very common ingredients, while bread is common, frequently used in these recipes as a sop upon which the stew is served.

## Recipe Creation

By taking the common themes from the fifteen recipes we can extrapolate a recipe that would be identifiable by a 16<sup>th</sup> century Englishman as stew and which could have been made with only the ingredients available onboard ship. The recipes' similarities are that they involve a meat (primarily mutton) cooked in either mutton or beef stock with prunes and/or raisins as a sweet aspect. They are

seasoned with salt, pepper, cloves, and mace, as well as parsley and rosemary, and occasionally thyme. Wine, ale, or verjuice is added as a bittering agent, and occasionally butter or onions are added as well. The stew is frequently served over bread.

The recipe that is most suitable to use as the typical stew from which to deviate is “To make a stewed broath for Capons, mutton, beyfe, or any other hoate meate, and also a broathe for all maner of fresh fyshe” from *A proper newe Booke of Cokerye* (1575). It includes rosemary and thyme<sup>77</sup> as the spices, prunes and raisins as the fruit, bread as a thickener, and wine or ale (beer will be used instead as discussed later) and vinegar as the bittering agent, as well as using your meat of choice. Because beef was the more common meat onboard a 16<sup>th</sup> century naval ship and it is still called for in stew recipes of the time I will be using beef for this recipe. Mutton, while not unheard of on board naval ships, was carried in too small a quantity to be used frequently.

### Beef Stew:

Late 16<sup>th</sup> Century English

- 3lb Beef (any tough cut) - salted
- Beef bones
- 1 ½ cups diced prunes
- 11 oz Sengyll Beer
- ¼ oz Peppercorns
- Large sprig Rosemary
- ½ cup Ships Biscuits, ground

1. Boil beef bones until it makes a strong stock, skim the top and remove the bones
2. Soak the salt beef in water for about 12 hours, then remove and dice
3. Put rosemary and beef in the stock
4. Add prunes, pepper and beer
5. Soak ship's biscuits in about two cups of stock for 20 minutes then add to stew
6. Cook until meat is tender
7. Serve over ship's biscuits

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<sup>77</sup> Thyme was not one of the most common spices of the period (see Appendix 1) though it occurred several times in stew recipes. Because of this I am using whole peppercorns instead as that is one of the most common spices from the time.

## Ingredients & Techniques

### Ship's Biscuits<sup>78</sup>

In the 16<sup>th</sup> century a Biscuit was just a flour based item that was baked and then re-baked to dry it. Drying it would allow it to last longer than it would otherwise, or give it a hard crunch (think biscotti). This is especially helpful for ship travel as anything to allow the food to keep from spoiling would be key. Recipes for biscuits, fine biscuits, French biscuits, prince biscuits, and biscuit bread abound in cookery books from in the 16<sup>th</sup> and 17<sup>th</sup> centuries. The only similarity that is in all of them is that they are twice baked. Ship's biscuits are frequently referred to as being a very basic type of food, and that the biscuits used in war time were made "twice baked, and without leaven or salt: because it should not vinewe or mowell in short time".<sup>79</sup> Although I found recipes for biscuits in *The Good Huswifes Jewell* (1596), *Delightes for Ladies* (1609), and *Libre del Coch* (1529), the only cookery book I found that had a recipe that had no salt or leaven and didn't include any ingredients that could spoil rapidly was one from *Um tratado da cozinha portuguesa do século XV* (A Treatise of Portuguese Cuisine from the 15th Century) which was translated by Fernanda Gomes<sup>80</sup> in 2006.<sup>81</sup>

The recipe for ship's biscuits is part of a larger recipe in which the biscuits are then ground to flour afterward for use in the larger recipe. It tells us:

*Take 7 litres of wheat flour and divide it into two equal parts. Make a well in each part, putting in one of them, one 1 litre can of olive oil, and in the other, hot water. Knead the two parts seperately, such that the doughs become very well kneaded, and ready to roll out. Next, with each one of these doughs, make biscuits of the size you desire, and take them to the oven to bake, that they do not become too browned.*<sup>82</sup>

Although the writer talks about two different types of biscuit the key recipe here is the one which is just water and flour. This recipe gives us both the amounts of ingredients and the cooking instructions.<sup>83</sup> The only thing left out is the baking temperatures, however the other recipes I found

<sup>78</sup> Modernly we would call this hard tack, but in the 16<sup>th</sup> century it was called ship's biscuits.

<sup>79</sup> Crowley, Robert. *The Subtyle Sophistrie of Thomas VWatson*. London: Henry Denham, 1569: pp 169

<sup>80</sup> Mistress Faerisa Gwynarden in the SCA

<sup>81</sup> *Um tratado da cozinha portuguesa do século XV* is taken from a section of *O Livro de Cozinha da Infanta D. Maria* which was a Portuguese book originally believed to be from the late 15th century, however there is no internal dating. It is now thought to be a compilation of recipes that was begun in the late 15th century and was finished in the mid 16th century. For more information on the history of this work see [http://www.oldcook.com/medieval-livres\\_cuisine\\_portugais](http://www.oldcook.com/medieval-livres_cuisine_portugais)

<sup>82</sup> Gwynarden, Faerisa. *A Treatise of Portuguese Cuisine from the 15th Century*. 2006.

<sup>83</sup> The use of the well in the flour and filling it with water is also mentioned in "Bread Upon the Water", P. Dunne & C.L. Mackie, *Historic Preservation Vol. 45 Iss. 5* (1993), p. 72

agreed that biscuits should be cooked at bread temperature<sup>84</sup> (for a modern oven that maintains a steady temperature this should be about 400°F, but at the time would be from anywhere between 400°F to 500°F). The Good Huswifes Jewell also says that when drying the temperature should be low enough to easily put your hand inside the oven without worrying.

The recipe I used for it was:

### Ship's Biscuits:

Late 15<sup>th</sup> century Portuguese, adjusted based on evidence from 16<sup>th</sup> century English

- 2 cups flour
  - ¼ cup water
  - 2 Tbsp water
1. Make well in flour
  2. Add ¼ cup water
  3. Knead till it can be rolled out (if needed add some of the extra water)
  4. Roll out dough and cut into preferred shape
  5. Bake in oven 400°F for an 60-90 minutes or until it begins to brown
  6. Remove, allow to cool
  7. Bake at 170°F until fully dry
  8. Remove, allow to cool

### Flour

For a full examination of the appropriate flour see Appendix 3. For this recipe I am using a stone ground white winter wheat which has only been lightly bolted by hand, though the flour used at the time would likely have included a significant amount of rivet and club wheat.

### Plums and Prunes

The recipes call for prunes, however the word prune seems to be interchangeable with the word plum during the 16<sup>th</sup> century.<sup>85</sup> On board the Mary Rose they found basket after basket of plum stones, and although it's unknown whether they came from fresh plums or prunes<sup>86</sup> the theory put forward by

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<sup>84</sup> Dawson, 1596: pp f13r

<sup>85</sup> Oxford English Dictionary

<sup>86</sup> Gardiner & Allen, 2005: pp 596

Gardiner is that they were fresh.<sup>87</sup> Plums were a very common fruit in England with at least five major varieties available in the 16th century according to Gerarde's Herball.<sup>88</sup> On the Mary Rose they found five different varieties of plum stone on the Mary Rose including Catalonia (a type of Common European Plum), Mirabelle, Greengage, and two types of Cherry Plum.<sup>89</sup> The Herball describes three of these, the Common European Plum, Mirabell Plum, and Greengage Plum,<sup>90</sup> and all three of them were in season<sup>91</sup> at the time the Mary Rose sank.<sup>92</sup> For this reason I'm using fresh common plums in this recipe as they were they made up the bulk of the plum stones found and were also the cheapest at the time, being even cheaper than raisins,<sup>93</sup> the recipe can, however, be made with prunes instead.

## Salting Beef

The salting of meat was a preferred preservation method for most of the SCA time period, and allowed for the preservation, storage, and transport of meat without refrigeration. There are several different ways of salting meats: lightly coating in salt, temporary packing in salt, partial packing in salt, and long term packing in salt, as well as several different brining methods, but all of these methods are essentially ways of drawing the water away from the meat (plasmolysis) faster than simply drying it.<sup>94</sup> This prevents harmful bacteria from growing and allows the meat to be stored safely.

Temporary packing in salt seems to function as the main method of salting for most meats. In this method the meat is packed in salt in a watertight cask. After a period of time running from one day to a month, they removed the meat from the salt and hung it by a fireplace, or other warm location, until fully dry. After that it may be hung in a dry place for one to four years depending on the type of meat.<sup>95</sup>

Salting meat is something that I've done several times now,<sup>96</sup> and the method I used here was long term packing in salt, where the meat is covered in salt and sealed in a water tight container. In

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<sup>87</sup> 597

<sup>88</sup> Gerarde, John. *The Herball or Generall Historie of Plantes*. London: John Norton, 1597: pp 1311-1313

<sup>89</sup> Gardiner & Allen, 2005: pp 596-597

<sup>90</sup> Gerarde, 1597: pp 1312

<sup>91</sup> 1314

<sup>92</sup> Gardiner & Allen, 2005: pp 597

<sup>93</sup> Rogers, James E. Thorold. *A History of Agriculture and Prices in England VIII 1401-1582*. Oxford: Clarendon press, 1793: pp 703

<sup>94</sup> James, Nkixwstn, interview by Noah Arney. Elders, Nlaka'pamux nation Lytton, B.C., (May 20, 2009).

<sup>95</sup> Woolgar, C.M., Dale Serjeantson, and Tony Waldron. *Food in Medieval England*. Toronto: Oxford University Press, 2006: pp 181-183

<sup>96</sup> For a fuller examination of salting meat see (de Courcy, *Salting Beef* 2010) or (de Courcy, *Salting Meat* 2016)

Lieber Cure Cocorum, published first in 1430, it says: "Salt hit wyth drye salt, alle in fere. And do hit in a barel þenne. Þe barel staf ful as I þe kenne, Stop wele þo hede for wynde and sone, For hit wylle payre þo venysone".<sup>97</sup> The meat would then be removed shortly before using, perhaps up to a week previous. This method keeps the meat from exposure to moist air, especially important on a ship, and is the most Food Safe method.

When salting, two main kinds of salt were used: gross salt and white salt. Gross salt is what we today call sea salt, and appears to have been the cheaper variety,<sup>98</sup> while white salt was the more expensive refined salt and was a better salt for preserving meat. However, having used several different types of salt over the years I have determined no difference in flavour when using (non-iodized) modern salt as the imperfections that made gross salt the less desired version are not present.

Before cooking salted meat most period cookery books recommend parboiling or soaking the meat in an attempt to "draw out the salt".<sup>99</sup> Because it was the method used onboard naval ships of the time<sup>100</sup> I am using the 12 hour soak method to draw out the salt.

### Salted Beef:

- 3 lb Beef shoulder roast
  - 4lb pickling salt (non-iodize)
  - Large container for storage<sup>101</sup>
1. Cover bottom of container in salt
  2. Place beef on top
  3. Cover with salt, ensuring that beef is fully covered on all sides
  4. Seal and place in a cool dry place (under 10°C is preferred)
  5. Check every few days, if excessive moisture is coming off beef (entire bottom of container containing liquid), change salt and return to cool location
  6. Leave for 14 days or until use (recommended to be used within six months or less)

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<sup>97</sup> "Liber Cure Cocorum." In *The Philological Society's Early English Volume*, by Richard Morris, edited by Richard Morris, 61. London: Asher & Co., 1865: pp 33-34

<sup>98</sup> Woolgar, 2006: pp 182

<sup>99</sup> Power, Eileen, trans. *The Goodman of Paris (Le Ménagier de Paris c. 1393)*. Woodbridge: The Boydell Press, 2006: pp 164

<sup>100</sup> Woolgar, 2006: pp 182

<sup>101</sup> Glass or plastic works well as you can see salt so as to gauge the process, but barrels are the period appropriate containers.

## Beer

The early English brewing industry focused primarily on ale, made with gruit,<sup>102</sup> and expanded and commercialized significantly during the 14th century.<sup>103</sup> At the same time hopped beer was being imported from Holland and Flanders<sup>104</sup> primarily for the immigrant population which was more used to beer than ale. England also made beer, though unhopped, as early as the late 12th century,<sup>105</sup> however it had a reputation as not being as good as ale or hopped beer. English brewers began producing hopped beer in the 15th century,<sup>106</sup> though the operations were primarily run by immigrants, causing tensions with the ale makers.<sup>107</sup> By the 16th century the primary difference between beer and ale was the additives used to flavour it. While beer used hops ale used herbs, spices, fruit, and sometimes even toasted bread.<sup>108</sup> By the middle of the 16th century in most, though not all,<sup>109</sup> areas the ale brewers and beer brewers had merged<sup>110</sup> though there remained a firm distinction between the definitions of ale and beer based on the additives. Many Englishmen felt that ale was the proper drink of the English while beer was for foreigners,<sup>111</sup> however the tide was shifting in England and by the last quarter of the century beer had mostly replaced ale as the preferred beverage in England.<sup>112</sup>

It was because of the lower cost of beer compared to ale that the English military began using beer as part of their rations during Henry V's time.<sup>113</sup> This appears to have continued through to the 16<sup>th</sup> century<sup>114</sup> and because the difference between beer and ale was so well known and pronounced there is little chance that provisioners were using the word beer when they meant ale. Evidence of hopped beer was also found onboard the Mary Rose.<sup>115</sup> Because of this I am using a hopped beer.

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<sup>102</sup> Unger, Richard W. *Beer in the Middle Ages and Renaissance*. Philadelphia: University of Pennsylvania Press, 2004: pp 64

<sup>103</sup> 98

<sup>104</sup> *Ibid.*

<sup>105</sup> 97

<sup>106</sup> 99

<sup>107</sup> *Ibid.*

<sup>108</sup> 100

<sup>109</sup> 103

<sup>110</sup> 102

<sup>111</sup> 100

<sup>112</sup> *Ibid.*

<sup>113</sup> 99

<sup>114</sup> Knighton, 2011: 171

<sup>115</sup> Gardiner & Allen, 2005: pp 595

Beer in 16<sup>th</sup> century England was made from “malte, of hoppes, and water”<sup>116</sup> after the Dutch fashion. It was described in the 1590s as being very “clear in color”.<sup>117</sup> Terry Foster with *Brew Your Own* magazine recreated English beer based on Richard Arnold's recipe from the beginning of the 16th century. The end result was very similar to a "low-hopped version of an English summer ale"<sup>118</sup> and was a "pale gold color" which lines up well with other sources. Foster's source is “The Customs of London: Otherwise Called Arnold's Chronicle” reprinted in 1811, but originally from 1503. Here's the recipe:

To brewe beer

X. quarters malt, ii. quarters wheet, ii. quarters ootes, xl. lb weight of hoppys. To make IX. barrels of sengyll beer.”<sup>119</sup>

Based on foster's recipe and conversions<sup>120</sup> I created a recipe for “sengyll beer” as Arnold calls this. I've taken that to mean that the grains are not to be removed when the hops are added, which is different from Foster's redaction. However, most of the evidence from later English beer has it being pulled out so the grain can be used for small beer. The conjecture I'm using, with assistance from Machabi Caiaphas, is since the beer at this time is primarily being made by immigrants for immigrants there wasn't as much of a business in small beer yet and that the main production would have been single or entire beer.<sup>121</sup> The final beer has a light body with a complex first taste with dry lemon and floral front notes and slight bitterness at the end of the sip, the bitter didn't follow through in the remaining sips. It has strong citrus notes throughout (lemony, not grapefruit) and a light bread like smell.

### Sengyll Beer:

- 3 lb pale malt
- 2/3 lb oat malt
- 2/3 lb wheat malt
- 1/2 oz hops (Hallertau Hersbrucker and Centennial)
- 2/5 qt yeast (English ale)

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<sup>116</sup> Boorde, Andrew. Andrew Boorde's Introduction and Dyetary. Dublin: Early English Text Society, 1870: pp 256

<sup>117</sup> Unger, 2004: pp 103

<sup>118</sup> Foster, Terry. "Tudor Beer." *Brew Your Own*, May/June 2012.

<sup>119</sup> Richard, Arnold. *The customs of London, otherwise called Arnold's Chronicle*. London: F. C. and J. Rivington, 1811: pp 247

<sup>120</sup> Foster, 2012

<sup>121</sup> Machabi Caiaphas was instrumental in the brewing process. He showed me how to brew beer, walked me through the process, and was the primary brewer, as well as letting me use his equipment for this.



- 3 gallons water
1. Place grains in pot
  2. Add boiling water to pot
  3. Boil for 2 hours stirring occasionally
  4. Add the hops
  5. Continue boiling another hour
  6. Drain the grains and hops
  7. Sparge (rinse) the grains over the wort
  8. Bring to boil
  9. Transfer wort into carboys
  10. Allow to cool (possibly overnight) with vapour lock on
  11. Pitch yeast once it's cooled
  12. After one to two weeks rack the beer off the yeast into fresh carboys
  13. Allow to settle for several more weeks
  14. Rack into final container

## Herbs & Spices

Although in the 16th century black pepper, white pepper, two kinds of long pepper, and Ethiopian pepper were all known it was black pepper that was the most common<sup>122</sup> and least expensive. Black pepper was the cheapest of the common spices in England at the time,<sup>123</sup> making it more likely to be used on a ship; it was the most common “flavouring” ingredient found on the Mary Rose.<sup>124</sup> Very little has changed in pepper production in India where pepper is still picked and threshed manually<sup>125</sup> and sun dried,<sup>126</sup> though other countries have begun mechanizing several steps. The method of determining whether the pepper has been traditionally produced or produced with mechanization is the uniformity of the black colour which requires at least one modern step (boiling of the peppercorns before drying) and may indicate the use of more.<sup>127</sup> After the primary preparation steps nearly all

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<sup>122</sup> Gerarde, 1597: pp 1354

<sup>123</sup> Rogers, 1793: pp 703

<sup>124</sup> Gardiner & Allen, 2005: pp 594

<sup>125</sup> Ravindram, P.N., ed. Black Pepper. Amsterdam: Harwood Academic Publishers, 2005: pp 346

<sup>126</sup> 350

<sup>127</sup> 377

modern pepper undergoes machine processing to remove any debris, "pinheads, vegetable seeds, fine dust, sand etc." as well as small stones.<sup>128</sup>

Rosemary was a very common herb<sup>129</sup> in England both easy to grow and cheap to obtain, and was frequently used as a hedge material in England.<sup>130</sup> Several different varieties were available, including what is now known as *Rosmarinus officinalis* but was then called *Rosmarinum coronarium* or Garden Rosemarie.<sup>131</sup> This is the same plant that is now available at most garden supply stores. I am using *Rosmarinus officinalis* from my garden.

## Departures from period

Several departures from period were required for this project including cooking tools, heating methods, and scale of production. Due to Canadian regulations regarding cooking or serving meat in brass pots I am using a ceramic pot for the cooking of the stew. This is closer to what would have been used for cooking for officers rather than for the entire ship.<sup>132</sup> The stock was made using a traditional stock pot due to its greater capacity. The biscuits were baked using a stoneware baking stone and cloche in an attempt to simulate a 16<sup>th</sup> century oven while using a modern electric oven. The use of the imbedded cauldron heated with a wood fire has been replaced by a modern stove with a modernly constructed pot as mentioned above for the stock and with a ceramic pot for the making of the stew. The original dish would have been made large enough to serve up to 200 men, while this dish would serve only about six men, assuming that the one pound of meat per person was divided between the two meals. All grinding has been done by hand in a stone mortar, though a ship would likely have used a cast bronze one.<sup>133</sup> The use of bronze and brass in cooking of the time would have imparted a slight metallic flavour, however the flavour from the mortar would have been overwhelmed by the spices used (especially given the large volume of food being cooked) while the difference in cooking vessel is unfortunately one of food safety.

## Conclusion

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<sup>128</sup> *Ibid.*

<sup>129</sup> Gerarde, 1597: pp 1109

<sup>130</sup> 1110

<sup>131</sup> 1109

<sup>132</sup> Gardiner & Allen, 2005: pp 425

<sup>133</sup> Marsden, 2009: pp 129

The necessity of feeding hundreds of men every day meant that English naval ships had very organized and productive kitchens. A great deal of meat was consumed each day, and the primary methods of cooking were boiling, stewing, and other similar large batch cooking methods utilizing very large cauldrons. I have recreated a simple dish of beef stew made with salted beef, seasoned with pepper and rosemary, thickened with ship's biscuits, and given sweet and bitter notes with prunes and beer. Though we do not have recipe lists from naval ships of the time, this would likely be very close to the type of dishes that were made and represents a general "stewed meat" dish that was fairly common in the 16<sup>th</sup> century and it utilized only ingredients and cooking methods that were available onboard naval ships. Because of this I feel it represents a type of meal that would have been probable on board a 16<sup>th</sup> century naval ship.

From this project most of my learning was in two areas. First was learning a great deal more about cooking aboard ship than I had previously known, especially in regards to the concept of cooking 400 liters of food at a time as opposed to 2-4 liters at a time. Although I have made the recipe before I hadn't understood the scale at which it would have been produced, nor the amount of work that went into feeding a crew, even on a ship that was rarely more than a week from port. The other thing I learned specifically for this was how to brew beer, which was completely new to me, and I thank Don Caiaphas for his assistance with this. My knowledge of beer previously was very limited and I had only watched brewing once before and hadn't attempted any of the steps in it. A step forward on this project would be to attempt it at a larger scale, preferably with a brass cauldron holding three or more gallons. This would show the impact of scale and the change in flavour from using brass.

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## Appendix 1: common ingredients in 16<sup>th</sup> C. English cookery books

Based on Daniel Myers' work examining the prevalence of ingredients in various cookery books I examined the combined results from four cookbooks from England ranging from 1490-1596, Two Fifteenth-Century Cookery Books (1450), A Proper newe Booke of Cokerye (1550), A Book of Cookrye (1591), and The Good Housewife's Jewell (1596). Here is my complete dataset. Because several cookery books have preferred ingredients some of the items may not be as prevalent throughout the century, but all of the more common ingredients would likely have been known to the average cook.

<b>Meat</b>	
<i>Item</i>	<i># of Recipes</i>
fish / seafood	163
poultry/chicken	143
beef	118
pork	94
game birds	88
sheep / mutton	80
venison	34
rabbit	33
duck	17
goose	14
goat	9
geese	3
boar	1
<b>Fruit/Vegetables</b>	
<i>Item</i>	<i># of Recipes</i>
currants	107
dates	107
onions	101
raisin	39
apples	38
figs	30
prunes	27
plums	26
quince	19
oranges	16
spinach	15
pears	14
cherries	11
gooseberries	11
lemons	11

grapes	9
strawberries	9
beets	8
cabbage	8
carrots	8
lettuce	8
pomegranate	8
endive	7
peas	7
beans	3
mulberries	3
cucumbers	2
leeks	2
turnips	2
artichokes	1
citrons	1
parsnips	1
peaches	1
damsons	2
medlars	2
<b>Spices</b>	
<i>Item</i>	<i># of Recipes</i>
salt	423
ginger	340
pepper	297
cinnamon	263
saffron	244
cloves	194
mace	193
parsely	126
galingale	37
sage	28
rosemary	23

cubebs	22
nutmeg	18
savory	16
mustard	15
anise	14
barberies	12
borage	12
garlic	11
hyssop	11
marjoram	11
sorrel	7
thyme	6
caraway	5
fennel	4
bay	3
herbs	3
mint	3
pennyroyal	3
alexander	2
avens	2
bettany	2
coriander	2
rose hips	2
saunders	2
tansy	2
chamomile	1
costmary	1
cumin	1
dittany	1
grains of paradise	1
isinglass	1
juniper	1
licorice	1
orage	1
<b>Other</b>	
<b><i>Item</i></b>	<b><i># of Recipes</i></b>
sugar	396
eggs	283
wine	201

butter	196
vinegar	143
verjuice	119
ale	65
honey	55
marrow	48
sandalwood	46
rosewater	41
bread	37
cream	30
flour	28
lard	22
suet	21
yeast	19
cheese	18
almonds	16
amidon	12
milk	10
violets	10
oats	9
roses	9
sorrel	7
alkanet	6
oil	5
flowers	4
gillyflowers	4
rice	4
rye	4
marigolds	3
pennyroyal	3
primrose	3
turnsole	3
hawthorn	2
rose hips	2
walnuts	2
ambergris	1
artichokes	1
cowslips	1



## Appendix 2: Extant Recipes

To create this dish I examined 15 recipes from five different English cookery books from 1575 till 1597.

A proper newe Booke of Cokerye (1575)<sup>134</sup>

*To make a stewed broath for  
Capons, mutton, beyfe, or any other  
hoate meate, and also a  
broathe for all maner  
of fresh fyshe.*

Take halfe a handefull of rosemary and as muche of tyme and bynde it on a bundel wyth threde after it is washen, and put it in the potte after that the potte is cleane skummed, and lette it boyle a whyle, then cutte soppes of white breade and put them in a great charger and put it on the same skaldyng broath and when it is soken ynoughe, strayne it throughe a strayner with a quantitye of wyne or good ale, so that it be not tarte; and when it is strayned, poure it in a pot and than putte in youre raysons and prunes, and so lette them boyle tyll the meate be ynoughe. Yf the broathe be to swete, putte in the more wyne or else a lyttle vyneger.<sup>135</sup>

*To stewe capons in whyte brothe.*

Take foure or fyve biefe bones to make your brothe, then take them oute when they are sodden and streyne the brothe into another potte, then putte in youre capons hole wyth rosemarye and putte them into the pot, and let them stewe, and after they have boyled a whyle, putte in hole Mace bounde in a whyte clothe, and a handefull or twayne of hole perseley and hole prunes, and lette them boyle well and at the takyng up put to a lyttle vergis and salte, and so strawe them upon soppes and the marybones aboute and the marrowe layde

<sup>134</sup> These recipes are from the 1913 transcription of the original and were checked against the 2007 transcription by Daniel Myers for accuracy.

<sup>135</sup> Frere, Catherine Frances, ed. A proper newe booke of cokerye. With notes, introduction and glossary. Cambridge: W. Heffer & Sons Ltd, 1913: pp 17-19

hole above them, and so serve them forth.<sup>136</sup>

*To stewe bones or gristels of biefte.*

Take gristels of beyfe, and stewe them as tender as ye canne, syxe houres so that there be no broathe lefte that shall serue you as that tyme, then putte a good boundell of rosemarye in a fayre linnen clothe, and a good quantite of mace in another clothe, and boyle them all together, then wrynge oute the juyce of the rosemarye, and mace uppon the fleshe, and ceason it with salte, and so serve hym.<sup>137</sup>

*For to stewe mutton.*

Take a necke of mutton and a breste to make the brothe stronge, and then scome it clene, and when it hath boyled a whyle take part of the brathe and putte it into another pot and put therto a pounce of reysons, and let them boyle till they be tender, then strayne a little bread wyth the reysons and the broth all together, then chop tyme, sauery and perseley with other small herbes, and put into the mutton then putte in the streyned raisins wyth whole prunes, cloues and mace, peper, saffron and a lytle salte, and yf ye lyste ye may stew a chikin withal or els sparowes or such other lytle byrdes.<sup>138</sup>

*To stewe stekes of mutton.*

Take a legge of mutton and cot it in small slices, and put it in a chafer, and put therto a pottell of ale, and scome it cleane then putte therto seven or eyghte onions thyn slyced, and after they have boyled one houre, putte thereto a dyshe of swete butter, and so lette them boyle tyll they be tender, and then put therto a lyttel peper and salte.<sup>139</sup>

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<sup>136</sup> 45-47

<sup>137</sup> 55-58

<sup>138</sup> *ibid.*

<sup>139</sup> *ibid.*

A Book of Cookrye by A. W. (1591)

*For Stewed and boyled Meates.*

*To stue a Capon.*

*Take the best of the Broth of the pot, and put it in a pipkin, and put to it Corance and great raisins, Dates quartered and onions fine minced, strayned bread & time, and let them boile well together: when they be well boyled, put in your prunes, season it with cloves, mace, pepper and very little Salte, a spoonfull or two of Vergious, and let it not be too thick. And your Capon being boyled in a pot by it selfe in fair water & salt to keepe it faire, and thus you may boyle a Chicken, vele, beef or mutton after this sort.<sup>140</sup>*

The good Huswifes Handmaide for the Kitchin (1594 & 1597)

*To boyle Mutton with Mallowes or Turneps.*

TAke a necke of Mutton, cut it in ribs, and put it in a pot, and a good quantity of beefe broth, and make it boyle: then take your Turneps or Mallowes, and cut them in peeces, of the bignes of your mutton, then put into your pot a little pepper, and so let them stew till they be verie tender, then take them of, and serue them vppon sops.

*To boyle Mutton with Spinage.*

TAke your necke of Mutton and cut it in peeces, and put it into a faire pot, and a good quantitie of Mutton broth, and make it boyle: then take sweete Bacon, and cut it of the bignes of your finger, and of the length, and put it in your pot, sixe or seuen peeces: then take three good handful of Spinnage, wash it verie cleane, and wring the water from it, and cut it small, and put it into the pot, and a litle pepper and salt, look that you haue no more broth then will couer your meat: so let it stewe verie softlie till it be tender, then serue it vpon sops.<sup>141</sup>

*How to a make Hodgepot in pots.*

TAke a good peece of a leg of Mutton, pare away the skinne from the flesh verie small, and take halfe as much marrowe as you doe flesh, & then put them both into an earthen pot and put to it halfe a pint of beefe broth, or halfe a pint of Mutton broth that is not salt, and put thereto a Nutmeg beaten, and a litle pepper, two spoonefuls of currans,

<sup>140</sup> A.W. A Book of Cookrye. London: Edward Allde, 1591: pp 9

<sup>141</sup> Wallace, Sam, ed. The good Huswifes Handmaide for the Kitchin. London: Richard Jones, 1594, 1597, 2006 ed: pp 1a-1b 1594

and twenty prunes and let them stewe softlie vpon a soft fire, and stirre it well together often, or els it will gather together in lumps: and when it hath stued an houre, put into it a spoonful of vergious and serue it vpon sops.<sup>142</sup>

*Stewed meates.*

*To make stewed broth either for flesh or fish.*

TAke halfe a handfull of Rosemarie, and as much of Time, and binde it on a bundle with threed after it is washt, and put it in the pot, after that the pot is cleane scummed, and let it boile a while, then cut sops of white bread, and put them in a greate charger, and put on the same scalding broth, & when it is soken enough, straine it through a strainer, with a quantitie of wine or good ale, so that it be not too tart, and when it is strained, poure it in a pot, and then put in your raisins and Prunes, and so let them boyle till the meate be enough. If the broth bee too sweete put in the more wine, or else a litle Uinegre.<sup>143</sup>

*To make stewed steakes.*

TAke the brest of Mutton, cutte it in peeces, wash it clean: then put it in a faire pot: and fill your pot with ale or halfe wine and halfe water, make it seeth and scum it cleane. Then put into your pot a fagot of Time and Rosemarie, and Parslie, and three or foure Onions cut rounde, take a litle Parsley picked very small, let them boyle altogether. Then take Prunes, smal Raisons, and great Dates, and let them boile altogether: then season your Sops  
pot with these spices. Take Salt and a litle Saffron, Cloues and Mace, Sinamon, Ginger, & a litle Sugar: take a quantitie of these spices, and put them into your pot, & let them stew altogether, and when they be tender, put a litle Uergious to them, and let them stew againe, then lay soppes of a Manchet vnder them in a platter, at the first yee must put a good deale of marrow in it.<sup>144</sup>

The Good Huswifes Jewell by Thomas Dawson (1596)

*To make stewed Steakes.*

Take a peece of Mutton, and cutte it in peeces, and washe it very cleane, and put it into a faire potte with Ale, or with halfe Wine, then make it boyle, and skumme it cleyne, and put into your pot a

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<sup>142</sup> 9b 1597

<sup>143</sup> 13a-13b 1597

<sup>144</sup> Ibid.

faggot of Rosemary and Time, then take some Parsely picked fine, and some onyons cut round, and let them all boyle together, then take prunes, & raisons, dates, and currans and let it boyle altogether, and season it with Sinamon and Ginger Nutmeggs, two or three Cloues, and Salt, and so serue<sup>145</sup>

The Second part of the good Hus-wiues Jewell (1597)

*To stew Steakes.*

TAke the great Ribbes of an Necke of mutton and choppe them asunder, and wash them wel, thē put them in a platter one by another, and set them on a chafin|dish of coales, couer them and turne them now and then, so let them stew til they be halfe enough, then take Parseley, Time, Margerome and Onyons, and chop them very small, and cast vpon the steakes, put therto one spoonfull of vergious, and two or thrée spoonfulles of Wine, a little but|ter and Marrowe, let them boyle till the mutton be tender, and cast theron a little pepper, if your broth be too sharp put in a little suger.<sup>146</sup>

*To stewe veale.*

TAke a knockle of Ueale & al to bruse it, thē set it on the fire in a litle fresh water, let it seeth a good while, then take good plenty of onions and chop them into your broth, and when it hath well sodden, put in Uergious, Butter, Salt and Saf|fron, and when it is enough, put to it a lit|tle suger, and then it will be good.<sup>147</sup>

*To stewe Steakes.*

TAke a necke of Mutton and cut it in péeces, and then frye them with butter vntill they be more then halfe enough fry them with a good many of Onions sliced, then put them in a little pot, & put there|to a little parsely chopt, as muche broath of Mutton or beefe as couer them, with a little Pepper, Salt, and Uergious: then let it séeth together very softly the space of an hower, and serue them vpon soppes.<sup>148</sup>

<sup>145</sup> Dawson, Thomas. The good huswives Jewell. London: Edward White, 1596: pp f8v

<sup>146</sup> Dawson, Thomas. The Second part of the good Hus-wiues Jewell. London, 1597: pp 48-49

<sup>147</sup> 52

<sup>148</sup> 56

### Appendix 3: 16<sup>th</sup> Century English Flour

Modern classification of wheat did not begin until Linnaeus in 1753, dividing wheat into seven classifications, a taxonomy that has since been adapted and updated several times. Prior to that the classifications of Columella (1<sup>st</sup> century AD) were generally used.<sup>149</sup>

Columella divides wheat into two classifications with seven sub classifications.<sup>150</sup>

- Common Wheat
  - Common Red
  - Common White
  - Common Trimestrian
- Bearded Wheat
  - Strong Bearded (Clufinian)
  - Bearded Red (Venuculum)
  - Bearded White (Venuculum)
  - Bearded Trimestrian

He tells Italian farmers not to sow wheat until 31 days after the autumnal equinox,<sup>151</sup> but in more northern countries Columella recommends sowing earlier.<sup>152</sup> However, he reminds the reader that common wheat doesn't fare well if sown too early in the year while bearded wheat can be sown as early as the equinox.<sup>153</sup> The two types of Trimestrian wheat on the other hand can be sown in the spring, but give a better harvest if sown in the fall.<sup>154</sup>

The definitions given for strong bearded wheat (Clufinian) correspond well with Durum wheat<sup>155</sup> while the two types of Venuculum bearded wheat, also called Adoreum, correspond to spelt according to *A Dictionary of Greek and Roman Antiquities*.<sup>156</sup> Unbearded Trimestrian appear to be a soft spring wheat based on Pliny's description of it as being the "most delicious and daintiest of any sort of wheat, exceeding white, but without much substance or strength"<sup>157</sup> while Gerarde's *Herbal* says Bearded Trimestrian is a type of spring spelt he called Starch Corne,<sup>158</sup> leaving common red and white being what Linnaeus would later call Beardless winter wheat, or *Triticum hybernum*<sup>159</sup> now called *T. aestivum*<sup>160</sup> or common wheat which would in Canada be considered white and red winter wheat, though Canada also

<sup>149</sup> Briggie, Leland Wilson, and Louis Powers Reitz. Classification of *Triticum* species and of wheat varieties grown in the United States. Technical Bulletin, Washington D.C.: United States Department of Agriculture, 1963: pp 31

<sup>150</sup> Columella, Lucius Junius Moderatus. *L. Junius Moderatus Columella Of Husbandry*. London: A. Millar, 1745: pp 60-67

<sup>151</sup> 63-63

<sup>152</sup> *Ibid.*

<sup>153</sup> *Ibid.*

<sup>154</sup> 67

<sup>155</sup> 63-64

<sup>156</sup> Smith, William, ed. *A Dictionary of Greek and Roman Antiquities*. London: Taylor, Walton, and Maberly, 1848: pp 54

<sup>157</sup> Columella, 1745: pp 61

<sup>158</sup> Gerarde, John. *The Herball or Generall Historie of Plantes*. London: John Norton, 1597: pp 63

<sup>159</sup> Briggie & Reitz: pp 31

<sup>160</sup> 33

breaks red wheat down into soft and hard wheat<sup>161</sup> and Columella and Linnaeus don't give us any information on that.

In *The Herbal*, by John Gerarde, there are several pages dedicated to wheat. He describes several types including what he calls White Wheate, Bearded Wheate, Double Eared Wheate, Flat Wheate, and Bright Wheate.<sup>162</sup> He also separately describes two kinds of spelt, rye, and several kinds of barley. Although Gerarde does not give any differences in use between the types of wheat he does say that the most common type is white wheat which is planted in the fall.<sup>163</sup> Modernly this would be called white winter wheat and the description matches up with both Columella's Common White wheat as well as Linnaeus's *T. hybernum*. Gerarde does not mention red wheat in the 1597 edition, however in the 1633 edition it explains that Double Eared wheat is a red wheat and that Bearded Wheate is a white wheat.

In Mistress Eulalia Piebakere's work on 13-15<sup>th</sup> century English grains she concluded that the majority of flour was made from landrace wheat.<sup>164</sup> "[P]eople simply used whatever wheat was available to them rather than using individual varieties purposefully".<sup>165</sup> She also explained that several varieties of wheat were frequently grown in the same field, with the two primary versions being common wheat (likely what Gerarde calls White Wheate) and rivet wheat (what Gerarde calls Flat Wheate).<sup>166</sup>

Here is my approximation of the varieties of wheat listed compared to modern wheat varieties

<b>Columella</b>	<b>Gerarde</b>	<b>Modern</b>
Common Red	Double Eared Wheat	Red Wheat (unknown if winter or spring)
Common White	White Wheate	White Winter Wheat
Common Trimestrian	(unknown, may be Bearded Wheate)	Soft Spring Wheat
Strong Bearded	Bright Wheate	Durum
Bearded Red	Spelt Corne	Spelt
Bearded White	Spelt Corne	Spelt
Bearded Trimestrian	Starch Corne	Spring Spelt
(unknown)	Flat Wheate	Rivet Wheat
(unknown)	Bearded Wheate	White Wheat (unknown if winter or spring)

Unfortunately there is a great deal of mutation and genetic drift in wheat. Because of that it is impossible to use a wheat that is the same as what was used in 16<sup>th</sup> century England. However it is possible to use a similar grain. White winter wheat was the most common type of wheat in 16<sup>th</sup> century England, and that makes flour selection easier. Although modernly there are both hard and soft winter

<sup>161</sup> Canadian Grain Commission. "Canadian wheat classes." Canadian Grain Commission. August 2, 2016. <https://www.grainscanada.gc.ca/wheat-ble/classes/classes-eng.htm> (accessed February 2017).

<sup>162</sup> Gerarde, 1597: pp 58-60

<sup>163</sup> Ibid.

<sup>164</sup> A locally developed mixture of two or more grains and with great variation within each variety

<sup>165</sup> Grasmick--Black, Laurel. "Grains and Flours of Medieval England." West Coast Culinary Symposium 2016. 2016:

pp 2

<sup>166</sup> 3

red wheats, hard winter white wheat is a modern cross breed from the last century;<sup>167</sup> so white winter wheat would be the closest we have to a 16<sup>th</sup> century English wheat. For the best approximation the use of a heritage wheat, such as Club Wheat<sup>168</sup> or White Lamma Wheat, or the addition of some rivet wheat<sup>169</sup> to the mixture would give you a more accurate re-creation.

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<sup>167</sup> Lee Engineering. "Hard White Winter Wheat Flour." Royal Lee Oranics. 2017.

<http://www.organicsbylee.com/MillWiki/HardWhiteWinter> (accessed February 2017).

<sup>168</sup> Club Wheat wasn't identified as a separate classification from Common Wheat until 1805 (Briggle and Reitz 1963, 31)

<sup>169</sup> Grasmick-Black, 2016: pp 5