

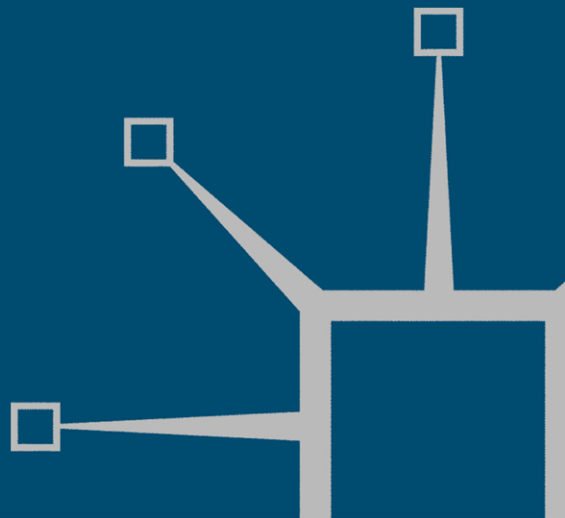
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# **Ships on Maps**

Pictures of Power in Renaissance Europe

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Richard W. Unger



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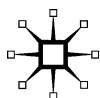
# **Ships on Maps**

## **Pictures of Power in Renaissance Europe**

Richard W. Unger

*Professor of History, University of British Columbia, Canada*

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*For my late long-time companions with roots in Newfoundland*

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# Preface

The goal here is a simple one: to explain why ships appeared as decoration on European maps beginning in the Renaissance. The understanding of maps and, with it, the history of cartography have undergone a transformation in the last four decades. The distinguished historian David Buisseret has identified three significant ways in which the field has changed. First, the definition of what is a map has become more extensive and more precise. Second, there is now an effort and even a requirement to put maps in their social and economic framework. Third, work of both historians and anthropologists has shown that there is a mapping impulse which is universal among human societies.<sup>1</sup> The first and last have meant a new understanding of mapping and demonstrated that there are many aspects to the ways in which people conceive of and then give graphic representation to what they know about the physical world.

‘There is a paradox at the heart of modern cartography. The more it aims to furnish a precise and comprehensive representation of reality, the less true to life this representation appears.’<sup>2</sup> Maps are still and silent and static. They represent a point in time rather than existing in the unfolding of human actions. They are not true to life since people experience the world not statically but through motion. While modern human beings have been trained by the cartography that emerged from the Renaissance to think in terms of coordinates, to locate sites in a mental map, that is not the only way to deal with comprehending the physical environment. It may well be that rather than using mapping in that post-Renaissance sense that people in the past typically found their way by remembering the history of a place, by knowing a story of how to get from one place to the next.<sup>3</sup> Way-finding existed before maps and continued and still continues even with the electronic aids to creating maps in the twenty-first century. GPS which becomes ever more common is in a sense a restoration of way-finding with routes understood and presented on an electronic grid but with a disembodied voice reporting landmarks and giving directions on how to get to a destination. Way-finding lay at the heart of new forms of cartography in the Renaissance as did classical scientific efforts at mapping which reached fifteenth century map makers through rediscovered second century texts. The combination of forces at work on the artists and scientists of the period all had an effect on their products which took on many new features. It was a period of uncertainty which opened the door to constant discovery.

In what follows here there is little novel in the discussion of the evolution of maps from the classical world to and through the first half of the sixteenth century. Much of that development has been tracked in the past and with care by

excellent historians, always with an eye to gathering the most comprehensive information possible. The pattern of change created the framework for choices made about what went on maps and so that history is necessary to understanding any aspect of what medieval map makers did. Existing histories of cartography tend to repeat the same information, especially since the concentration has invariably been on the maps. What is of interest to everyone from scholar to reader is the maps themselves. Books and articles concentrate rightly on reproductions and on illustration and so descriptive text is often limited. What historians say is then restricted and, logically, covers the essentials which in turn means the text often covers the same ground as others have covered in the past. This essay does not escape that pattern.

Putting maps in their social and economic context was certainly a break with past practice when it was first emphatically urged some 40 years ago. That approach, as Buisseret said, is now common. What had been a dramatic departure is now an ordinary part of the task of anyone looking at the history of cartography. Many aspects of the other changes in work in the field have also become ordinary. The process of looking at ships on maps, the genesis of this book, has of necessity meant rehearsing the techniques of the past. The additions made to both the methods and results are small. While the canvas may be broad the questions asked are narrow.

To come to any understanding of why ships appeared on maps in the Renaissance all the varied methods and approaches of the history of cartography, including those that have recently emerged, should be brought to bear on the issue. That is attempted in the following pages. In dealing with the late Middle Ages and the Renaissance the precision so treasured by natural and social scientists is extremely difficult to achieve. Simple matters such as determining the numbers of maps made, the numbers of copies, and the frequency of production are beyond knowing. The size of the sample or any sample cannot be stated with any more than vague accuracy. There are variants to every case. Exceptions to almost any statement about the maps abound. At best what can be attempted is to identify, trace, and perhaps also isolate tendencies.

The search for an answer to the central question about ships has been a long sojourn through new and strange sources and ways of dealing with them. The voyage over what were and remain largely uncharted waters has taken all too much time. One result is massive debts. Those debts to individuals for their help with research, with supplying materials for illustrations, and with advice as well as inspiration are extensive. Tony Campbell and Gillian Hutchinson showed me the way through collections of manuscript and secondary sources in England. Willem Moyzer Bruyns and Kees Zandvliet in the Netherlands and Albrecht Sauer in Germany supplied me with valuable information about navigation. Only limited contact with René Tebel prevented me from taking advantage of his extensive knowledge of the topic. Corradino Astengo in Italy

was an excellent host and source of advice. Francisco Contente Domingues in Portugal has long showed an interest in the process. Robin Ward in England proved tireless in efforts to explain fifteenth century sailing practices. Ray Clemens introduced me to new sources and Mark Vessey at the University of British Columbia brought his extensive knowledge of Erasmus to bear on a central problem. James Muldoon proved a great help with matters canonical. Norman Fiering was a consistent supporter of the project. Richard Talbert and Leanne Bablitz joined me in organizing a conference on classical and medieval cartography which proved valuable in placing my own work in a larger framework. Neil Safier helped with books and a map of Brazil and Ronnie Lakowski with Thomas More. Rachel Poliquin assisted the research using her knowledge of the rhetoric of the late Renaissance and her technical skills. Carol Matheson in a graduate seminar raised pertinent questions based on her own work and supplemented the catalogue of relevant maps. David Buisseret piqued interest in the history of cartography some years ago in a lecture on a visit to the University of British Columbia and, as with so many other historians, he redirected thinking and research because of his own ability to make so much of maps and do so sensibly. Susan Danforth at the John Carter Brown Library contributed to the final result through her knowledge of the history of cartography, her bibliographical skills, her knowledge of illustrative material, her willingness to comment on various aspects of the project and her good humour. Anne Taylor not only helped with the ways of research in the history of cartography and with advice about sources but also was a source of support in the closing stages of producing the final work. The editors of the series, Rab Houston and Ed Muir, offered encouragement and sage advice about necessary changes in the closing stages of the process. I am grateful to all of them in helping to bring this all-too-drawn-out exercise to a conclusion.

Audiences at conferences of the Medieval Association of the Pacific and the Medieval Academy of America were patient and offered suggestions and probing questions. The same was true of audiences at the John Carter Brown Library. The members of the International Commission for the History of Technology allowed me to air some ideas at an early stage of the work. Jaap Bruijn and Elizabeth Archibald among a number of friends patiently listened to my hopes and frustrations about the project. The staff at the National Humanities Center, the New York Public Library, the Yale University Library, the Harvard University Library, the Huntington Library in San Marino, California, USA, the James Ford Bell Library of the University of Minnesota, the Leiden University Library, the Biblioteca Medicea Laurenziana in Florence, Italy, the British Library in London, The University of Cambridge Library, the library of the National Maritime Museum in Greenwich, England, the University of British Columbia Library, and of course the John Carter Brown Library all have been extremely helpful and often unfailing in their efforts to assist the work. Dealing with

maps and the users of maps requires special skills among librarians and it is certainly the case that this book could not have been produced without the assistance of those talented and patient people. I am indebted to them, most especially William Stoneman and Mary Haegert at the Houghton Library, Harvard University, Diederick Wildeman at the Nederlands Scheepvaartmuseum Amsterdam and Auste Mickunaite at the British Library, as well as the staffs of the Bibliothèque nationale de France in Paris and the Newberry Library in Chicago for their assistance and prompt action in making available some illustrations included in the book.

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# Abbreviations

|     |                                               |
|-----|-----------------------------------------------|
| BL  | British Library, London, England              |
| BnF | Bibliothèque nationale de France              |
| NMM | National Maritime Museum, Greenwich, England  |
| NAH | Nationaal Archief, The Hague, The Netherlands |

# Glossary of Shipbuilding Terms

|          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Barcha   | A single-masted sailing ship descended from the Viking long-ship with a length-to-breadth ratio of more than 4:1 and with curved posts at bow and stern. It was used for trading and fishing along the coast of the Bay of Biscay in the high Middle Ages and was employed extensively in fourteenth and early fifteenth century Spanish and Portuguese voyages of exploration.                                                                                                |
| Bonnet   | A rectangular piece of canvas sewed on to the bottom of a square sail or on to the bottom of another bonnet to increase the total area. The two pieces to be fit together were similarly marked so there was no confusion when joining them. Stitching was such that in case of strong winds sailors could easily and quickly take off the bonnets.                                                                                                                            |
| Bowsprit | A yard extending forward from the bow serving as a base for stays which held the foremast in place. Often a yard was slung under the bowsprit and a sail fixed to it. A piece of canvas placed there proved very useful in controlling the course of the ship.                                                                                                                                                                                                                 |
| Boyer    | A type of small ship in use in the North Sea in the sixteenth and seventeenth centuries with high levels of carrying capacity for each crewman. The efficiency was made possible by a complex rig involving a large spritsail as well as square sails and forestaysails, all on one mast, and a small lateen sail on a mizzenmast.                                                                                                                                             |
| Caravel  | A fishing boat with north African roots which was modified for use in the Atlantic and became popular for fifteenth century Portuguese voyages of exploration. It was long relative to its width and had little or no upperworks. Beginning with one or two lateen rigged masts by the sixteenth century bigger caravels came from Iberian shipyards with three masts, all with lateen sails, or with four masts, three with lateen sails and the foremast with a square sail. |
| Carrack  | A large sailing ship developed in the fourteenth century originally with two masts, the main carrying a single square sail and the mizzen carrying a lateen sail. With a deep and capacious hull it was suited for voyages between northern and southern Europe. The version with full-rig was probably first                                                                                                                                                                  |

|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                            | built in Iberia around 1400. It was more efficient and reliable and served the same routes as well as new ones between Europe and the Indian Ocean, that into the seventeenth century. It had a deep hold, a length-to-breadth ratio around 3:1, and often high castles.                                                                                                                                                       |
| Carvel built               | Form of construction where hull planks are pinned to an internal frame, the strength coming from the frame and watertightness from abutting the planks and caulking the seams.                                                                                                                                                                                                                                                 |
| Forecastle                 | Raised structure at the bow of a ship, originally as a platform but by the fifteenth century a fully integrated part of the hull and of varying heights. It came over time to be a place for housing crew members.                                                                                                                                                                                                             |
| After- or<br>summer-castle | Raised structure at the stern of a ship, originally as a platform but by the fifteenth century a fully integrated part of the hull and of varying heights and lengths, sometime reaching the mainmast. The aftercastle offered a vantage point for pilots and more comfortable accommodation than the forecastle.                                                                                                              |
| Clinker built              | Form of construction where hull planks overlap and are nailed one to the other. Strength comes from the hull itself with internal ribs offering some reinforcement.                                                                                                                                                                                                                                                            |
| Cocha                      | Name given to the cog when it entered the Mediterranean and also to the earliest two-masted carracks in southern Europe.                                                                                                                                                                                                                                                                                                       |
| Cog                        | A flat-bottomed coastal vessel with Celtic roots which, with the addition of a keel in the twelfth century, became a sea going ship and over time the principal bulk carrier of goods in northern Europe. It was tubby with a length-to-breadth ratio of 3:1 or less. It had a single mast with a single square sail, sharply angled posts at the bow and stern, and a deep hold which gave it considerable carrying capacity. |
| Falua                      | A single-masted or possibly two-masted lateen rigged boat with a low profile, straight gunwales, a raised platform at the stern where a helmsman or helmsmen stood controlling the steering oars, one on each side.                                                                                                                                                                                                            |
| Full-rigged                | Ship with at least three masts, two of which carry square sails and a mizzen toward the stern with a lateen sail, the combination increasing flexibility in deploying canvas and making it possible for ships to be relatively large and still manoeuvrable even in contrary winds.                                                                                                                                            |

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Galleass              | A large sailing ship of the sixteenth century equipped with oars and with a length-to-breadth ratio of around 5:1. Well-armed, it was more manoeuvrable than sailing ships and better armed than galleys though the type proved cumbersome, required a very large crew, and was not a good sailor on the open ocean.                                                                                                                                                                                                                                                                                                 |
| Galley                | An oared vessel with a low profile and relatively high length-to-beam ratio, usually 6:1 or higher. Propulsion came from oars on either side of the hull and, alternately, from sails. The arrangement of oarsmen took on varied configurations over time with one of more banks of oars and with one or multiple rowers per oar. Used extensively in the Mediterranean from classical Greece to the nineteenth century, the low free-board made the type vulnerable to the high seas of the open ocean.                                                                                                             |
| Gunwale               | The highest strake or plank on the hull.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Hulk                  | A river and coastal vessel with Celtic roots used in the estuaries of the Rhine and on the North Sea in the early Middle Ages. It carried a single sail on a single mast and had a length-to-breadth ratio of around 3:1 or somewhat more. With the addition of a keel and changes to the way the planking was brought together at the bow, that in the fourteenth century, the hulk became a deep sea sailor and very similar to the cog from which it borrowed many of those design features. Adopting full rig by the sixteenth century the term came to apply to large, slow moving bulk carrying sailing ships. |
| Mast:                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| bonaventure<br>mizzen | The pole set furthest to the stern on a four-masted vessel.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| fore                  | The pole for carrying yards set forward of the main mast in a ship of three or more masts.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| main                  | The principal and largest and tallest pole for carrying yards, usually stepped about half way between bow and stern and often composite on larger ships, that is made up of parts of more than one tree.                                                                                                                                                                                                                                                                                                                                                                                                             |
| mizzen                | The first pole set astern of the mainmast.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Outlicker             | A spar fixed high in the stern and projecting outward to take lines running from a sail rigged on a mast set far astern, usually a bonaventure mizzenmast.                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

**Rig:**

- fore-and-aft     Sail or sails which operate in the same plane as the forward and aft line of the ship.
- full                A combination of square sails on the main- and foremasts and a fore-and-aft or triangular sail on the third or mizzenmast. First developed around 1400 the presence of different types of sails gave captains much greater control over the vessel without losing power to drive the ship. It also offered potential for reduction in crew size.
- una                The combination on a single mast of a fore-and-aft sail, usually a sprit sail, and a forestaysail. Developed probably in the fourteenth century it was used on small boats and could be handled by two people and even one person alone.

**Rudder:**

- side                A flat piece of wood, fixed near the stern of the ship and controlled by a steersman using a tiller fixed to the upper, narrow end of the oar. The methods of attachment to the hull varied but such rudders in general proved highly effective especially on boats and ships with low freeboard.
- sternpost        A flat piece of wood fixed on hinges to the stern post of a ship and controlled by a tiller which passed over the top of the post or by a lever fixed at right angles to that tiller. Developed for use on the cog it became the common method for steering on larger vessels by the end of the Middle Ages.

**Sail:**

- lateen            A triangular piece of canvas hanging down from a long yard, first used in the classical Mediterranean and the common source of propulsion for vessels there in the high Middle Ages. It made possible sailing closer to the wind than with a square sail. The lateen sail had the disadvantage that changing it from one side of the mast to the other required carrying the yard over the top and around to the other side of the mast, a complex, time and personnel consuming as well as dangerous task.
- lug                A trapezoidal piece of canvas stretched between yards with 60–80% of the sail on one side of the mast. It was the typical rig of junks and also appeared on vessels in various parts of the Indian Ocean.
- sprit              A square or nearly square piece of canvas set in the fore-and-aft line of the ship and held up by a boom in the same plane

- at a 45° or similar angle to the mast. It could be adjusted easily and required only limited manpower to handle, at least in smaller variants.
- square      A rectangular piece of canvas set at a right angle or nearly right angle to the fore-and-aft line of the ship, hung down from a yard and sometimes stretched between two yards.
- stay      A piece of canvas hanging down from one of the stays which were lines stretched from the deck to the masts in order to hold those poles in place.
- top      A rectangular piece of canvas set on a yard or stretched between two yards above the mainsail on a mast. It added potential driving power and, being smaller than the mainsail below it, required less effort to handle, an advantage since it was high in the rigging and so hard to reach. Over time topsails grew in size as mainsails got smaller. By the eighteenth century topsails could be as large or larger than mainsails.

# Introduction: Maps and Mapping

Ships virtually never appeared on maps before 1375. By 1550 they filled oceans, seas, estuaries, rivers, and lakes on all kinds of maps from the most extensive to the most particular. The explanation for the dramatic transformation is to be found in the general changes in map making, in the explosion of geographical knowledge and in the thinking of Europeans about themselves and their place in the world as it evolved during the Renaissance. Trying to make sense of the disappearance of ships from maps in the eighteenth century leads to similar sources for a turnaround with roots in changes in fashion, in technology, in ideas about Europe and in ideas about the physical world. To identify and appreciate the reasons for the rise and decline of decorative vessels on maps requires an understanding of the prevailing ideas, the problems of representation and the structures of work and rewards that set the parameters for the makers of the maps. The process also requires a long voyage through many different images from small, simple sketches representing the world around the maker of the map all the way to some of the most grand and beautiful products of Renaissance art. The explanations serve to indicate and to illustrate the revolution in cartography in the fifteenth and sixteenth centuries as well as changing perceptions among thinkers, writers and politicians. They serve equally to show how the immediate practical demands of new knowledge and the needs of maps users shaped art and representation.

Maps always treat a complicated world as uncomplicated. They are external, physical representations of the geographical environment. They are multifaceted. They are always a misrepresentation of the physical world since it is impossible to recreate the reality of land. They are automatically portrayals, likenesses, simplified models of the environment. The exact duplication of any geographical setting is impossible so maps, like all other forms of communication, purposefully fragment and simplify reality. Every map is automatically and of necessity, ‘...a record of mistranslation, hence a major confrontation with the limits of representation.’<sup>1</sup> ‘Art, said Picasso, is a lie

which makes us realize the truth. So is a map....And like any work of art, it requires imaginative reading.<sup>2</sup> Maps are made by people with definite purposes in mind so examining any map from any period becomes an exercise in understanding the purpose of the maker. 'The map is simultaneously an instrument of communication...and an instrument of persuasion...'.<sup>3</sup> Twenty-first century maps are made on scientific principles and enjoy many conventions and standards well-known to both makers and users of cartographers' products so they still depend on tradition in order to transmit information. Even under the most modern of circumstances maps are still tied to the cultural context in which they are produced and very much to the motives of their creators.<sup>4</sup>

A Renaissance map was both a work of art and a scientific product. As late as the seventeenth century Dutch Republic a distinction between art and science made little if any sense to map makers. In the Renaissance maps were a form of decorative art.<sup>5</sup> Map making and landscape painting were similar activities and often done by the same people. In the two there were similar problems of selecting what to show of the earth and how to represent those things on a plane surface. There was no terminology to distinguish between making maps and painting. In fact cartography is not about explaining nature but, '...a means of describing graphically certain categories of knowledge.'<sup>6</sup> So the similarity with painting should not be surprising. Artists of the highest stature including, for example, Leonardo Da Vinci and Albrecht Dürer did not shy away from making maps. Cartography in the Renaissance was closely related to scientific illustration, and like efforts to represent machines and the internal features of the human body, map making went through a significant change in the period.<sup>7</sup> The connection to scientific illustration by the mid sixteenth century helped to give maps a new and different sort of intellectual authority.

Maps In the late Middle Ages and the Renaissance were always reflections of contemporary thought about science, philosophy and theology. Whether the interest in incorporating in maps greater and more accurate detail was a product of a rise in neoPlatonism or of the resurgent nominalism of the *via moderna* associated with the English Franciscan William of Occam, the fact remained that even before the great geographical discoveries changes were underway in cartography.<sup>8</sup> Those changes were only accelerated by the spread of Renaissance thought and aesthetics from Italy and by the long term economic growth which started in the first half of the fifteenth century. The use of maps increased for various reasons, some demographic, some economic, some political but whatever the source the process continued through the sixteenth century. In 1400 few Europeans used maps but by 1600 they were essential in many professions. Whereas maps were rare in 1500 they were familiar objects of everyday life by 1600. Their numbers grew exponentially.<sup>9</sup> The reasons for

the transformation include the Renaissance interest in Antiquity and so in classical mapping; the growing interest in quantification and measurement; rising literacy so maps could be and were used, for example, in court cases to do with land ownership; after 1517 the Protestant Reformation which gave an impetus to the mapping of Biblical events; the ability to reproduce consistent copies with the potential for widespread distribution through print and the expanding role of the state which found, starting with Italian city-states in the fifteenth century, more uses for maps in military enterprises and for administration.<sup>10</sup> The voyages of discovery and the need to represent additions to geographical knowledge along with the need for states to assert their status relative to other states in the new found lands promoted the production, use, and preservation of maps.<sup>11</sup> The new uses of maps meant changes in their character, in some cases in unexpected ways. It is the changes which were beyond or different from the scientific aspects, beyond the drive for accuracy and consistency, which have recently and correctly become principal topics for historians.

The earliest writers who examined the history of maps may have realized that the exercise of making such images had many dimensions but they paid little or no attention to decoration. Ships on maps did not interest them. Those writers had to create a new vocabulary. The word cartography, that is *cartographia* in Portuguese, was invented by the Viscount de Santarém (1791–1856), ‘...the creator of the systematic history of cartography.’ He said in a letter in 1839 that he was making up the word. It first appeared in print in 1840.<sup>12</sup> Another invention, the word *géographe* appeared for the first time much earlier, that in French in 1557. For map makers *cartographe* did not appear in French until 1877. Before that the word was *géographe* for someone who made maps. English followed the same pattern with geography not appearing until 1542. The first English writer to commit cartography to print appears to have been the explorer Richard Burton, that in an article in the *Journal of the Geographical Society* in 1859. He was following the newest and best scientific trends of his day. The Viscount de Santarém based his study of the evolution of European cartography on the examination of some 180 maps found through searching 300 libraries.<sup>13</sup> His atlas published in Paris in three volumes, the first edition of which came out in 1841, was made up of what he called cartographic monuments. In each new volume he moved back further in time, reaching the sixth century, since he felt compelled to look for the origins of modern map making.<sup>14</sup>

The Viscount de Santarém and those who followed after him were heavily influenced by contemporary visions of science. They saw themselves as scientists too and so, just like the cartographers they described, sought accuracy. Their measure of the quality and value of any map was how well it reflected physical reality, how well it conformed to the maps of their own day and to