

## Development and Achievements of Dutch Northern and Arctic Cartography in the Sixteenth and Seventeenth Centuries

GÜNTER SCHILDER\*

### INTRODUCTION

During the sixteenth and seventeenth centuries, the Dutch made a vital contribution to the mapping of the northern and arctic regions, and their cartographic work played a decisive part in expanding the geographical knowledge of that time. Amsterdam became the centre of international map production and the map trade. Its cartographers and publishers acquired their knowledge partly from the results of expeditions fitted out by their fellow countrymen and partly from foreign voyages of discovery. This paper will describe the growing Dutch awareness of the northern and arctic regions stage by stage and region by region, with the aid of Dutch maps.

### THE PROGRESS OF DUTCH KNOWLEDGE IN THE NORTH

With the expansion of Dutch trade in the sixteenth century, the charting of the coasts of northern Europe also improved. Dutch progress in knowledge of these regions is reflected in the Dutch rutters and sea charts of the last two decades of the sixteenth century. Whereas Cornelis Anthoniszoon's famous *Caerte van Oostlant* (1543) stretches only as far as Bergen (Keuning, 1950a, b),<sup>1</sup> the coastline on the map of Europe published 40 years later by Lucas Janszoon Waghenaer (1583, 1584-85) extends eastward from the North Cape as far as the "Seven Islands".<sup>2</sup> In 1589, the Amsterdam publisher Cornelis Claeszoon (1546?-1609), who had achieved a considerable reputation with his publications in the fields of navigation, cartography, and voyages of discovery, published a navigation chart by the Edam "caertschrijver" (map-writer) Cornelis Doedszoon (1589),<sup>3</sup> the contents of which reveal further advances by Dutch trading vessels in the north and show the coasts as far as the Kanin peninsula (Fig. 1). Three years later, Waghenaer published a new map of Europe<sup>4</sup> on which the northern coast stretched as far as the island of Vaygach and the southwest coast of Novaya Zemlya. In the same year, Waghenaer's (1592) second major work, the *Thresoor der Zeevaert*, was published. It differs from his *Spiegel* not only in its oblong format, but also in that its detailed charts extend fur-

ther north, as far as the Shetlands and the Faroes, in line with the expansion of the Dutch fishing and trading areas. The *Thresoor* contains a number of coastal views from the voyage around the North Cape as far as "Wardhuys". Although there is no map of this region, there is a map of the coasts of Karelia and Russia to the east of the White Sea as far as the Pechora, accompanied by a text with instructions for navigation as far as Vaygach and Novaya Zemlya (Waghenaer, 1592: f<sup>o</sup>101-105). A coastal view of the latter is also given.<sup>5</sup> The fact that Waghenaer had access to original sources is shown by the inclusion in the *Thresoor* of the only known account of Olivier Brunel's voyage to Novaya Zemlya in 1584 (Waghenaer, 1592: f<sup>o</sup>104).<sup>6</sup> Another important document is Willem Barentsz's map of northern Scandinavia, which extends as far as the entrance to the White Sea, and shows all the reefs and shallows (Fig. 2). It presents the islands "Wardhuys" and "Kylduyn" on two larger-scale inset maps.<sup>7</sup>

### THE FIRST DUTCH ENTERPRISES IN SEARCH OF A NORTHEAST PASSAGE

A new chapter in the exploration of the northern and arctic regions began with the Dutch expeditions in search of a northeast passage in the years 1594-1596 (Naber, 1917). Apart from the explorers themselves, the chief protagonists were the merchant Balthasar de Moucheron in Middleburg, and the theologian and geographer Petrus Plancius in Amsterdam.

On the map of Europe attributed to Plancius, engraved by Baptista van Doetecom and published in 1594 by Cornelis Claeszoon, beneath the small inset map of Novaya Zemlya there is a statement that an expedition had been sent in July 1594 to explore this region, but had not yet returned from its mission.<sup>8</sup> This statement is the earliest printed reference to the first Dutch voyage, undertaken in 1594 with the support of the States of Holland and Zeeland and the City of Amsterdam.

The two ships fitted out by the States of Holland and Zeeland in 1594 (commanded by Cornelis Corneliszoon Nay and Brand Ijsbrantszoon Tetgales, with Jan Huygen van Linschoten as clerk), tried to find a possible northeast passage

\*Department of Geography, State University of Utrecht, Heidelberglaan 2, Postbus 80.115, 3508 TC Utrecht, The Netherlands

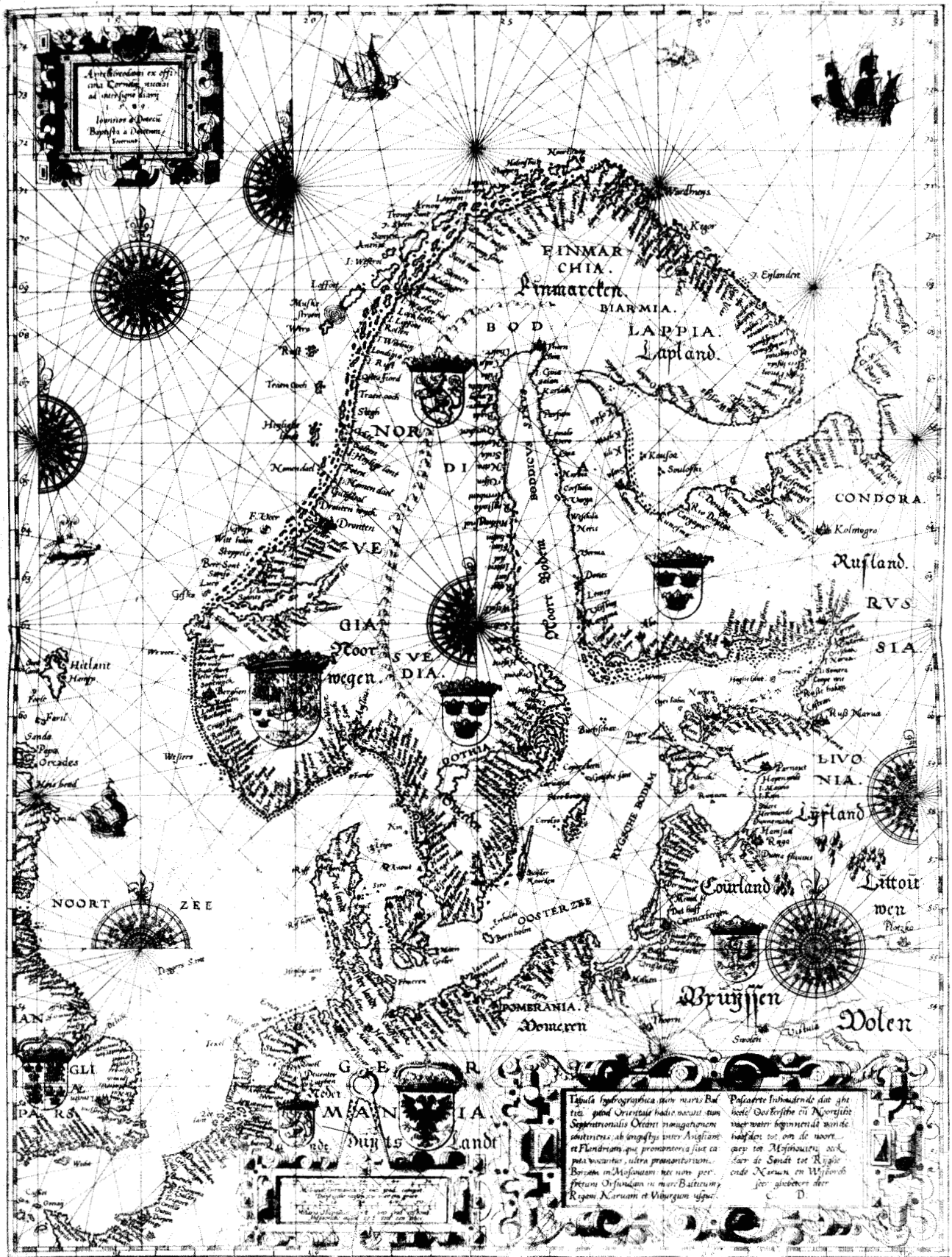


FIG. 1. Chart of northern Europe by Cornelis Doedszoon, published in 1589 by Cornelis Claeszoon. (British Library, London).

Distribution des Collections de l'Institut géographique national de France, 1980. Les cartes de l'Institut géographique national de France sont des reproductions de cartes imprimées par les presses de la Couronne de France. Elles ne sont pas des copies de cartes imprimées par les presses de la Couronne de France.

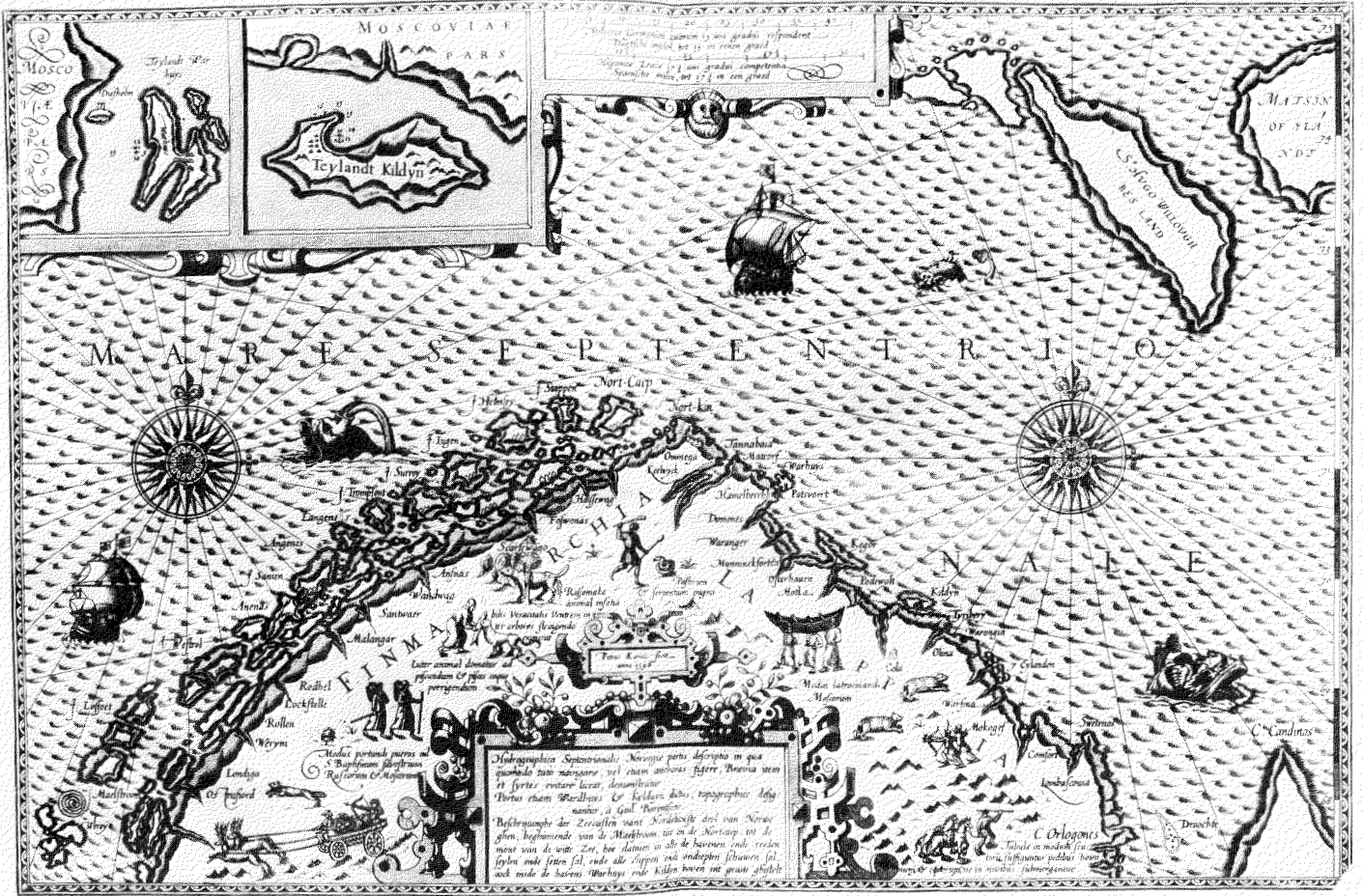


FIG. 2. Chart of northern Scandinavia by Willem Barentszoon, engraved by Pieter van den Keere and published in 1596 by Cornelis Claeszoon. (Maritiem Museum "Prins Hendrik", Rotterdam).

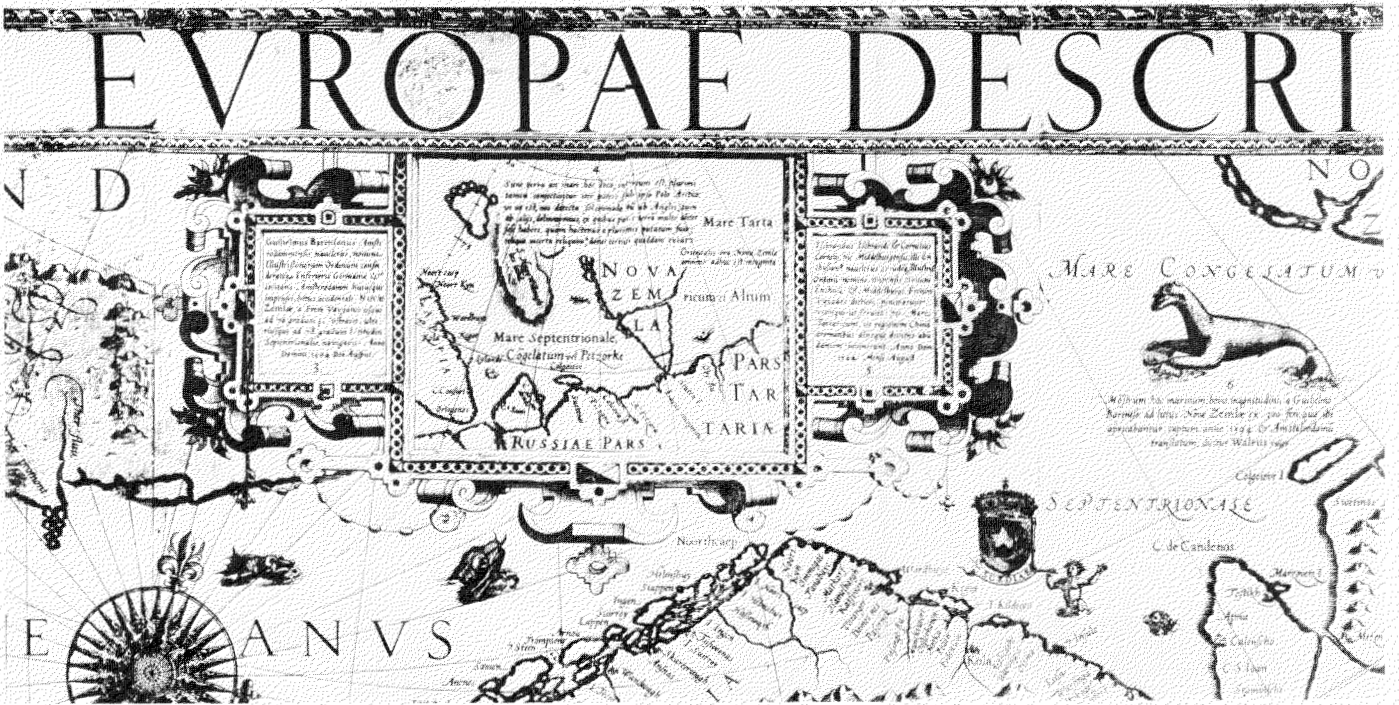


FIG. 3. Detail of a wall map of Europe by Jodocus Hondius and Pieter van den Keere (1595), showing the earliest printed results of the first Dutch voyage of 1594. (Harvard University, Cambridge, Massachusetts).

to the south of Vaygach. Willem Barentsz, with the ships fitted out by Amsterdam, endeavoured (under the influence of Plancius) to advance northward along the west coast of Novaya Zemlya. Willem Barentsz had reached only approximately 78°N when he was forced to turn back by ice (van Linschoten, 1601).<sup>9</sup> The other squadron was more successful and penetrated further into the Kara Sea. They returned convinced that they had discovered the route to China, and with the intention of continuing by this route the following year (van Linschoten, 1601).<sup>10</sup>

After the return to Amsterdam of this first Dutch voyage, on 16 September 1594, the geographical news spread among cartographers and publishers. The oldest references in print about this voyage of discovery are given in legends 3-6 on the large wall map of Europe (Fig. 3) published in 1595 by Jodocus Hondius.<sup>11</sup>

Initially, van Linschoten's ideas prevailed. An expedition of seven ships set out from Holland late in 1595. The fleet forced its way, with great difficulty, through the ice masses of the present Jugor Strait into the Kara Sea, where they were soon forced to turn back (van Linschoten, 1601).<sup>12</sup>

After the discouraging results of the first two voyages, the States of Holland and Zeeland decided against a further attempt to seek a northeast passage. Plancius, however, persuaded Amsterdam once again to fit out an expedition of two ships. It was commanded by Jan Corneliszoon Rijp and Jacob van Heemskerck, with Willem Barentsz as pilot on board the second ship (Keuning, 1946). For this third Dutch polar voyage in 1596, an entirely new route was chosen, which resulted in the discoveries of Bear Island and northwest and west Spitsbergen. Bear Island is shown for the first time on a small map of Europe by Jodocus Hondius, where it appears with the name "T vierkant eyland al: t'veere eyland" accompanied by a legend.<sup>13</sup>

From Bear Island, the two ships continued their course northward to about 80°40'N, where they were forced by ice to return. Sailing along the ice edge, the expedition saw land to the south at 80°10'N on 17 June 1596. This was the northern corner of Spitsbergen (which they named "het nieuwe land"). Thus the ships had already been north of Spitsbergen; coming from Bear Island, they had sailed along the whole west coast of Spitsbergen without seeing it. They closely followed the coast

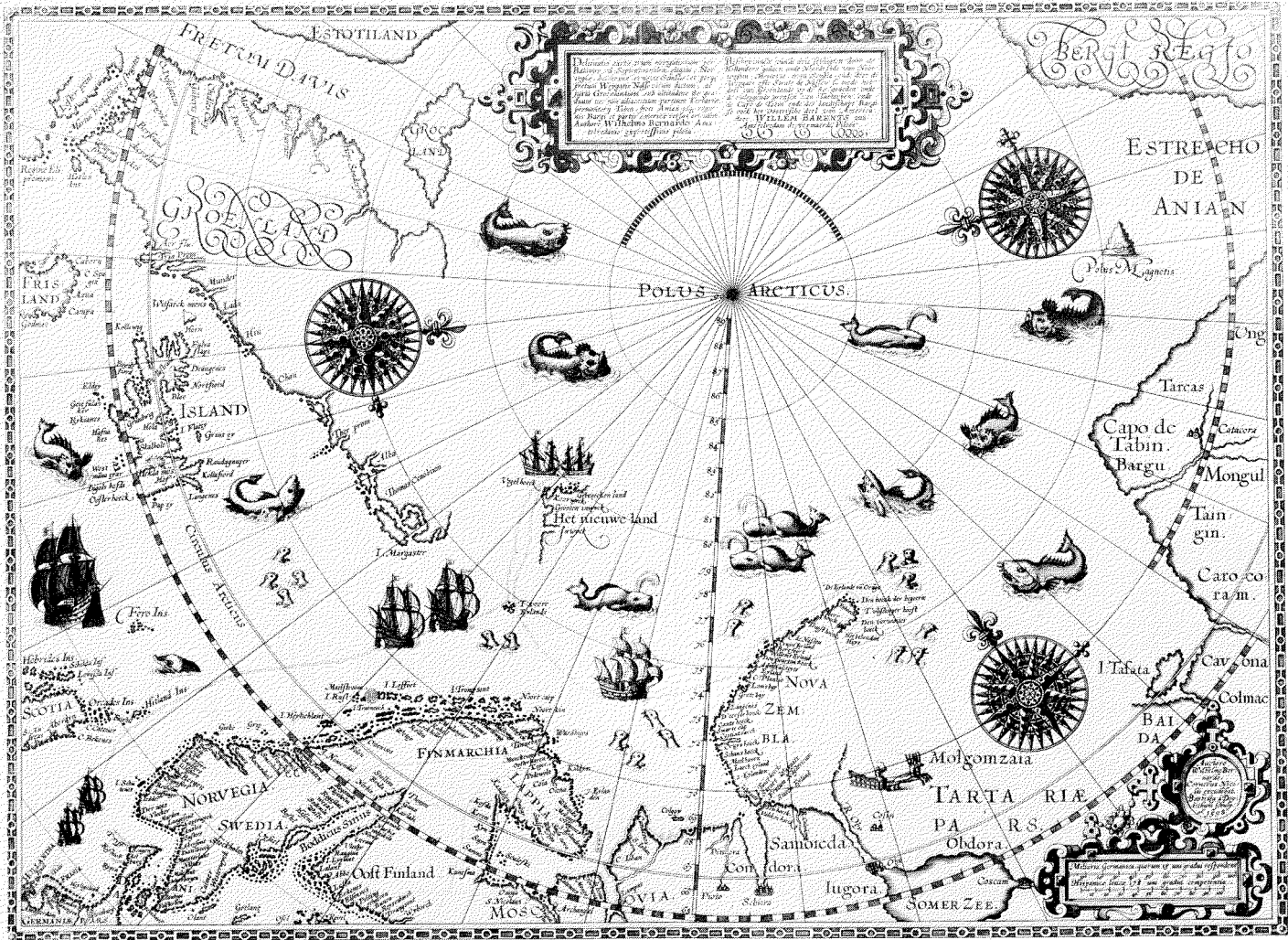
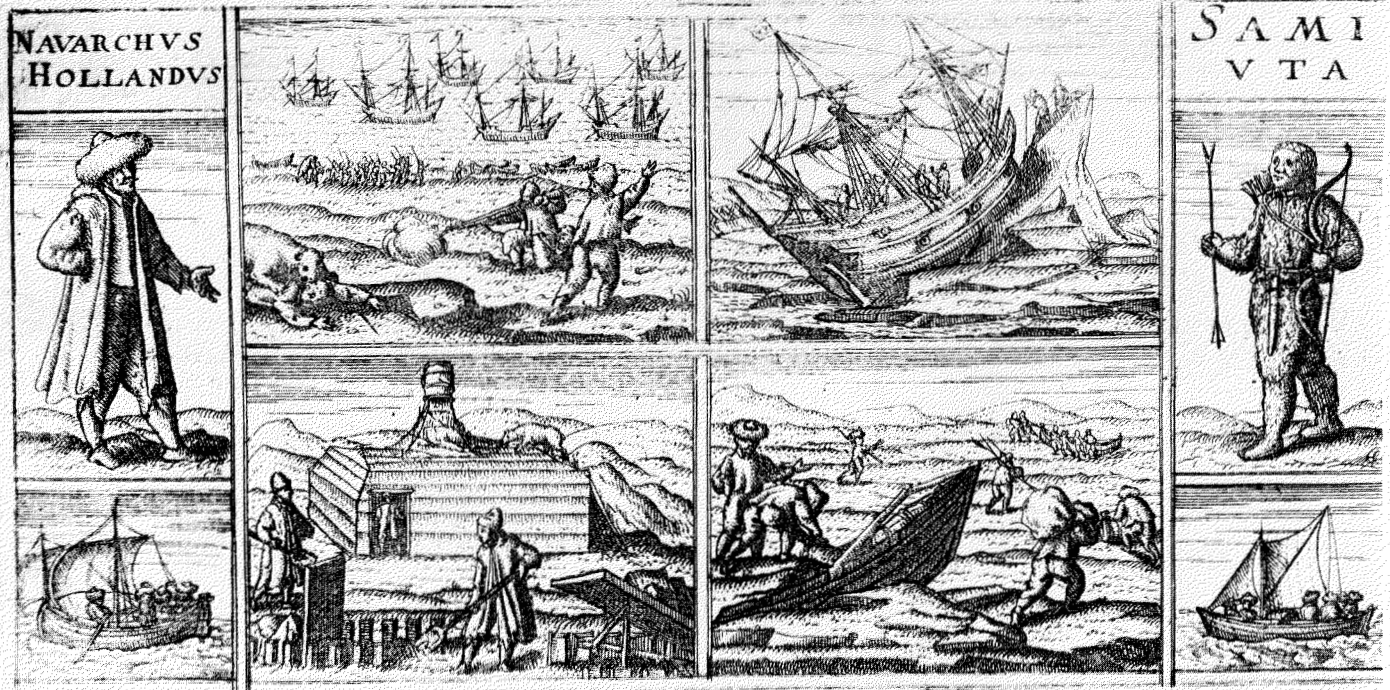


FIG. 4. Polar map published in 1598 by Cornelis Claesoon, showing the route taken by Willem Barentszoon on his last voyage in 1596. (Universiteitsbibliotheek, Amsterdam).

## VVaerachtighe Beschryvinghe

## Van drie seylagien / ter werelt noyt soo vzeemt ghe-

hoort / drie jaeren achter malcanderen deur de Hollandtsche ende Zeelandtsche schepen by noorden Noorweghen / Moscobia ende Tartaria / na de Coninckrijcken van Cathay ende China, so mede vande opdoeninghe vande Weygats / Nova Sembla, en vart landt op de 80. gradē / dat men acht Groenlandt te zyn / daer noyt mensch gheweest is / ende vande felle verscheyende Bezen ende ander Zee-monsters ende onbzachlijke koude / en hoe op de laetste reyse t'schip int ys belet is / ende twolck op 76. graden op Nova Sembla een huys ghetimmer / ende 10. maenden haer aldaer onthouden hebben / ende daer nae meer als 350. mpen met open clepne schuyten ober ende langs der Zee ghebaren. Alles met seer grooten perijckel / mochten / ende ongeloofelycke swaricheyt. Gebaen deur Gerrit de Veer van Amstelredam.



Ghedruckt t' Amstelredam, by Cornelis Claesz, op't vvater, int Shrijf-boeck, A<sup>o</sup>. 1598.

FIG. 5. Title page of Gerrit de Veer's *Waerachtighe Beschrijvinghe van drie seylagien*.

and the polar map of Willem Barentsz, published posthumously by Cornelis Claeszoen, which showed the original record of the discovery of Spitsbergen between 75°45' and 80°30'N.<sup>14</sup>

On their return to Bear Island, the two ships separated. Whereas Rijp wished to advance northward once again, Willem Barentsz sailed to Novaya Zemlya to continue the old route along the west coast taken in 1594. He sailed around the northern tip of Novaya Zemlya, and shortly afterwards his ship became trapped in the ice, forcing the crew to camp there for the winter. The next year they commenced the return journey in two open boats, during the course of which Willem Barentsz died.<sup>15</sup> Incredibly, the boats reached the Kola River, from where the crew was able to return to Holland with a Dutch trading vessel. Cornelis Claeszoen published the cartographic results of this voyage (Fig. 4) and the adventures experienced by Gerrit de Veer (Fig. 5) in 1598.<sup>16</sup>

The dramatic wintering of Heemskerck and Willem Barentsz on Novaya Zemlya is commemorated extensively on a rare map of the world in four sheets, originally published by Cornelis Claeszoen, but today known only from a later edition published by Claes Janszoen Visscher. Two long legends and

illustrations in the centre of the upper decorative border recall this Dutch polar expedition.<sup>17</sup> Similar representations, accompanied by text, are given on the large wall map of Europe in four sheets by Jodocus Hondius (1598) and a large wall map of Asia in eight sheets published by Cornelis Claeszoen about 1600 (Fig. 6), both only known in unique copies.<sup>18</sup>

The cartographic results of the third polar expedition can be found on most maps from the end of the sixteenth and beginning of the seventeenth centuries. In addition to the famous winter stay on Novaya Zemlya, the west coast of Spitsbergen discovered by Willem Barentsz and Rijp is shown with the same form and nomenclature as on Willem Barentsz's polar map. An example is the 1605 large wall map of the world by Willem Janszoen Blaeu (Stevenson, 1914).<sup>19</sup>

In 1609, the Englishman Henry Hudson sailed his ship *Halve Maan* in which he was required to explore a northeast passage under the Dutch flag (Naber, 1921). Hudson, however, intended from the outset to turn as soon as possible to the west. As we know, he discovered the Hudson River on the American coast. Hudson's trip is referred to in the inscription near Novaya Zemlya on Hondius's map of the world. This in-

scription relates to his voyage in the service of the Dutch East India Company (Stevenson and Fischer, 1907).<sup>20</sup>

#### SCANDINAVIA AND RUSSIA IN SEVENTEENTH-CENTURY DUTCH MAP-MAKING

From the last decade of the sixteenth century onwards there were regular Dutch voyages to the White Sea along the coasts of Scandinavia. An early attempt to chart the White Sea was made in 1567-68 by Simon van Salingen and recorded on a manuscript map, which, however, bears the date 1601 (Bjornbo and Petersen, 1908; also see Bratt, 1958).<sup>21</sup> In 1602, Cornelis Claeszoen published a map of Europe by Cornelis Doedszoen, engraved by Jodocus Hondius Sr., which is one of the most beautiful products of Dutch cartography and printing of the seventeenth century.<sup>22</sup> This map depicts the area of Dutch trading interests and gives an impression of the commercial development and rapid growth in Dutch shipping. The commercial nature of this map of Europe is indicated by lists in the cartouches of commercial goods obtainable in Russia, Sweden, Norway, and Iceland. In the views of harbours

shown around the borders, the "Northern Navigation" is represented by "Kilduyn" and "Wardhuys".

The navigational chart for the Baltic regions and the voyage to the White Sea published by Cornelis Claeszoen in 1589 (see Fig. 1) was greatly valued in shipping circles, as can be seen from the publication of a later edition of this map in 1610 by Visscher, who had acquired the copper plates after the death of Cornelis Claeszoen in 1609.<sup>23</sup>

In 1613, a remarkable new map of northern Europe appeared, the author of which was Adriaan Veen. This map was engraved and published by Jodocus Hondius Jr. and was dedicated to King Gustaf II Adolf of Sweden.<sup>24</sup> Whereas the topography of the interior is still derived from Olaus Magnus's map, the knowledge of the coastline is based entirely on Dutch sources. Adriaan Veen did not make use of the map of Lapland by Anders Bure (Andreas Buraeus), which had appeared two years previously.

The publication of the large wall map of Scandinavia by Buraeus in 1626 marked a definite breakthrough in Swedish cartography and a significant advance in the representation of that region (Richter, 1936). Buraeus's map had a decisive in-



FIG. 6. Wall map of Asia published by Cornelis Claeszoen in about 1600. (Rijksmuseum "Nederlands Scheepvaart-Museum", Amsterdam).

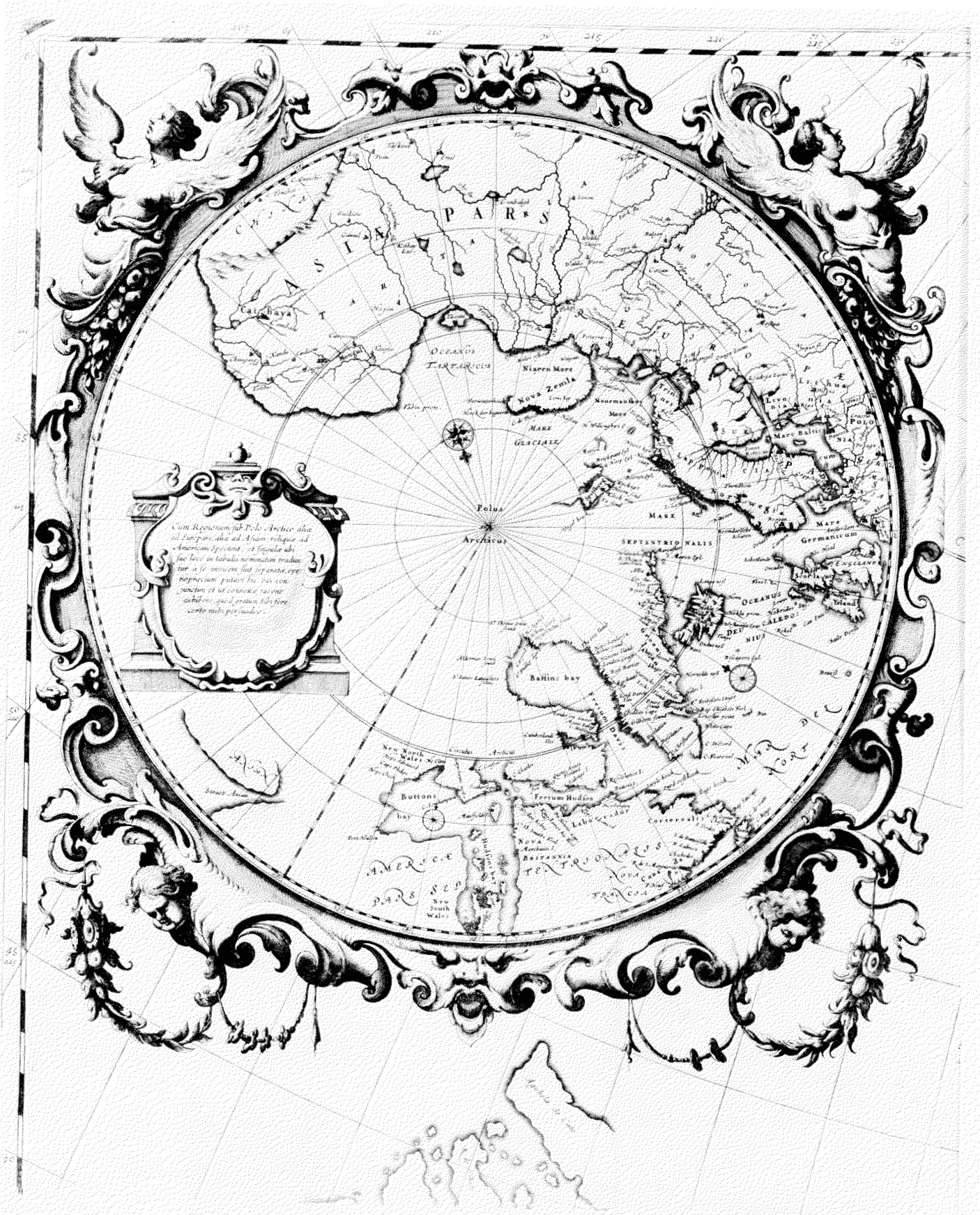


FIG. 7. Inset on the 1659 wall map of America by Joan Blaeu. (British Library, London).

fluence in the seventeenth century; its contents were copied and brought onto the market by Dutch publishers, both in the form of wall maps in several sheets and in a reduced version as maps in atlases.

The Dutch publishers were not, however, content with slavish copies of Buraeus's map, but first subjected the map to a thorough investigation. A letter from Hessel Gerritsz to Theodor Rodenburg (Kernkamp, 1903:281)<sup>25</sup> dated 3 March 1628 tells of this important Dutch cartographer's admiration for Buraeus's map. Nevertheless, Hessel Gerritsz criticized the representation of the Danish waters on the map and announced the publication of a large map of Scandinavia in six sheets, which was being engraved in Amsterdam. However, it was not until 1635 that his plan was finally realized. This new wall map, dedicated to Queen Christina, was, according to the publisher Henricus Hondius, drawn in accordance with Buraeus's model, but corrected and improved in many places by Isaac Massa and Hessel Gerritsz.<sup>26</sup> (The influence of Isaac Massa on Dutch cartography will be discussed briefly later.) Joan Blaeu copied Hondius's map in 1659 (Fig. 7) and it was also used as a model for later editions published by the firm Covens and Mortier.<sup>27</sup>

Let us now look briefly at the coast of the Russian mainland as it appeared on Dutch maps in the seventeenth century. As a result of the influence of merchants from Antwerp, voyages to Kola and the White Sea from Holland and Zeeland became increasingly important and numerous around 1600. This development is reflected in an improved representation of the region around the White Sea and in an increasing familiarity with the Russian coast as far as Jugor Strait. The growing demand by Dutch mariners for a good sea chart for the trade with Kola and Archangelsk was met by Cornelis Claeszoon with the publication in 1608, or earlier, of the extremely important sea chart by Mouris Willemszoon (Fig. 8), which has only recently been mentioned in the literature.<sup>28</sup> The purpose of this chart is clearly indicated in the title: "*Rechte Pascaerte om te beseylen S. Niclaes, en Archangel, ende alle de costen, tot de Strate van Nassau, genaemt Waygats*" (True portolan chart of the navigation of S. Niclaes, and Archangel and all the coasts as far as the Nassau Strait, named Vaygach). The Russian coast, shown surprisingly accurately, must have been put together with the aid of the latest Dutch cartography and with materials supplied by the Russians. The value of the chart for Dutch navigators was increased still further by the first detailed map of the Dvina estuary with soundings, drawn by Thomas Jacobsen: "*De Reviere van Archangel met hare diepten opgeteeckent*". There are sketches of a number of Archangelsk's characteristic buildings, including the Dutch factory, which is drawn as "Winckels Castell".

Through the cartography of Russia in the seventeenth century, the Dutch played an important part in the dissemination of geographical knowledge about that country. Three names above all deserve mention for the important contribution they made to the cartography of the northern and arctic regions of Russia: Isaac Massa, Hessel Gerritsz, and Nicolaes Witsen. Space limitations allow only a brief outline of their achievements and of their influence on contemporary maps.

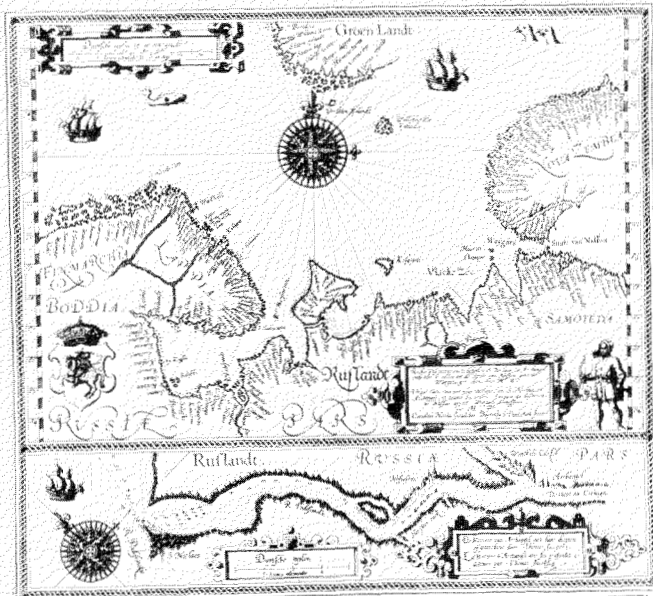


FIG. 8. Dutch map by Mouris Willemszoon, published in 1608 or earlier by Cornelis Claeszoon, showing the Russian coast; inset map of Dvina River. (British Library, London).

In his youth, Isaac Massa (1586-1643) spent eight years in Moscow, during which he collected a wealth of ethnographic and geographic information, including topographical sketches and charts (Keuning, 1953). On his return to Holland in 1609, he made some of his material available to Hessel Gerritsz, who included it in two chapters of his *Beschrijvinghe van der Samoyeden Landt* (Amsterdam, 1612) (Fig. 9). This small book, which is now very rare, was published in Dutch and

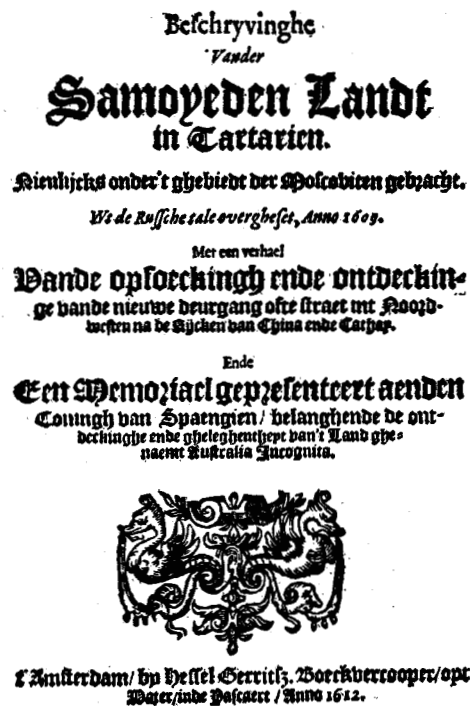


FIG. 9. Title page of Hessel Gerritsz's *Beschrijvinghe van der Samoyeden Landt* (Amsterdam, 1612).



Latin editions and contains the earliest report of the Russians' advance into Siberia (Naber, 1924). As an illustration to Massa's descriptions, Hessel Gerritsz also included a map of the north coast of Russia.<sup>29</sup> This map was of Russian origin, and covers the region between Unskaja guba (Oscoriagoeba) to the west of the Dvina estuary as far as Pyasina in the east and Tobolsk in the south. In terms of the Siberian coast, Massa's map represented a great advance, and for a long time it was the only map of that region. In his nomenclature, Massa kept to the Russian original, but translated the Russian names into Latin characters. Massa's map had a great influence since the northern coasts were copied on many subsequent maps of Russia in atlases by Mercator and Hondius, Janssonius, and Blaeu.

One of the first to copy the map was Hessel Gerritsz, who used Massa's representation for his map of Russia (Fig. 10) published in 1613 (Keuning, 1949). As the title indicates,<sup>30</sup> Hessel Gerritsz used a map by the Czarevitch Fyodor Godunov, and may perhaps have obtained a copy of this manuscript map of central Russia from Isaac Massa. This northern

material is supplemented by other cartographic sources, including Massa's map of northern Russia and de Veer's map of Novaya Zemlya. The representation of Lapland and the White Sea region was taken from de Veer's map of Scandinavia. In 1614, Hessel Gerritsz published a second edition of his map, on which the geographical image of the northern region was improved, particularly with respect to the White Sea, Lapland, and Ladoga and Onega lakes.

A key position in the geography of Russia in the seventeenth century is occupied by Nicolaes Witsen (1641-1717) (Fig. 11; Keuning, 1954). His principal achievements include publication of his unparalleled wall map, *Nieuwe Lantkaarte van het noorder en ooster deel van Asia en Europa* (1687),<sup>31</sup> and his great geographical standard work, *Noord en Oost Tartary* (1692 and later expanded editions). His interest in Russia was first aroused when he took part in a diplomatic mission to Moscow in 1664-1665, on which occasion he collected a great deal of material about the country and its people and made the contacts necessary to acquire still more information about this vast empire (Locher and de Buck, 1966-67). Throughout the

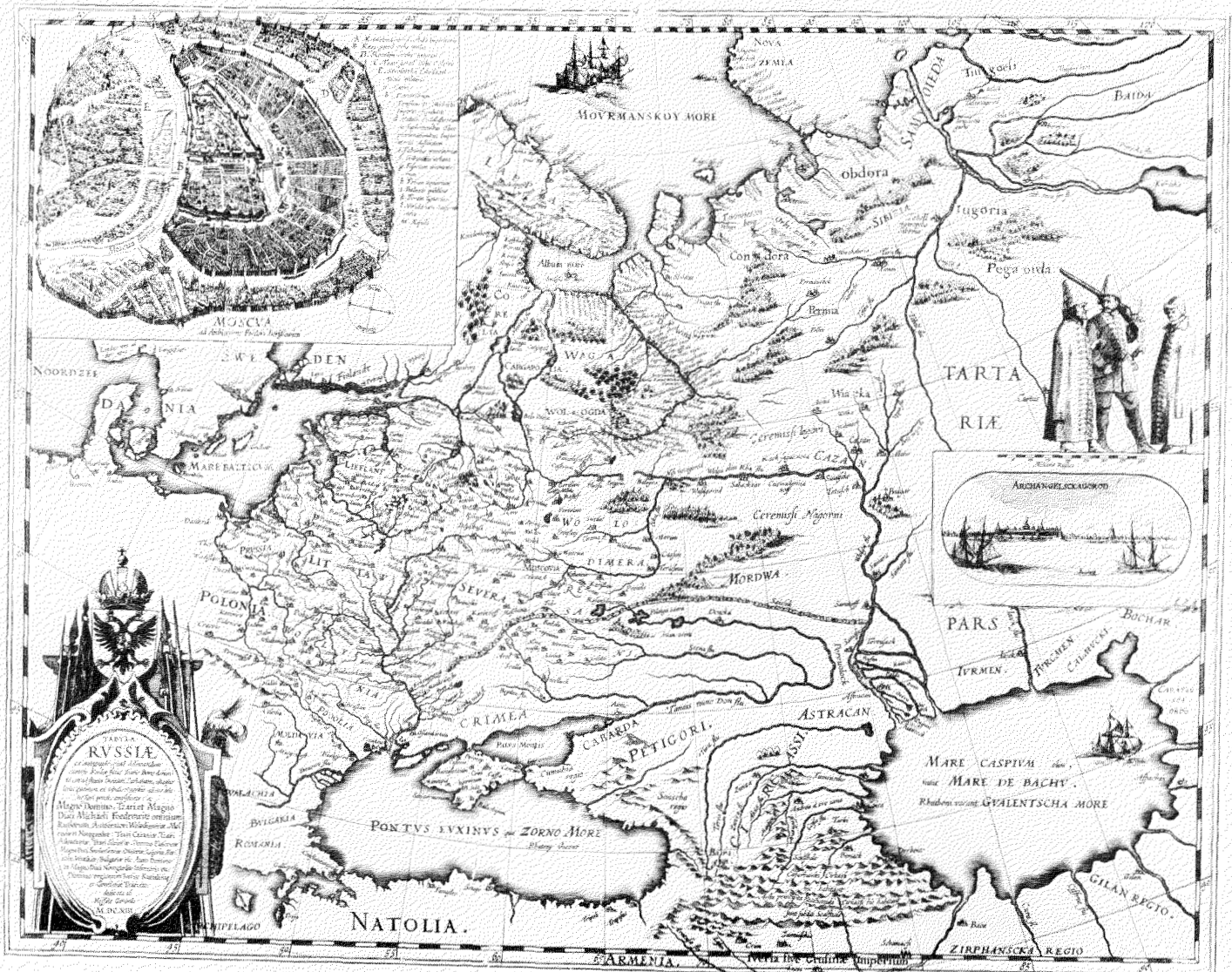


FIG. 10. Map of Russia by Hessel Gerritsz, published in 1613. (Bibliothèque Nationale, Paris).



FIG. 11. Portrait of Nicolaes Witsen (1641-1717) by P. Schenk. (Rijksprentenkabinet, Amsterdam).

rest of his academic life, Witsen remained spellbound by Russia. His publications were an important contribution to widening the knowledge of that country, not only among his fellow countrymen, but also in other European countries.

His representation of Siberia adopted entirely untrodden paths, no doubt based on Russian maps. He also incorporated other published and unpublished information. The flow of new material continued even after publication of the map in 1687, with the result that Witsen felt compelled to revise his map. It had a great influence on his contemporaries, and around the turn of the century, his work was the subject of numerous revisions and was widely adopted in both its versions.

#### ENGLISH VOYAGES TO DAVIS STRAIT IN DUTCH MAPPING

After the disappointing results of the 1580 voyage of Pet and Jackman in search of a northeast passage, the English turned their sights to the northwest, to "the back side of the new found land", in the hope of finding there a short route to China. The results of these English voyages of discovery were soon presented cartographically on Dutch maps and globes which, in turn, helped to make these new discoveries generally known.

During the period 1576-1578, Martin Frobisher made three

unsuccessful attempts to discover a northwest connection between the Atlantic and the Pacific. One of the navigational aids that Frobisher took with him on his voyages was Mercator's large map of the world of 1569,<sup>32</sup> with the help of which he interpreted his landfalls.

As a consequence, his landfall on the present Baffin Island was erroneously thought to be in southern Greenland. The insertion of a strait and other English names was a mistake that persisted for some time. An example is the famous chart of "Nova Francia" published by Cornelis Claeszoen in about 1592<sup>33</sup> (Fig. 12).

John Davis continued the search for a northwest passage with three voyages in the period 1585-1587. On his first two voyages, Davis travelled along the coast of Baffin Island without realizing that these lands had already been visited by Frobisher. Davis, a more scientifically trained navigator than Frobisher, followed on his third voyage the strait later named after him. He named the most northerly point he reached (72°12'N) after his patron, Hope Sanderson. Davis's discoveries were soon recorded cartographically on the first English globe, the Molyneux Globe engraved by Jodocus Hondius Sr. in 1592 (Wallis, 1951, 1955). A further important source for the dissemination of these English voyages was the map of the world in Edward Wright's *Certaine Errors of Navigation* (Wright, 1599; Wallis, 1973).

These English efforts at finding a northwest passage are reflected on most Dutch maps of the world and America at the end of the sixteenth and the beginning of the seventeenth century. Typical representatives are the wall map of America published by Cornelis Claeszoen (1600)<sup>34</sup> (Destombes, 1978) and the large maps of the world by Blaeu (1607)<sup>35</sup> and by Van den Keere (1611).<sup>36</sup>

Another important contribution to the charting of the northwest was made by Henry Hudson on his fourth voyage (1610-11), when he sailed through the strait named after him into the bay which was also given his name. Hudson spent the winter in James Bay, where he met his death as the victim of a mutiny. An important Dutch cartographic document is preserved which Hessel Gerritsz included in his *Beschrijvinghe van der Samoyeden Landt* in 1612.<sup>37</sup> Hessel Gerritsz succeeded in obtaining one of the maps made on this voyage. A drawing of Hudson Strait, the entrance to Hudson Bay, and James Bay is added to the geographical representation of the discoveries made by Hudson's predecessors. This map illustrates Hudson's conviction that he had found the long-sought passage when he discovered the "Mare Magnus".

In 1612, an expedition under the command of Thomas Button was fitted out to look for Hudson. Contact was made with the west coast of Hudson Bay ("Buttons Bay" on the map), where the expedition overwintered. The next year, Button explored the coast of the region known today as Southampton Island. On this polar map<sup>38</sup> (Fig. 13) drawn by Hessel Gerritsz on parchment, a western exit from Buttons Bay provides the possibility of a northwest passage.

In 1615 and 1616 expeditions were undertaken by Robert Bylot and William Baffin. Baffin reached the bay which was named after him at a latitude of 78°N. His exploration and

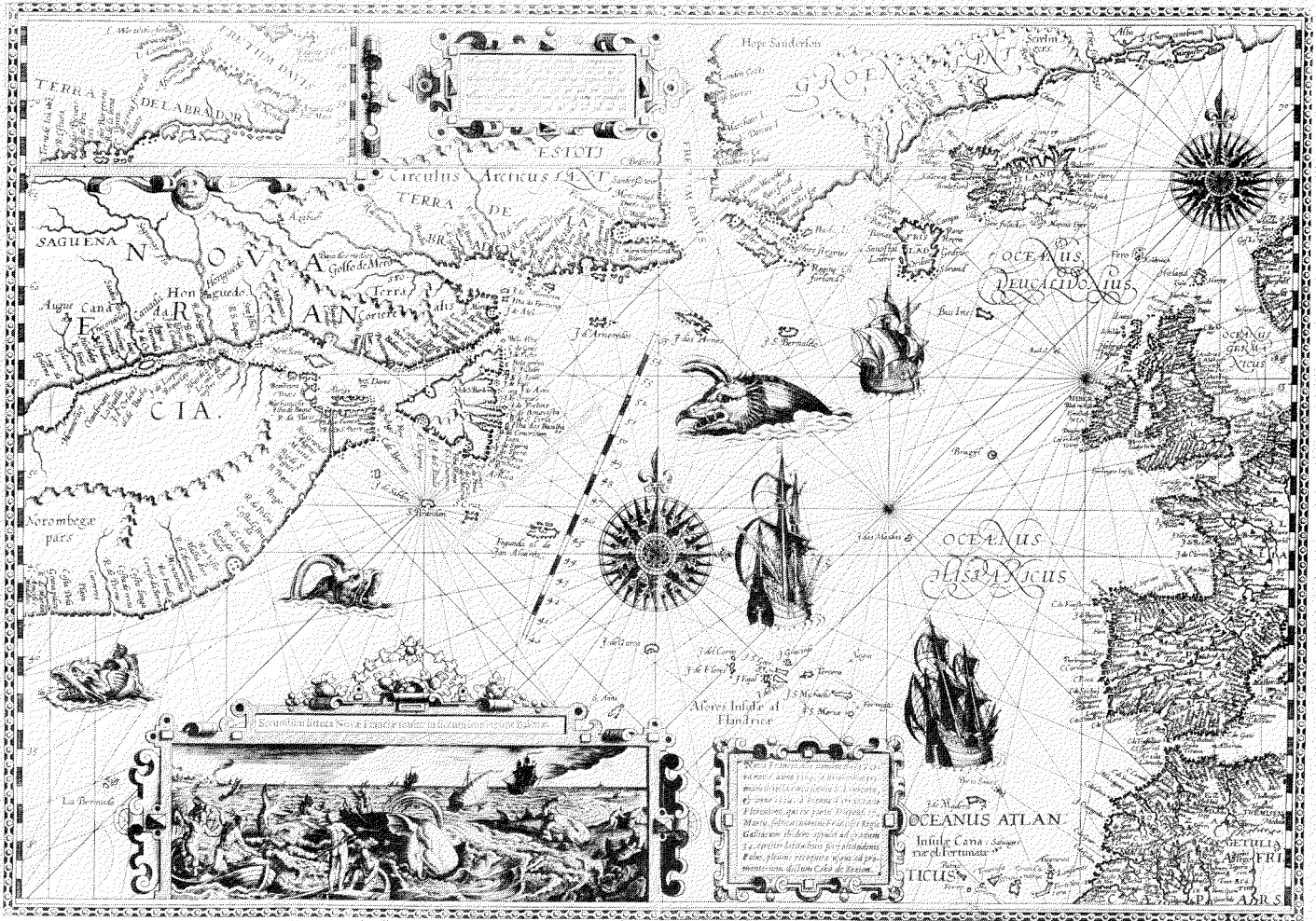


FIG. 12. Chart of the northern Atlantic, engraved by Joannes van Doetecum and published in 1592 by Cornelis Claesz. (Universiteitsbibliotheek, Amsterdam).

those of his predecessors in the northwest are shown on an anonymous Dutch manuscript map<sup>39</sup> which I found in Bibliothèque Nationale in Paris (Fig. 14).

#### DUTCH ENTERPRISES IN THE NORTHWEST

In the meantime the Dutch had followed the English to the northwest. In 1613 a group of Amsterdam merchants sent the ship *De Vos*, commanded by Pieter Franszoon, to the northwest, with instructions to trade with the inhabitants of the Hudson Strait region, and if possible, to find there a passage to the Indies. On the wall map of the world published by Willem Janszoon Blaeu in 1619 (Fig. 15), only one known copy of which has survived, there is a picture of a ship at the western exit to the Hudson Strait, with a note that the Amsterdam expedition had reached as far as that point in 1613.<sup>40</sup>

The initiative then passed to the Noordsche Compagnie, founded in 1614, which in 1615 sent a sailing vessel commanded by Joris Carolus "to search for and discover certain new lands lying in the north-west" (Muller, 1874:171). Carolus sailed northward through Davis Strait, possibly as far as 80°N, before he was forced to turn back because of pack ice. He thus had sailed further to the northwest than Baffin, a

year before Baffin's expedition. In his pilot guide of 1634 he wrote: "the sea extends as far north as 79 degrees, but beyond that there is continuous mainland with inlets and river...". On its return voyage, the expedition sighted land between 53° and 57°N "as can be seen from the accompanying chart". This land they thought they had discovered can only have been the coast of Labrador, which had already been known for a long time, but which they probably took to be a new coastline. The map presented to the States General on 26 November 1615 showed the results of the voyage and the presumed discovery of new land, but it has, unfortunately, been lost. However, a surviving map drawn by Joris Carolus in 1626 (Fig. 16) has Dutch names, and may originate from the voyage of 1615.<sup>41</sup> At 61°N on the west coast of Greenland, for example, is the name "Mr Ioris hoeck", by which Joris Carolus perhaps wanted to commemorate his participation in that voyage. Other Dutch names which might be connected with the voyage of 1615 are found on the west coast of Greenland and on the coast of Labrador.

Many voyages to the northwest were undertaken during the subsequent period, some being voyages of discovery, others regular trading voyages. These voyages cannot be enumerated

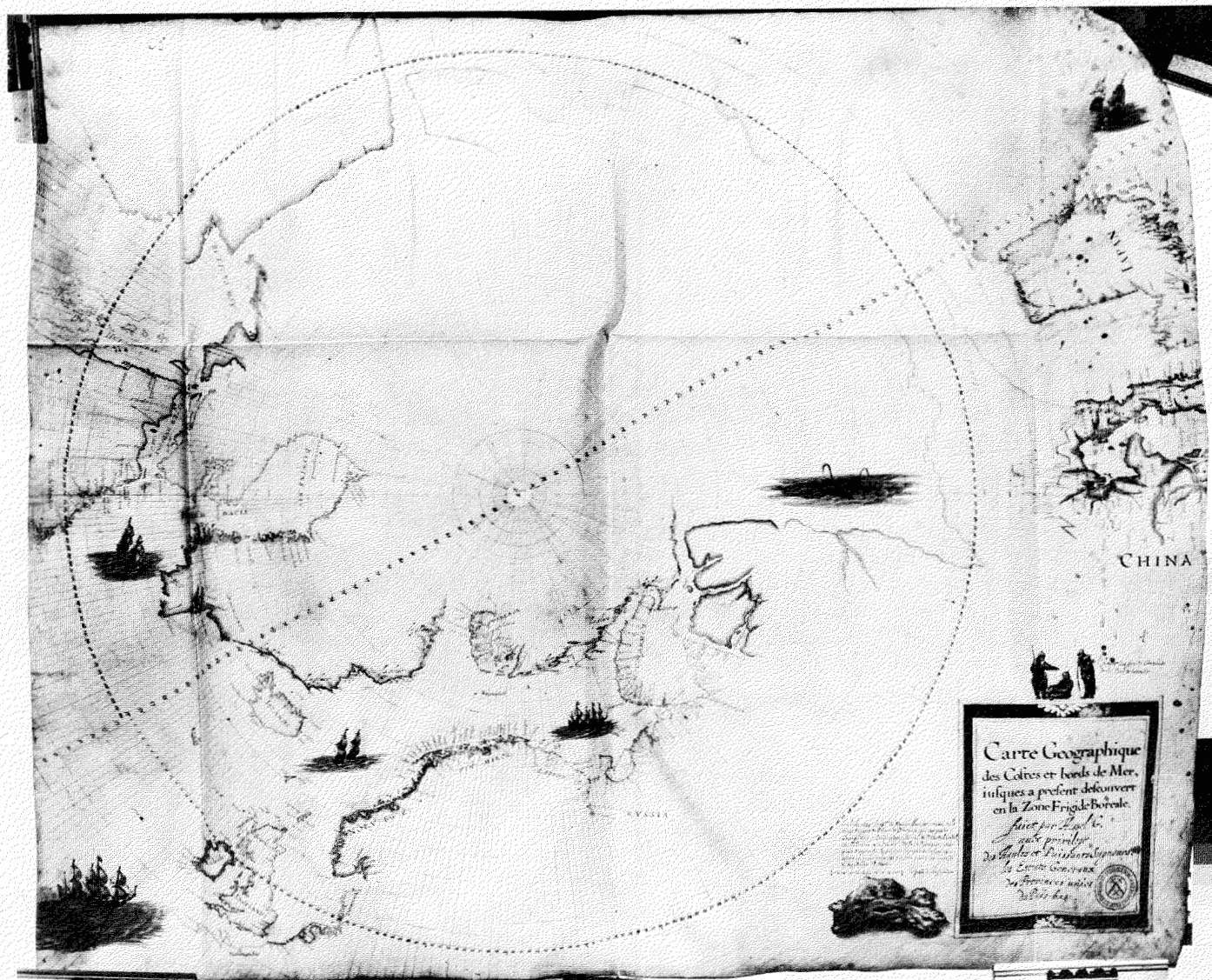


FIG. 13. Hessel Gerritsz, *Carte Geographique des Costes et Bords de Mer, iusques a present decouvert en la Zone Frigide Boreale*. (Bibliothèque de l'Institut de France, Paris).

in greater detail within the confines of this summary (but see de Jong, 1978:163-184; Decker, 1979:15-55). An excellent survey is provided by the manuscript map by Hessel Gerritsz (Fig. 17)<sup>42</sup> entitled “*Carte nautique des bords de Mer du Nort et Norouest*”, which supplements the meagre written sources. This map includes numerous Dutch names in Labrador and on the west coast of Greenland (as far as 68°N), one of which is dated 1616 and two others 1625.

The polar map published by Henricus Hondius,<sup>43</sup> which appeared for the first time in the English edition of Mercator's atlas of 1636, is the earliest printed map on which Dutch names are found along the coast of Labrador. The other coasts in the northwest — along either side of Davis Strait, in Baffin Bay, and in Hudson Bay — have only English names and thus commemorate English enterprises. The knowledge of these regions was subsequently supplemented by the expeditions of Luke Fox in 1631 and Thomas James in 1631-32.

Similar assumptions about the northwest are found in Blaeu's large wall map of 1648<sup>44</sup> and his polar map published in the *Atlas mayor* (1622),<sup>45</sup> which dominated the cartography of the second half of the seventeenth century. The beautiful manuscript map by Joannes Vingboons in the Biblioteca Vaticana<sup>46</sup> (Fig. 18) and his polar map in a now unknown private Swedish collection (Bagrow, 1948) are both based on the polar map in the *Atlas mayor*.

#### THE MAPPING OF SPITSBERGEN

The English followed the trail of the Dutch to the west coast of Spitsbergen. In the journal of his polar voyage of 1607, Henry Hudson repeatedly mentions the Dutch names which had been established by Willem Barentsz's expedition of 1596. On the large wall map of the world in two hemispheres published by Jodocus Hondius (1611-12), Spitsbergen is modelled

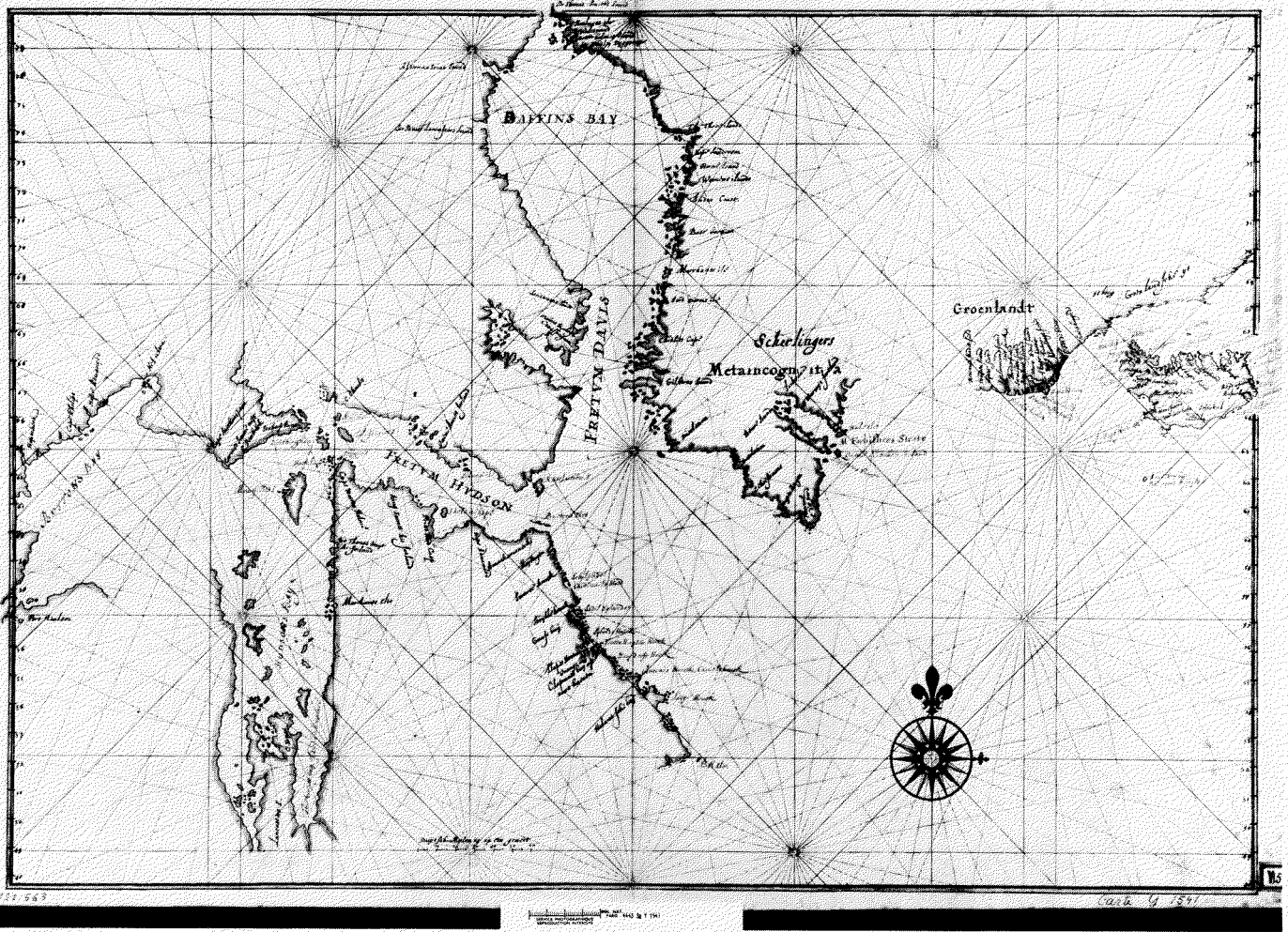


FIG. 14. Anonymous Dutch chart on paper, showing the area between Iceland and Buttons Bay, 49°-78°N. (Bibliothèque Nationale, Paris).

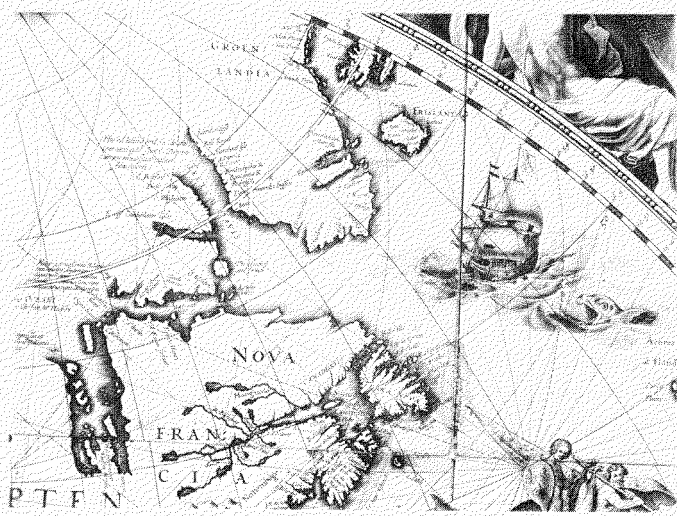


FIG. 15. Detail of a large wall map of the world, published by Willem Jansz Blaeu in 1619, showing references to the Dutch expedition of 1613. (Maritiem Museum "Prins Hendrik", Rotterdam).

on Barentsz's prototype, although the names "Colnis" and "Laszmmas I.", which originate from Hudson's voyage, have been added (Stevenson and Fischer, 1907).

The English contacts with the west coast of Spitsbergen which took place during the following five years were recorded on a manuscript map, now lost, produced by London mapmaker John Daniel in 1612. The only reference to this lost map was made by Hessel Gerritsz, who defended the historical rights of the Dutch against English claims in his treatise *Histoire du pays nomme Spitsberghe* (1613).<sup>47</sup> This small work contains a map of Spitsbergen which, according to Hessel Gerritsz, was based largely on Daniel's map of 1612.<sup>48</sup> The map itself shows the same coastline as Willem Barentsz's, but it is more detailed and has a greater abundance of names (Naber, 1924:pl.IV). The English, who with Dutch assistance had discovered Spitsbergen's west coast, explored it carefully and furnished it with many names. The great importance of cartographic sources for the history of discovery is proved by the manuscript map by Joris Carolus (Fig. 19), who in 1614 undertook a voyage of discovery to the north in the service of Noordsche Compagnie, which had been established in that

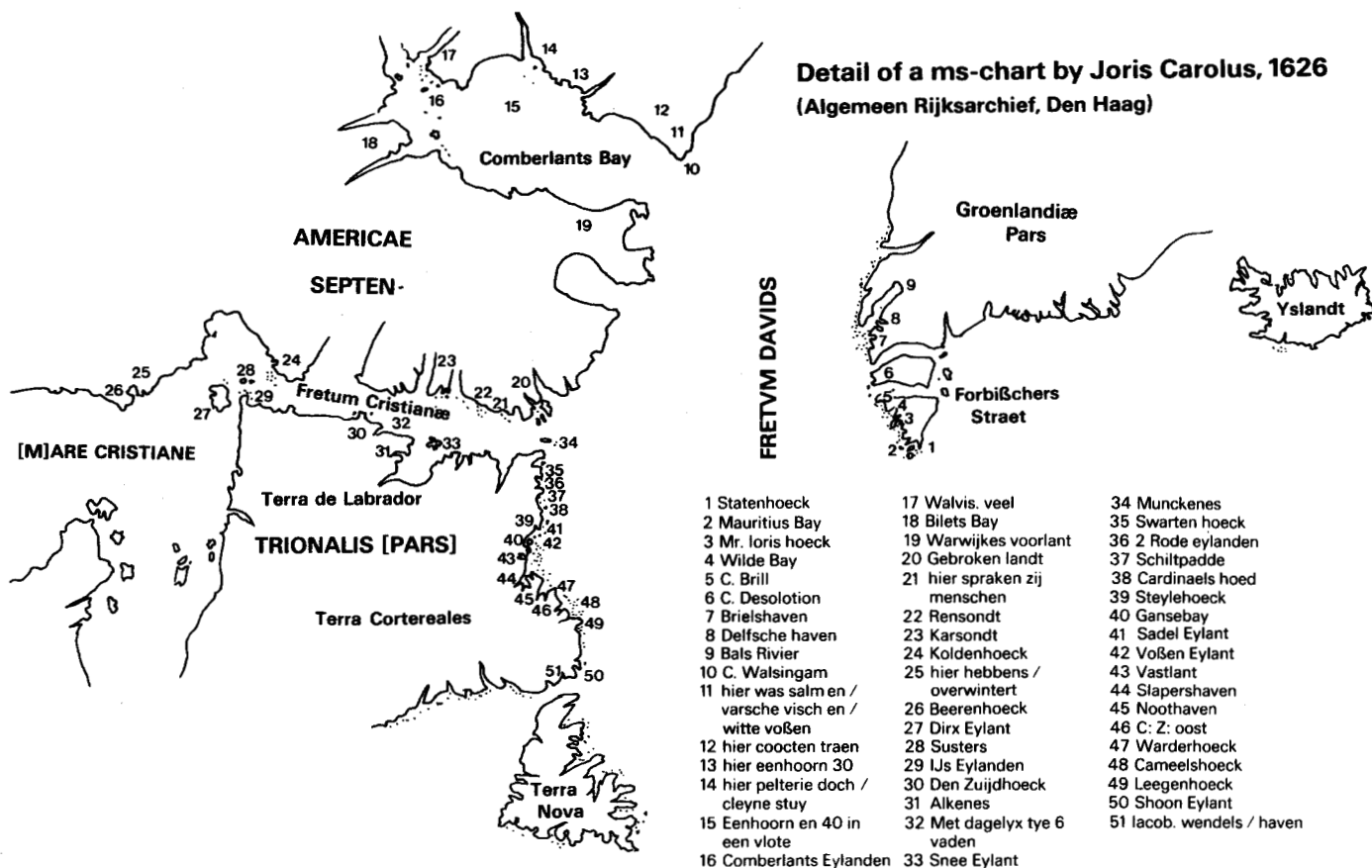


FIG. 16. Redrawing of part of Joris Carolus's manuscript chart, preserved in the Algemeen Rijksarchief, The Hague, and dated 1626. (Geografisch Institute, Rijksuniversiteit Utrecht).

year, in order to find the much-sought-after passage. The expedition consisted of two ships, the *Gulden Cath* from Amsterdam with Jan Jacobszoon May as master, and the *Orangienboom* from Enkhuizen, whose master was Jacob de Gouwenauer. Joris Carolus was on board the latter vessel as pilot. The two ships sailed to Spitsbergen with other whalers in 1614 and at the beginning of July set sail from Fairhaven to search for a passage between Spitsbergen and the east coast of Greenland. Since the expedition logbook has been lost, the manuscript map drawn by Carolus in 1614, now preserved in Paris, is the main source for the reconstruction of this Dutch voyage of discovery.<sup>49</sup> The representation of Spitsbergen on this map is quite remarkable. The west coast is drawn more clearly and in greater detail than on Hessel Gerritsz's map, which had been published a year earlier. "Hollantsche Bay" appears here for the first time, two years before its mention in instructions prepared by the States General in 1616. Two unnamed small islands have the shapes of Amsterdam and Deensche islands. The north coast extends as far as 83°N on the map, and for the first time on a cartographic document, the name "Grote Bay" appears. This refers to what was later called Hinlopen Strait (which separates the west island from the northeast island). With the aid of Fotherby's journal, which describes the state of the pack ice in the relevant period, it can be established that Carolus cannot have reached such a northerly latitude in that year. It is possible, however, that Carolus had advanced to that

point years earlier and had now entered his discovery on his map for the sake of completeness. A report by the Noordsche Compagnie dated 1624 contains the following statement: "In 1611 some ships were equipped and sent out to the said coast (of Spitsbergen), which after much sailing and manifold dangers of ice, storm, etcetera, have arrived at the said coasts and not only explored further but have, both in the said year and in subsequent years, explored and sailed along the land a good way along the North side farther than ever before" (Muller, 1874:167).

To the east of the main island of Spitsbergen are drawn two land masses, separated from each other by arms of the sea. Whereas the western land is described as "Onbekende Cust" (Unknown Coast), the east land mass is named "Marfyn". I believe that Joris Carolus copied both coastlines from earlier maps. "Marfyn" (also called Matsin, among other names) must have been the same as Edge Island, while the "Unknown Coast" is found on earlier maps between "Matsyn" and West Spitsbergen.<sup>50</sup> Contrary to previous beliefs, Joris Carolus was *not* the discoverer of Edge Island (Conway, 1901; Schilder, 1978:16).

During the further course of his voyage, Carolus sighted Jan Mayen Island, which he believed he had discovered. This is the reason that it appears with the name "Mr Ioris Eylant" on Carolus's chart, being named after Joris Carolus.

The chart by Mouris Willemsz<sup>51</sup> presented a new idea about

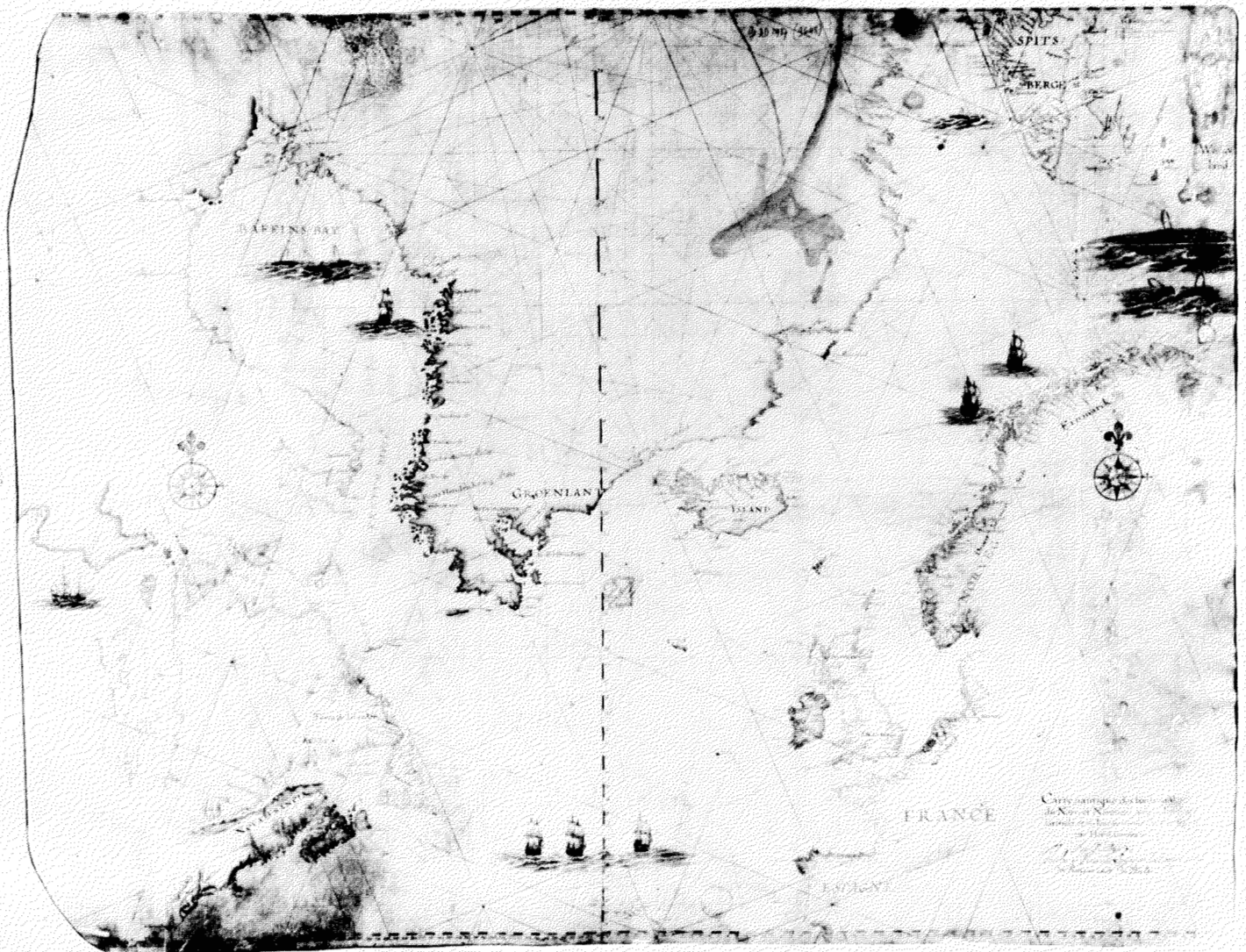


FIG. 17. Hessel Gerritsz, *Carte nautique des bords de Mer du Nort et Norouest* ... MS on vellum, ca. 1625. (Bibliothèque Nationale, Paris).

the discovery of Edge Island. This chart, which is mentioned in the sale catalogue of the Amsterdam publisher Cornelis Claesz,<sup>52</sup> proves that Edge Island ("Groen Landt" on the chart) was discovered by an unknown Dutch whaling ship in 1608 or before.<sup>53</sup> Wieder (1919:27-33, pl.6) mentioned a completely unknown representation found on the terrestrial globe of Plancius, engraved by Pieter van den Keere in 1612 and published by him in 1614. With this globe, Wieder demonstrated a previously unrecognized discovery by the Dutch between Willem Barentsz's voyage in 1596 and the year 1612. But in fact, Plancius copied only some names from Mouris Willemsz's chart (see Fig. 8) of 1608 or earlier, which was unknown to Wieder.<sup>54</sup>

As Noordsche Compagnie's ships made regular contacts with Spitsbergen, the knowledge of these coastlines improved, and this is reflected on the maps by more detailed drawing and a fuller nomenclature. The commercial publishers in Amsterdam were aware of the growing demand for good maps and charts of the arctic regions, and obsolete maps were altered to meet the latest requirements. A good example of this trend is

the chart of Europe by Cornelis Doedszoon, which was published by Willem Janszoon Blaeu in 1606 (Schilder, 1976). On a later edition of this sea chart, published around 1620, the west coast of Novaya Zemlya and the 1606 copyright next to it were omitted and replaced by a small inset map of Spitsbergen with the latest Dutch nomenclature. A further addition was the drawing of "Ian Mayen eilandt".

On a similar map of Europe by Cornelis Doedszoon, which was printed by the Amsterdam publisher Dirck Pieterszoon, there is a small inset map of Spitsbergen engraved by the great geographer and authority on the Arctic, Hessel Gerritsz (Schilder, 1976: notes 19,20). In addition to the west coast, this map shows the mouth of "Wijbe Jansz. water", and further to the east "Swarthoeck" and "Hoop eylandt". The same cartographic image of the Spitsbergen region was presented by Willem Janszoon Blaeu in his *Zee-Spieghel*, published in 1623, and this conception remained unchanged, apart from minor additions, until 1650.<sup>55</sup> We find it on maps by Anthony Jacobszoon, Pieter Goos, and Jacob Aertszoon Colom, although a better image of Spitsbergen doubtless exists on

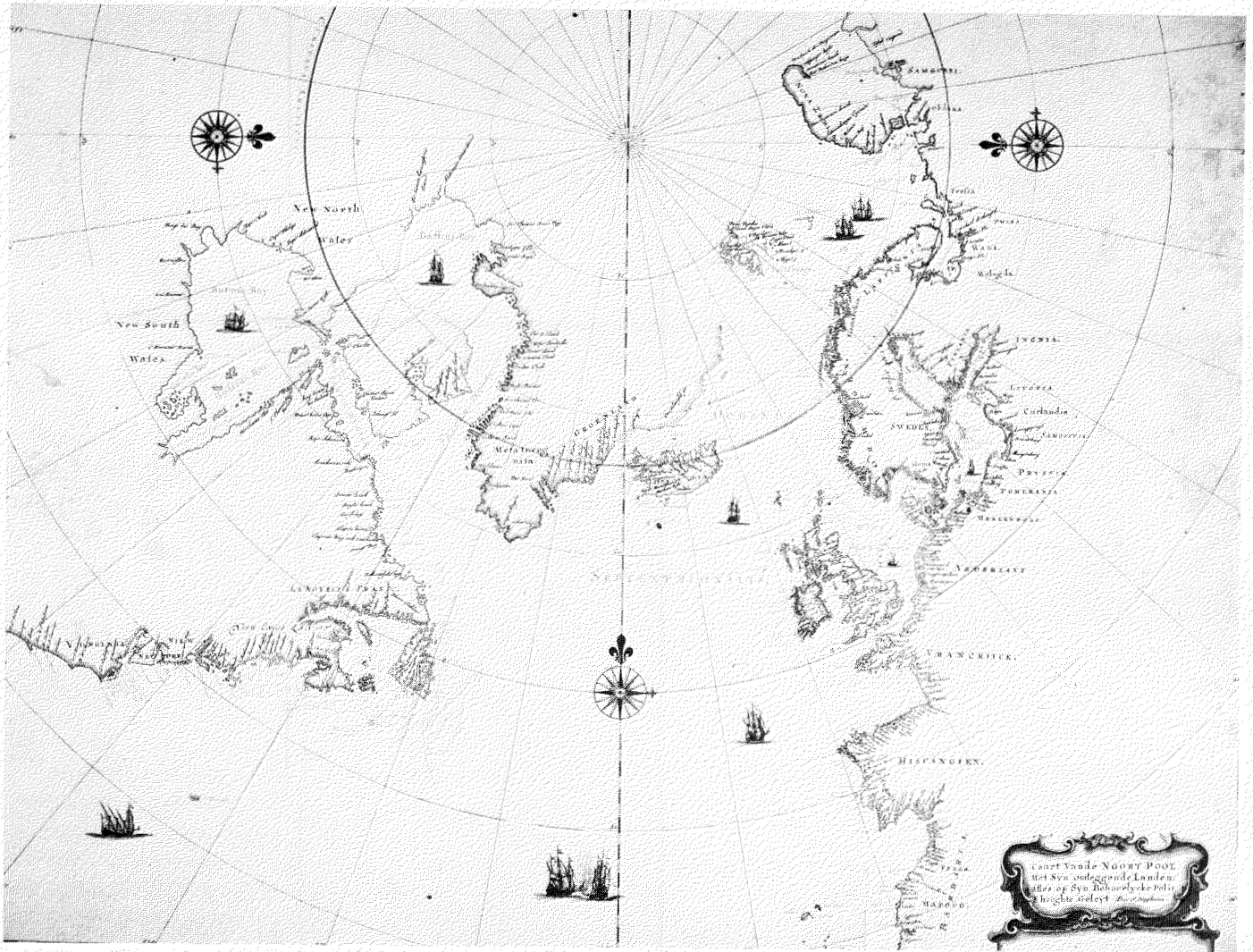


FIG. 18. Joannes Vingboons, *Caert van de Noort Pool met syn omleggende landen*. MS on paper (Biblioteca Apostolica Vaticana, Rome).

original manuscript charts and sketches by Dutch sea captains. The Dutch nomenclature given to the bays and other geographical features reflects the names of Dutch navigators and discoverers, such as "Wijbe Jansz. water" (named after Wijbe Janszoon), "Moniers bay", "Willem van Muyenen's haven", "Michiel Rinders river" and "Sardammer River" (called after the town of Zaandam, the home of many early whalers).

A characteristic feature of the Dutch cartography of Spitsbergen of that period is that hypothetical coastlines were deliberately omitted; coasts were shown only when their existence was a matter of certainty. The title of a Middlehoven manuscript dated 1634 (Fig. 20) begins as follows: "True delineation of the land of Spitsbergen, with all its bays, and harbours, which nowadays are visited and known by our Dutch navigators anno 1634".<sup>56</sup> In confirmation of this claim, a sworn attestation signed by various experienced helmsmen is appended at the bottom of the map.

An important new chapter in the seventeenth-century cartography of Spitsbergen was opened in 1663 by the enterprising Hendrick Doncker.<sup>57</sup> Until that date, official cartography

had limped along behind the actual contemporary knowledge of Spitsbergen. Doncker's map marks the start of a clearer delineation of Spitsbergen. This image was copied by Pieter Goos in his *De Zee-Atlas* (1666), which was printed in numerous editions.

Another important contribution to the development of the cartography of Spitsbergen was provided by the 1707 circumnavigation of the group of islands by the whalers Giles and Rep. The information acquired by these navigators, who were the greatest contemporary authorities on Spitsbergen, was presented cartographically in the work of the period's foremost publisher of sea charts, Gerard van Keulen. Van Keulen brought out an entirely new map of Spitsbergen, on a larger scale than ever before. This map, the title of which mentions that it is based on information from Giles and Rep, represents the pinnacle of the pre-scientific charting of Spitsbergen.<sup>58</sup>

Although a large number of printed general maps of Spitsbergen were published during the seventeenth century, only a single specimen of the manuscript detail maps, which were doubtless originally available in large numbers, has survived.



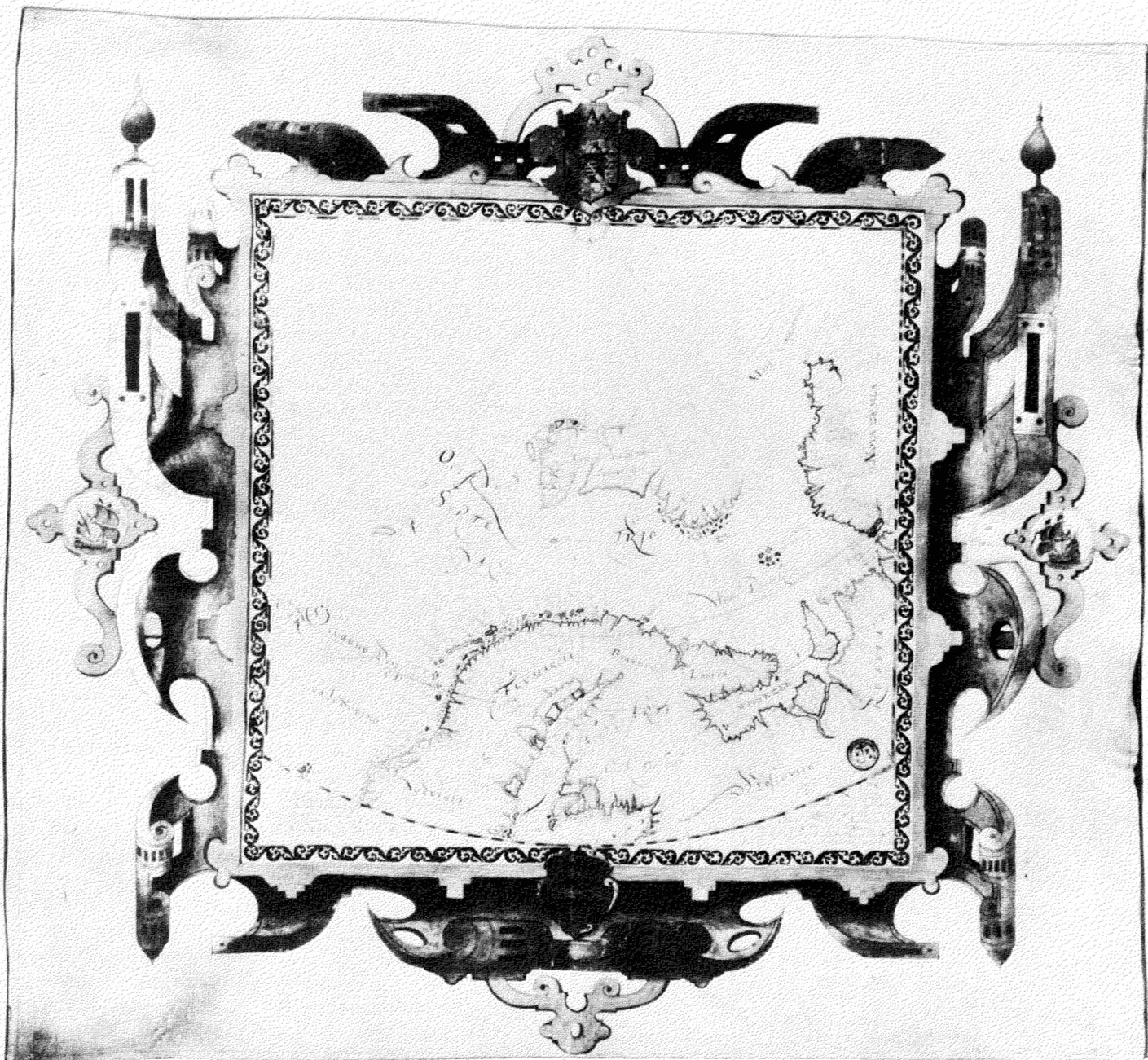


FIG. 19. Chart of the arctic regions drawn by Joris Carolus on his 1614 voyage of discovery in the waters of Spitsbergen and Jan Mayen. MS on vellum (Bibliothèque Nationale, Paris).

In the Vingboons Collection in the Algemeen Rijksarchief in The Hague, there is a map of "Hollantsche Bay", the centre of Dutch whaling, drawn in 1642.<sup>59</sup> A similar printed map of this region (Fig. 21) was included in *De Lichtende Columnne ofte Zee-Spiegel*, by Jan Janszoon (1651).<sup>60</sup> It delineates the water around Amsterdam Island, and indicates anchorages and the five tent storehouses of the different chambers of Dutch whalers. As no mention was made of Harlingen and Stavoren, which were included in 1636, the original draft of this chart may perhaps date from before 1636. It is curious to note that the name Smeerenburg does not occur on this map.

Another local chart shows the "Northeast point of Spitsbergen".<sup>61</sup> This chart is very important, as the coastline was fair-

ly well projected in those early days far beyond Hinlopen Strait, a positive knowledge of which had not been indicated in 1650 on the general maps. This chart, by Jacob Aertszoon Colom, is proof of the cartographical activity of the seamen who visited these shores, and who doubtless brought home many draft maps of this kind to be used in augmenting the existing maps, but they seldom appeared in print themselves. In the text are sailing directions relating to Spitsbergen.

#### JAN MAYEN ISLAND

In the account of Joris Carolus's voyage of 1614, I mentioned that Carolus believed himself to be the discoverer of Jan Mayen Island and showed it on his manuscript map drawn in

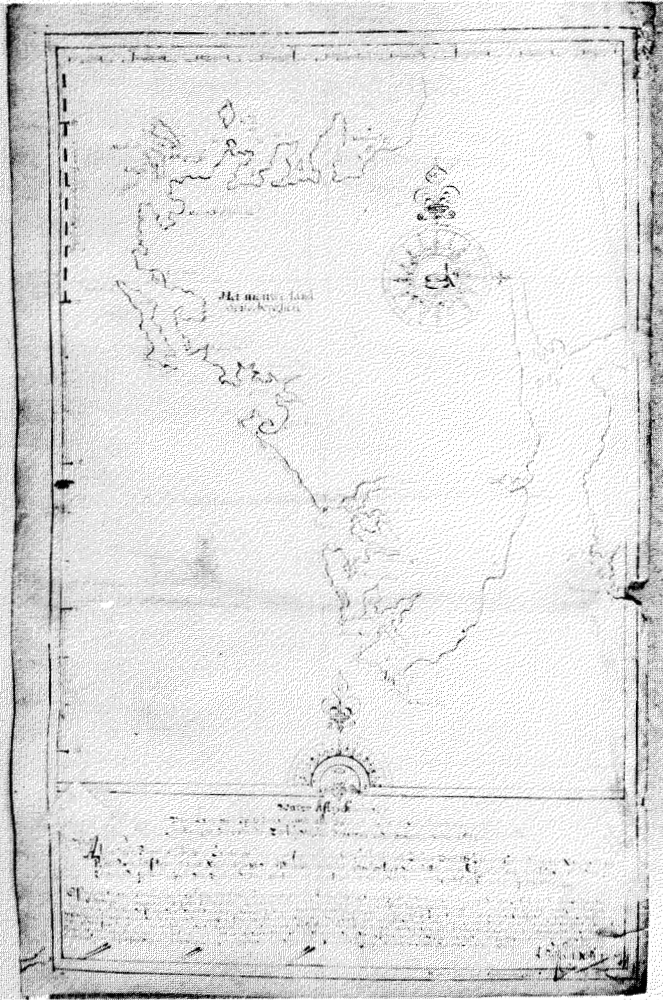


FIG. 20. Manuscript chart of Spitsbergen drawn by Michiel Hsz. Middelhoven in 1634. (Algemeen Rijksarchief, The Hague).

### De Hollantsche ofte Maurits-Bay.

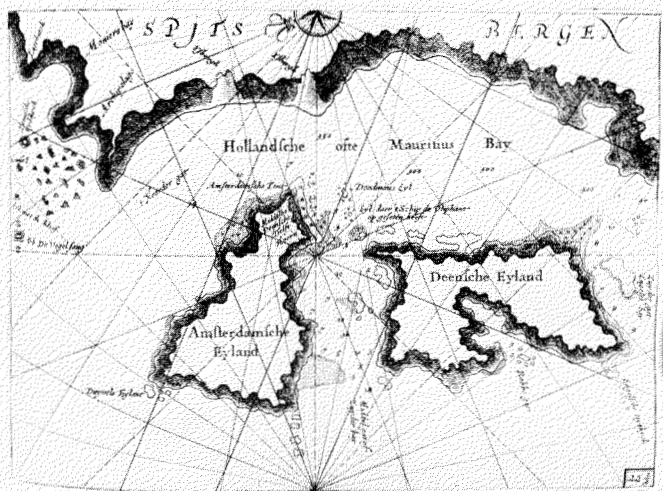


FIG. 21. Jan Jansz, *Hollantsche of Maurits Bay*. The first printed local chart for Dutch whalers visiting Smeerenburg on Spitsbergen's coast. (Universiteitsbibliotheek, Amsterdam).

the same year with the name "Mr Ioris-Eyland". The names "Jan Meys hoeck" and "Gouweners Bay", after the captains of the two vessels, and "P. Monier", named after Pieter Monier, the commander of the whaling fleet in that year, which are also found on this map, are based on the same sighting.

Jan Mayen Island had, however, already been discovered and named. The island was first sighted by Henry Hudson in 1608 and named "Hudson Touches".<sup>62</sup> A further sighting was made by the whaling fleet from Hull in 1611 or 1612, and the island was then named Trinity Island. On the map of Greenland contained in Pieter Goos's sea atlas of 1666, he mentions this discovery: "Lounges Forland ofte Trinitie Eylandt, nu Jan Mayen Eylandt".<sup>63</sup> The famous whaler Jean Vrolicq claimed to have discovered the island in 1612; and named it Isle de Richelieu. Fotherby, who sighted Jan Mayen Island in 1615, named it Sir Thomas Smith's Island; he provided the first detailed description of the island.

According to Zorgdrager, who wrote an historical summary of Dutch whaling, Jan Mayen Island was discovered by Jan Corneliszoon May on his voyage of discovery in 1611. The claim, however, is erroneous, since Jan Corneliszoon May was confused with Jan Jacobszoon May, one of the captains on the 1614 expedition. The name "Jan Meys hoeck" assigned by Carolus was later used for the entire island, in the form of Jan Mayen. This discovery was also confirmed by Joan Blaeu, who published a special map of Jan Mayen in his *Atlas mayor*, together with a text in which the discovery of this island was attributed to the expedition of 1614: "'t Eylant is in 't jaer 1614 door de Hollanders, onder welke was schipper Jan Jacobsz. May, wien naem het in 't gemeen heeft, ontdeckt'" ("The island was discovered in 1614 by the Dutch among whom was captain Jan Jacobszoon May, whose name it generally bears").<sup>64</sup>

Since Jan Mayen subsequently became an important base for Dutch whaling, a map of this region is included in all the seventeenth-century pilot books. Examples include Willem Janszoon Blaeu's map in his *Zee-Spieghel* (1623)<sup>65</sup> and Hendrick Doncker's map of 1664.<sup>66</sup>

### ICELAND

As a paper on the cartography of Iceland is included elsewhere in this volume, only a summary will be given here. Dutch cartography in the sixteenth and seventeenth centuries made an important contribution to the general knowledge of this island and the waters surrounding it (Sigurdsson, 1978).

The most important sixteenth-century maps of Iceland were those by Abraham Ortelius (which first appeared in his *Additamentum IV Theatri orbis terrarum* of 1590) and by Gerard Mercator (in his *Atlas* of 1595), which continued to exercise a major influence on the cartographic image of Iceland, and to be used as models, well into the seventeenth century. The coastlines shown on both maps are fairly close to reality. An extensive study of the sources and a comparison of maps have shown that the two Dutch cartographers, independently of each other, used a manuscript map by the Icelandic bishop Gudbrandur. Ortelius's map gives some 250 names, almost all

of which are easily recognizable and also clearly indicate that the original map was of Icelandic origin. Mercator's map has 40 more names than Ortelius's and the land appears somewhat more compact, but the general impression on both maps is the same. After about 1630, the maps by Ortelius and Mercator were supplanted by the map of Iceland by Joris Carolus, who paid several visits to the island, the first in 1617. His map, however, is only a combination of the first two.<sup>67</sup> The "author", as he describes himself on the map, followed Ortelius's map in the representation of the coastlines, but adopted Mercator's names, including all his errors. From its publication until the end of the seventeenth century, Carolus's map played a dominant part and is included unaltered in all the Dutch atlases of the period.

In 1626 Joris Carolus produced a manuscript map of the northwest Atlantic (see Fig. 16), with the title "Nieuwe pascaert van Ijsland, Fretum Davids ende de landen daer by westen" (New portolan chart of Iceland, Davis Strait and the lands to the west thereof).<sup>68</sup> The shape of Iceland is fundamentally the same as on Bishop Gudbrand's map. A similar representation of the island is found in Carolus's pilot guide *Het nieuw vermeerde Licht* (Amsterdam, 1634).<sup>69</sup> To the southeast of Iceland, Carolus added an island named "Enkhuyzer eijlant", which he claimed to have discovered in 1617 and named after his birthplace. This island does not exist, though it sometimes appears on maps drawn well into the eighteenth century.

It is impossible here to discuss the representation of Iceland on the numerous portolan charts contained in various Dutch pilot guides such as those published by Goos, Doncker, Colom, and Lootsman. Though they are all derived from the prototype of Bishop Gudbrand's map, the drawing is confined to the coasts; the interior is blank; nomenclature is to be found only along the coastlines; and on later charts there are many indications of soundings.

## NOTES

<sup>1</sup>A full-size facsimile of the *Caerte van Oostlant* (the only known copy of a later edition, published in Antwerp ca. 1560, is preserved in the Herzog August Bibliothek, Wolfenbüttel) was reproduced by A.W. Lannig (Juist).

<sup>2</sup>*Vniuersae Europae maritimae eiusque nauigationis descriptio. Generale Paschaerte van Europa, soe verre die Zeecusten ende Nauigatiën streckende zijn, gepractizeert Doer Lucas Iansz Wagenaer vā Enchuusē. 1583. Ioannes à Doetecum F. 555 × 400 mm. Published also in Waghenaer (1584-85).*

<sup>3</sup>*Tabula hydrographica, tum maris Baltici (quod Orientale hodie vocant) tum Septentrionalis Oceani nauigationem continens; ab angustijs inter Angliam et Flandriam, que promontoria siue capita vocantur, ultra promontorium Boreum in Moscoviā: nec non per fretum Orsundam in mare Balticum, Rigam Naruam et Viburgum usque. Pascaerte Inhoudende dat gheheele Oostersche en Noortsche vaerwater, beginnende vande hoofden tot om de noortcaep tot Moscouiē, oeck doer de Sondt tot Rijghe, ende naruen eñ Wijborch seer ghebetert door C.[ornelis] D.[oetsz]. Amstelredami ex officina Cornelij nicolai ad intersigne diarij 1.5.8.9. Ioannes à Dotecū Baptista a Dotecum Fecerunt. Printed on paper, 533 × 400 mm. The only known copy is in the British Library, London, and forms part of L. Jz. Waghenaer's *Den Nieuwen Spieghel der Zeevaert* (1596:Maps C.8, B.6). A reproduction is in *Imago Mundi* 9:61 (1952). The spelling of C. Doetsz's family name varies: Doedsz, Doetsz, Douszoon.*

<sup>4</sup>*UNIVERSE EUROPAE MARITIME EIUSQUE NAVIGATIONIS DESCRIPTIO. Generale Pascaerte vā Europea, soo verre die Zeecusten ende navigatiën streckēde syn, gepractiseert duer Lucas Iansz Wagenaer. van Enckhuysen. Met privilegie tot 10. Jaren. Ende nu op nieuw in allen plaetsen gecorrigiert, ende verbeteret, ende op nieuw gemaect, anno 1592. Baptista à Doetecum fecit.*

<sup>5</sup>Entitled *Beschrijvinge der Zee Custen van Mezin hem streckende tot het lant van Pitsore ... Door Lucas Iansz Wagenaer tot Enchuysen. 195 × 540 mm. The description runs: "Beschryuinghe der Seecusten van Mesen, Ruslandt, Corellen met die omliggende Eylanden".*

<sup>6</sup>Fol. 104: *Het nieuwe landt dat Oliuier Brunel gheuonden heeft, gheleghen onder den Noordschen Pole, gheuaemt Noua Sembla.*

<sup>7</sup>*Hydrographica Septentrionalis Norvegiae partis descriptio in qua quomodo tuto navigarē, vel etiam anchoras figere, Braevia item et syrtes evitare liceat, demonstratur: Portus etiam Wardhuys et Kylduyn dictus, topographice designantur, à Guil. Barentsono.*

<sup>8</sup>*EVROPAM ab Asia & Africa segregant Mare mediterraneum ... Baptista a Doetecum fecit. 395 × 555 mm. The following copies are known to me: at Universiteitsbibliotheek, Amsterdam; Geografisch Instituut, Rijksuniversiteit Utrecht; and Maritiem Museum "Prins Hendrik", Rotterdam.*

<sup>9</sup>*Dese Caerte bewijst de seylagie van Kilduijn tottet Eylandt van Orangien soo verde Willem Barentszoon de eerste reyse gheseylt heeft tot zijn wederkeer ... Baptista a Doetecum sculp. In: van Linschoten (1601).*

<sup>10</sup>*Waerachtighe afbeeldinghe ende geleegentheit, van alle de custen, havens, eylanden en streckinghe, van t' lant van Toxar, Pitsora, Vaygats eñ de nieuwe Noort zee, tot voorby de reviere Oby ... door Jan Huygen van Linschoten. Ioann. a Doetecum. Baptista a Doet. fecerunt. In: van Linschoten (1601).*

<sup>11</sup>*NOVA EUROPAE DESCRIPTIO. Auctore I. Hondio. Deo propitio Jodocus Hondius unā cum affine Petro Kaerio Flandri, caelarunt. Two copies are known: at Harvard College Library, Cambridge, MA, and Staatsarchiv, Nürnberg. 1300 × 1650 mm.*

<sup>12</sup>*Dese Caerte wijst aen de opdoeningh, ghelghentheit ende strecken van Weygats, anders gheuaemt de Stratte van Nassou ... ende daer deur oostwaert inde Tartarische Zee. In: van Linschoten (1601).*

<sup>13</sup>*NOVA EUROPAE DESCRIPTIO AUCTORE Iodoco Hondio. Jodocus Hondius excudit Amsteroda. 373 × 494 mm. Copy in Universiteitsbibliotheek Leiden (Port. 207, no. 9). To this newly-discovered island the following legend is added: "Gerard Mercator, like others, drew the Arctic continent (as it is called) in this place. But we are sure, on account of our voyages, that no land is found here, because they sailed to 81° North in the years 1595 and 1596".*

<sup>14</sup>*Delineatio cartae trium navigationum per Batavos, ad Septentrionalē plagam, Norvegiae, Moscoviae et novae Semblae, et perque fretum Weygatis Nassovicum dictum, ac juxta Groenlandiam, sub altitudine 80. graduum nec non adiacentium partium Tartariae, promontori Tabin, freti Anian atque regionis Bargi et partis Americae versus orientem, Authore Wilhelmo Bernardo Amstelredamo expertissimo pilota. Beschrijvinghe van de drie seijlagien ... door WILLEM BARENTS van Amstelredam de vermaerde Piloot-Auctore Wilhelmo Bernardo. Cornelius Nicolai excudebat. Baptista a Doetecum sculp. a. 1598. 415 × 565 mm.*

<sup>15</sup>*Caerte van Nova Zembla, de Weygats. de custe van Tartariën en Ruslandt tot Kilduyn toe, met anjysinghe van de weeder vaert lanx de Noordcust van Nova Zembla, eñ de overvaert tot ... de mont van de Witte Zee. Door Gerrit de Veer beschreven. Baptista a Doetecum sculp. a<sup>o</sup>. 1598.*

<sup>16</sup>*Waerachtighe Beschryvinghe Van drie seylagien ter werelt ... drie jaeren malcanderen deur de Hollandische ende Zeelandische schepen by noorden Noorweghen, Moscovia ende Tartaria, na de Coninckrijcken van Cathay ende China ... Gedaen deur Gerrit de Veer van Amstelredam. Ghedruckt t'Amstelredam by Cornelius Claesz. op 't vwater, int Shrijf-boeck, A<sup>o</sup> 1598.*

<sup>17</sup>The copy held in the National Maritime Museum at Greenwich was published full size, accompanied by a description, in Schilder (1981a).

<sup>18</sup>Map of Europe, three sheets in the Maritiem Museum "Prins Hendrik", Rotterdam, each sheet 356 × 535 mm; the right bottom sheet is missing, on which must be the title. Wall map of Asia in eight sheets: *ASIAE TABULA NOVA MULTIS locis, tam ex terrestri peregrinatione quam recentiori navigatione ab exploratissimis naucleris, emendata & multo quam antea exactior edita*. The only known copy is preserved in the Rijksmuseum "Nederlands Scheepvaart-Museum", Amsterdam.

<sup>19</sup>*NOVA UNIVERSI TERRARUM ORBIS MAPPA EX OPTIMIS QUIBUSQUE GEOGRAPHICIS HYDROGRAPHISQUAE TABULIS SUMMA INDUSTRIA ACCURATISSIME DELINEATA, DUOBUS PLANISPHAERIIS GEOGRAPHICE DEPICTA à Guliel. Ianssonio Alcmar*. See E.L. Stevenson (1914).

<sup>20</sup>Monograph and facsimile on the scale of the original by Stevenson and Fischer (1907).

<sup>21</sup>For the mapping of Scandinavia see Bratt (1958). The 1601 chart by van Salingen was reproduced in Bjornbo and Petersen (1908).

<sup>22</sup>*Nieuwe PASCHAERTE, getrocken by Cornelis Douzoon inde 4 Heems: Kinderen Chaertschrijver, begrijpende seer perfectelijck alle de Zeecusten van Europa. Cornelis Nicolai excudit Jodocus Hondius caelavit Amsterodami anno 1602*. Printed on vellum, 540 × 705 mm. The only known copy is preserved in the Badische Landesbibliothek, Karlsruhe. See Schilder (1981b:35-40).

<sup>23</sup>Same title as the 1589 map (see note 3), but with the following new imprint: *Gedruckt t' Amsterdam bij Claes Jansz Visscher wonende op de niewesyds Colck Inde Visscher 1.6.1.0*. Two copies are known to me: National Library, Oslo, and Maritiem Museum "Prins Hendrik", Rotterdam.

<sup>24</sup>*NATIVUS SUECIAE ADIACENTI UMQUE REGNORUM TYPUS. Jodocus Hondius Junior sculpsit et excudit Anno 1613*. With a dedication to the Swedish king Gustav Adolph by Adriaan Veen. Copies in Kungl. Biblioteket, Stockholm, and Universiteitsbibliotheek, Leiden.

<sup>25</sup>This letter is quoted by G.W. Kernkamp (1903), designated no. 101 in the Rigsarkivet of Copenhagen. In 1976, however, when I visited this institution, the letter couldn't be found.

<sup>26</sup>"Habes hic benevole Lector, Orbis Arctoi, imprimisque Regni Sueciae accuratissimam tabulam, nuper quidem per Doct. virum D. Andr. Buracum delineatam, sed postea de integro, per Hesslium Gerardi atque Isaacum Massam, viros peritissimos, emendatam, meaq, iam curraet sumptu aeni incisam, multisq, in licis multatam et auctam vale Tuus Henricus Hondius".

<sup>27</sup>The following copies of this Blaeu wall map are known to me: Deutsche Staatsbibliothek, Berlin (with text signed by Hondius); Universitätsbibliothek, Rostock (with text signed by Hondius); Klencke-atlas, London (with text by Hondius); Kungl. Biblioteket, Stockholm (with text by Blaeu); and two copies in the Bibliothèque Nationale, Paris (one copy in six loose sheets).

<sup>28</sup>British Library, London (Mar. II.5) 392 × 435. Copper engraving.

<sup>29</sup>*Caerte van't Noorderste Russen, ende Tingoesen landt alsoo dat vande Russen afghetekent, en door Isaac Massa vertaelt is*. 175 × 455 mm. Reproduced in Naber (1924:pl.II).

<sup>30</sup>*TABVULA RVSSIAE ex autographo, quod delineandum curavit Foedor Boris Desumta ... dedicata ab Hesselo Gerardo MDCXIII*. 423 × 540 mm. Copies of this rare map are in Bibliothèque Nationale, Paris, and Houghton Library, Harvard University, Cambridge, MA.

<sup>31</sup>The complete title runs: *NIEUWE LANTKAARTE Van het Noorder en Ooster deel van ASIA en EUROPE Strekkende van NOVA ZEMLA TOT CHINA Aldus Getekent, Beschreven, in Kaart gebraghu en uygegeven sedert een Nauwkeurig ondersoek van meer als twintig iaeren door NICOLAES WITSEN Anno 1687*. Six sheets, 1155 × 1250 mm. Copies in The Netherlands at Universiteitsbibliotheek,

Leiden; Maritiem Museum "Prins Hendrik", Rotterdam; and the Rijksmuseum "Nederlands Scheepvaart-Museum", Amsterdam.

<sup>32</sup>*NOVA ET AVCTA ORBIS TERRAE DESCRIPTIO AD VSVM Nauigantium emendatè accommodata ...* Top left in the cartouche, a dedication to Wilhelm, Duke of Gulike, Kleef and Berg: "Gerardus Mercator dedicabat". Bottom right: "Aeditum autem est opus hoc Duysburgi an: D: 1569 mense Augusto." 24 copperplate sheets. overall dimension 1431 × 2111 mm. Locations: Bibliothèque Nationale, Paris; Universitätsbibliothek, Basel; Stadtbibliothek Breslau (destroyed), reproduced by A. Heyer, *Drei Karten von Europa, Britische Inseln, Weltkarte, herausgegeben von der Gesellschaft für Erdkunde* (Berlin, 1890, folio); Maritiem Museum "Prins Hendrik", Rotterdam. Facsimile: "Gerard Mercator's map of the world (1569) in the form of an atlas reproduced on the scale of the original. With an introduction by B. van 't Hoff" (Rotterdam, 1961). (Publications of the Maritiem Museum "Prins Hendrik" no. 6: *Imago Mundi*, Suppl. no. 2).

<sup>33</sup>*Nova Francia, alio nomine dicta terra nova ... Joannes à Duetecum iunior fecit*. 383 × 547 mm. Copies at the Universiteitsbibliotheek, Amsterdam, and Maritiem Museum "Prins Hendrik", Rotterdam.

<sup>34</sup>*AMERICAЕ TABULA NOVA MULTIS locis tam ex terrestri peregrinatione quam recentiori navigatione ab exploratissimis naucleris emendata et multo quam antea exactior edita*. 1460 × 1060 mm. Bibliothèque Nationale, Paris. Illustrated in M. Destombes (1978).

<sup>35</sup>*NOVA ORBIS TERRARUM GEOGRAPHICA ac Hydrogr. Tabula, Ex optimis in hoc opere auctoribus desumpta auct. Gul. Ianssonio*. In the lower left corner the following address can be seen: *Excudebat Gulielmus Ianssonius Amsterodami sub signo Solarii deaurati Anno à Chro. nato 1607*. I found the four main sheets of this world map in the Stadt und Universitätsbibliothek, Bern, in 1980. A full-size facsimile with description is given in Volume 4 of Schilder (1981a). See also Schilder (1979).

<sup>36</sup>*NOVA TOTIUS ORBIS MAPPA, EX OPTIMIS AUCTORIBUS DESUMTA studio Petri Kaeri*. Twelve sheets, 1260 × 1970 mm. The only known copy is preserved in the Sutro Library, San Francisco. For a description and full-size facsimile see Schilder and Welu (1980).

<sup>37</sup>*TABVLA NAVTICA, qua repraesentatur orae maritimae meatus, ac freta, noviter a H Hudsono Anglo ad Caurum supra Novam Franciam indagata Anno 1612*. 245 × 548 mm.

<sup>38</sup>*Carte Geographique des Costes et bords de Mer. iusques a present decouvert en la Zone Frigide Boreale. fait par Hessel G. auec privilege des Hauts et Puissants Seigneurs, les Estats Generaux des Provinces unies du Pais-bas*. Manuscript on vellum, coloured. Bibliothèque de l'Institut de France, Paris.

<sup>39</sup>Anonymous (chart between Island and Buttons Bay and 49°N-78°N). Manuscript on paper, 480 × 690 mm. Bibliothèque Nationale, Paris, Coll. Bonaparte.

<sup>40</sup>The only known copy (without title) is preserved in the Maritiem Museum "Prins Hendrik", Rotterdam; the legend reads: "Huc usque processerunt Hollandi cum anno 1613 Amsterodammi aliquot mercatorum nomine, per Bercate America latus viam indagarent ad regna Cathayae et Sinæ."

<sup>41</sup>*Nieuwe Pascaert van ijslant, Fretum Davids Ende de Landen daer by westen. Mitsgaders de Nieuwe straet ende Nieuwe zee Genaemt Mare Cristiane Beschreven ende byeen vergadert en driemaal selfs beseylt Door Meester Ioris Carolus Stuyrman ende Caertschryver tot Enchuyssen: In den Iare Anno 1626*. Manuscript on vellum, 955 × 760 mm. Coloured. Algemeen Rijksarchief, The Hague. Reproduction in Bjornbo and Petersen (1908:p. 11).

<sup>42</sup>*Carte nautique des bords de (la) Mer du Nort, et Norouest, mis en longitude latitude, et en leur route, selon les rins de vent; par Hessel Gerritsz. Avec Privilege des Hauts et Puissants Seigneurs, les Estats Generaux des Provinces unies du Pais-bas*. Ms. on vellum, coloured,

870 × 1120 mm. Bibliothèque Nationale, Paris, Res. Ge DD 2987 (no. 9648).

<sup>43</sup>*POLI ARCTICI, ET CIRCUMIACENTIUM TERRARUM DESCRIPTIO NOVISSIMA. Sumptibus Henrici Hondij.* In: Mercator and Hondius, *Atlas or a geographicke description* (Amsterdam, 1636).

<sup>44</sup>*NOVA TOTIUS TERRARUM ORBIS TABULA.* Wall map by Joan Blaeu in twenty copperplate sheets. Description and full-size reproduction in Wieder (1929:p1. 51-71).

<sup>45</sup>*REGIONES SVB POLO POOL ARCTICO.* Auctore Guilielmo Blaeu. Copper engraving, 410 × 525 mm.

<sup>46</sup>*Caert Vande Noort Pool Met Syn omleggende Landen alles op Syn Behoorlycke Polis hooghte Geleyt Door I. Vingboons.* Manuscript on paper, coloured, 685 × 920 mm. Biblioteca Vaticana, Rome (Reg. Lat. 2105, map 2).

<sup>47</sup>*Histoire du Pays nomme Spitsberghe. comme il a esté decouvert, sa situation & de ses Animaux ... Escript par H. G. A. ... A Amsterdam, Chez Hessel Gerard A. a l'ensiegne de la Carte Nautique. M.D.XIII.*

<sup>48</sup>"... avons suivy pour la plus grand part les annotations des Angloys tirée d'une carte de Iohan Daniel, escrit à Londres l'An 1612".

<sup>49</sup>*Waere Afbeeldinghe van Noorwegen, Finmarcken, De Noort Caep Laplandt, Moscovien, de Witte Zee, Ruslandt, de Straet van Nassouwen, ende Nova Zemla, ende oock de noort Bodem. Mitsgaders het nieuwe landt van Spitsbergen met alle havenē Bayen Sanden ende Eylanden daer Ontrent gelegen. Als oock het Nieuwe gevonden Eylandt, Beseylt ende Beschreven door Mr. Ioris Carolus Stierman ende Caertschryver tot Enchū. Anno 1614.* Manuscript on vellum, coloured, 750 × 810 mm. Bibliothèque Nationale, Paris, S.H. Archives no. 7. Reproduction in Wieder (1919:p1. 5,6).

<sup>50</sup>Examples include the 1605 wall map of the world by Willem Janszoon Blaeu, his 1606 world map in folio size, and Jodocus Hondius's wall map of the world (1611-12).

<sup>51</sup>See note 28.

<sup>52</sup>*Const ende Caert-Register, In welcke gheteyckent staen alderhande soorten van Caerten ende Mappen des ganschen Aertbodens, groot ende cleyn ... t'Amstelredam by Cornelis Claesz ... 1609.* See van Selm (1980). As Cornelis Claesz died in May 1609, the voyage to Novaya Zemlya and Edge Island must have taken place in 1608 or before.

<sup>53</sup>The following names can be read on Edge Island: Groen Landt, 7 Broeders, Willems Revier, Staten eylandt, Staten bay, Odolfs haven, Berger clippen, Harmens haven, Corins bay, Geritz eylandt, and Verlaten Eylandt.

<sup>54</sup>This Dutch discovery of Edge Island was already shown on the English world map of 1610, which was engraved by William Kip (copy preserved in the Bodleian Library, Oxford). The few names, however, are mutilated.

<sup>55</sup>*Pascaerte vande Westcuste van Noorwegen en Spitsberge. t'Amsterdam Bij Willem Janszoon inde Zoonewijser.* Copper engraving.

<sup>56</sup>*Waere Afteyckeninge: van 't Lant van Spits-Bergen, met alle Baijen, en hauenen die nu ter tijt, bij onse Hollantsche Zeevaerende zeeluyden sijn bevaeren ende bekent: anno 1634. Michiel Harmansze Middlehoven fecit. 1634.* Manuscript on vellum, 575 × 355 mm. Algemeen Rijksarchief, The Hague (VEL 1). Reproduction in Wieder (1919:p1. 14).

<sup>57</sup>*Paskaert von SPITSBERGEN met Alle zijn zeekusten zoo veel tot noch toe Bekent is. Bij Hendrick Doncker 1663.* Copper engraving, 435 × 540 mm.

<sup>58</sup>*Nieuwe afteekening van Het Eyland SPITS-BERGEN, opgegeven door de Commandeur Giles en Outger Rep, en in 't Ligt gebragt en uytgegeven door Gerard van Keulen Boek en Zeekaart verkooper aan de Nieuwenbrug met privilegie voor 15 Jaaren.* Copper engraving, 515 × 585 mm. Reproduction in Wieder (1919:p1. 31).

<sup>59</sup>*Besonder Teyckenge [sic] van De Hollantsche bay à 1642.* MS. on paper 250 × 360 mm. Algemeen Rijksarchief, The Hague (Vingboons Collection, no. 13).

<sup>60</sup>*De Hollantsche ofte Mourits-Bay.* In Jan Jansz (1651); reproduced in Wieder (1919:p1. 19).

<sup>61</sup>"Beschrijvinghe van de N.O. Hoeck van Spits-berghen." In: Colom, J. Az. *De Groote Lichtende ... Colom* (Amsterdam, 1652), p. 6, woodcut, 155 × 270 mm. Reproduction in Wieder (1919:p1. 20).

<sup>62</sup>Thomas Edge wrote in his *Northern Discoveries of the Muscovia Merchants*: "hie [Hudson] discovered an Iland lying in 71 degrees which he named Hudson Tutches".

<sup>63</sup>*Pascaerte van GROEN-LANDT. Yslandt, Straet Davids en Ian Mayen eylandt, hoemen de selvige van Hitlandt en de Noortcusten van Schotlandt en Yrlandt beseylen mach.* Copper engraving, 430 × 520 mm.

<sup>64</sup>*INSVLA QVE A IOANNE MAYEN NOMEN SORTITA EST.* Copper engraving, 430 × 545 mm.

<sup>65</sup>*IAN MAYEN EYLANDT.* Copper engraving, 255 × 235 mm.

<sup>66</sup>*Pas-Caert van IAN MAYEN EYLANDT, Vertonende Perfect alle de gelegenheyt van 't selve. A. 1664.* (Loose copy in the Universiteitsbibliotheek, Amsterdam, 31-03-31).

<sup>67</sup>*TABVLA ISLANDIAE.* Auctore Georgio Carolo. Flandro. Copper engraving, 384 × 500 mm.

<sup>68</sup>See note 41.

<sup>69</sup>*Pascaerte. van de Custen van Hitlandt Yslandt ende voort naer Oudt-Groenlandt en nade Straet Davids ... alles beschreven by een vergadert ende selfs bevaren door Mr Ioris Carolus Stuyrman ende Caertschryver tot Enckhuysen Anno 1634.*

## REFERENCES

- BAGROW, L. 1948. Vingboons' maps in Sweden. *Anecdota Cartographica* 2. Folio. Stockholm.
- BJORNBO, A.A. and PETERSEN, C.S. 1908. *Anecdota Cartographica Septentrionalia. Haunia.*
- BRAATT, E. 1958. En kronika om kartor over Sverige. Stockholm.
- CONWAY, M. 1901. Joris Carolus, discoverer of Edge Island. *The Geographical Journal* XVII:623-632.
- de JONG, C. 1978. *Geschiedenis van de oude Nederlandse Welvisvaart II.* Johannesburg.
- DECKER, P. 1979. De vroege Nederlandse vaart op Straat Davis. *Mededelingen van de Nederlandse Vereniging voor Zeegeschiedenis* 39:15-55.
- DESTOMBES, M. 1978. Quelques rares cartes nautiques néerlandaises du XVII<sup>e</sup> siècle. *Imago Mundi* 30:57.
- JANSZ, J. 1651. *De Lichtende colonne ofte Zee-Spiegel.* Amsterdam.
- KERNKAMP, G.W. 1903. *Verslag van een onderzoek in Sweden, Noorwegen en Denemarken naar archivalia belangrijk voor de geschiedenis van Nederland.* 's-Gravenhage.
- KEUNING, J. 1946. Petrus Plancius. Theoloog en geograf, 1552-1662. Amsterdam.
- \_\_\_\_\_. 1949. Hessel Gerritsz. *Imago Mundi* VI:48-66.
- \_\_\_\_\_. 1950a. Cornelis Anthonisz. *Imago Mundi* VII:51-65.
- \_\_\_\_\_. 1950b. Cornelis Anthonisz. Zijn caerte van Oostlandt, zijn Onderwijsinghe vander Zee en zijn Caerte van die Oostersese. *Tijdschrift van het Koninklijk Nederlands Aardrijkskundig Genootschap* LXVII:687-741.
- \_\_\_\_\_. 1953. Isaac Massa, 1586-1643. *Imago Mundi* X:65-79.
- \_\_\_\_\_. 1954. Nicolaes Witsen as a cartographer. *Imago Mundi* XI:95-110.
- LOCHER, J.G. and de BUCK, P. 1966-67. Nicolaes Witsen, *Moscovische Reyse 1664-1665.* Werken uitgegeven door de Linschoten-Vereeniging LXVI-LXVIII. s'Gravenhage: M. Nijhoff.
- MULLER, S. 1874. *Geschiedenis der Noordsche Compagnie.* Utrecht.
- NABER, S.P. l'Honoré. 1917. *Reizen van Willem Barents, Jacob van Heemskerck, Jan Cornelisz. Rijp en anderen naar het Noorden (1594-1597).* Werken uitgegeven door de Linschoten-Vereeniging 14,15. s'Gravenhage: M. Nijhoff.
- \_\_\_\_\_. 1921. Henry Hudson's reize onder Nederlandsche vlag van Amsterdam naar Nova Zembla, Amerika en terug naar Dartmouth in Engeland, 1609. Werken uitgegeven door de Linschoten-Vereeniging 19. s'Gravenhage: M. Nijhoff.

- \_\_\_\_\_. 1924. Hessel Gerritsz. Beschrijvinghe van der Samoyeden Landt en Histoire du Pays nomme Spitzberghe. Werken uitgegeven door de Linschoten-Vereeniging XXIII. 's-Gravenhage: M. Nijhoff.
- RICHTER, H. 1936. Anders Bure and his Orbis Arctoi Nova Et Accurata Delineatio from 1626. Medelanden fran Lunds Universitets Geografiska Institution, Avhandlingar III. Lund.
- SCHILDER, G. 1976. Willem Janszoon Blaeu's map of Europe (1606), a recent discovery in England. *Imago Mundi* 28:9-20.
- \_\_\_\_\_. 1978. Catalogue of the Spitsbergen Symposium. Groningen: Arctic Centre.
- \_\_\_\_\_. 1979. Willem Jansz. Blaeu's wall map of the world, on Mercator's projection, 1606-07 and its influence. *Imago Mundi* 31:36-54.
- \_\_\_\_\_. (ed.). 1981a. Wall-maps of the 16th and 17th Centuries. A series of full-size facsimiles of wall-maps published in the Low Countries. Amsterdam: N. Israel. Vol. 4.
- \_\_\_\_\_. 1981b. Een handelskaart van Europa uit 1602. Een Nederlandse bijdrage a de historisch-thematische kartografie. *Kartografisch Tijdschrift* VII(3):35-40.
- \_\_\_\_\_. and WELU, J. 1980. The world map 1611 by Pieter van den Keere. In: Schilder, G. (ed.). Wall-maps of the 16th and 17th Centuries. A series of full-size facsimilies of wall-maps published in the Low Countries. Amsterdam: N. Israel. Vol. 3.
- SIGURDSSON, H. 1978. Karta Sager Islands fra Lokum 16, Alder til 1848. Reykjavik.
- STEVENSON, E.L. 1914. Willem Janszoon Blaeu, 1571-1638: a sketch of his life and work with a special reference to his large world map of 1605; facsimile of the unique copy belonging to the Hispanic Society of America. New York.
- \_\_\_\_\_. and FISCHER, J., S.J. 1907. Map of the world by Jodocus Hondius, 1611. New York.
- van LINSCHOTEN, J.H. 1601. *Voyagie, ofte Schipvaert van Ian Hvyghen van Linschoten, van by Noorden om. Franeker.*
- van SELM, B. 1980. Amsterdam stock catalogues with printed prices from the first half of the seventeenth century. *Quaerendo* X(1):3-46.
- WAGHENAER, L. Jz. 1584-85. *Spiegel der Zeevaert*. Leiden.
- \_\_\_\_\_. 1592. *Thresoor der Zeevaert*. Leiden.
- WALLIS, H.M. 1951. The first English globe: a recent discovery. *The Geographical Journal* CXVII:275-290.
- \_\_\_\_\_. 1955. Further light on the Molyneux globes. *The Geographical Journal* CXXI:304-311.
- \_\_\_\_\_. 1973. Edward Wright and the 1599 world map. *Hakluyt Handbook* I:69-73. Works issued by the Hakluyt Society, second series no. 144.
- WIEDER, F.C. 1919. *The Dutch Discovery and Mapping of Spitsbergen*. Amsterdam.
- \_\_\_\_\_. 1929. *Monumenta Cartographica III*. The Hague: M. Nijhoff.
- WRIGHT, E. 1599. *Certaine Errors in Navigation, arising either of the ordinarie erroneious making or using of the sea chart ... detected and corrected by Edward Wright*. London.