

The Authenticity of the Vinland Map

Ib Kejlbo

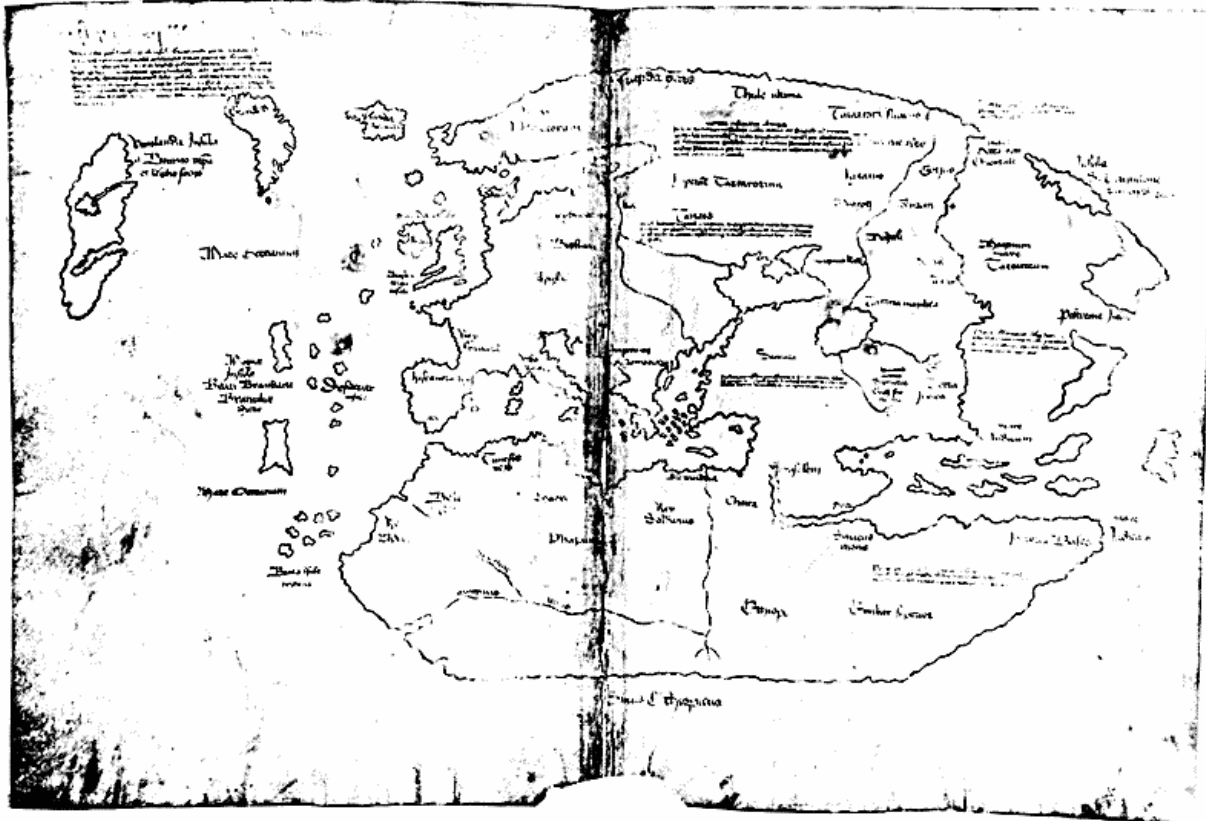


Fig. 1. The Vinland Map. Parchment. University Library of Yale. (Dimensions: 28.5 cm. by 42 cm.) Anonymous.

Kejlbo, Ib: The Authenticity of the Vinland Map. *Geografisk Tidsskrift* 92:1-13. Copenhagen 1992.

The author is critical of the suggestion put forward by Skelton and Painter, (authors of 'The Vinland Map and the Tartar Relation', 1965), that the Vinland Map and Resen's Map of 1605 might derive from a common, now lost, cartographic source. As Resen's map, and its precursor Stefansson's map of about 1590, were presumably compiled on the basis of legendary material rather than on already existing cartographic material, the author finds this theory untenable. A more likely source of the Vinland Map would, in his view, appear to be Claudius Clavus, the Danish cartographer, whose Nancy Map of 1427 remains the first map to bear witness of Norse geographical knowledge. Leaving the question of its authenticity to be settled, possibly by chemical or hitherto unknown cartographic evidence, the author recommends that the study of the original Norse sources remains central to any future discussion of the Vinland Map.

Keywords: *Claudius Clavus, Hans Poulsen Resen, Sigurdur Stefansson, Vinland Map, Cartography.*

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The discussion concerning the authenticity of the Vinland Map and its possible sources has not yet abated. New contributions to fuel the debate are forever appearing in geographical journals and the controversy shows no sign of being resolved in the near future.

Indeed, since the Vinland Map (fig. 1) was first brought to the public eye in 1965, it has been subjected to the utmost scrutiny, undergoing many examinations and analyses. As recently as in 1990, Kenneth M. Towe, in his article on the evidence provided by the latest microscopical and chemical examinations of the map, concluded

that, 'with all the chemical, microscopical, historical and cartographic data now available, it is increasingly difficult to argue that the Vinland Map could still be an authentic 15th century document. If further research is to be devoted to this document and its provenance, perhaps it should be addressed toward an attempt to identify the forger(s), and the source(s) of the inks, and the motives for its forgery.' ('The Vinland Map: Still a 'Forgery' in 'Acc. Chem. Res. 1990, 23' p. 87).

The Vinland Map (fig. 1), henceforth to be referred to as VM, is drawn on parchment. It depicts, in outline, the 'Old World' - Europe, Africa, Asia - surrounded by an ocean with various islands. The north-western part of the map includes representations of Iceland, Greenland and Vinland, depicted as islands. By and large, the representation of the 'Old World' is in the traditional 'mappamundi' style of the 14th and 15th centuries.

As the VM undoubtedly includes a number of significant features from André Bianco's map of 1436, the VM cannot have been compiled at an earlier date. R.A. Skelton, George D. Painter and Thomas E. Marston, who published the discovery of the VM in 'The Vinland Map and the Tartar Relation' in 1965, agree on an approximate date of 1440, and tentatively ascribe its provenance to the city of Basel.

The VM is evidently a derivative work, presumably intended to serve as a key map to 'Historia Tartarorum', the second document of the manuscript volume, which was discovered in 1957. 'Historia Tartarorum' is a copy of a manuscript, whose last entry dates from 30th July 1247. It was written by a friar by the name of C. de Bridias, of whom nothing else is known. The work contains a hitherto unknown account of Giovanni de Plano Carpini's Mission to the Great Khan in 1245-47. If genuine, it is the earliest cartographic evidence of Carpini's Mission in Asia. The compiler has made use of some of the geographical names from the 'Historia Tartarorum'.

Whereas the VM representation of the 'Old World' is largely traditional, this cannot be said of the islands in the north-western part of the map. Naturally, it is this part of the map which has been the cause of much debate and controversy. The nomenclature of these islands and their accompanying legends are quoted below as they have been deciphered by the above-mentioned authors. The Latin original is followed by the English translation of the same publication ('The Vinland Map and the Tartar Relation' p.138-140).

On the VM, Iceland is called 'isolanda Ibernica', a form unknown from any other cartographic material. According to Skelton, this form is the result of elision, a contraction of Iso(la Is)landa. Skelton goes on to say that the name used for Greenland is Gronelada.

The legend inscribed to the north-east of Vinland, which

is depicted as an island, reads as follows: 'Vinlanda Insula a Byarno rep.a et Leipho sociijs'. ('Island of Vinland, discovered by Bjarni and Leif in company').

The long legend to the north of Vinland and Greenland reads as follows: 'Volente deo post longu iter ab insula Gronelanda per meridiem ad/reliquas extremas partes occidentalis oceani maris iter facientes ad/austru inter glacie byarnus et leiphus erissonius socij terram nouam uberrima/videlicet vinifera inuenerunt quam Vinilanda, [or Vimlanda], insula appellauerunt. Henricus/Gronelanda regionumq finitimarum sedis apostolicae episcopo legatus in hac terra/spaciosa vero et opulentissima in postmo anno p. ss. nrj.[= notificis or patris sanctissimi nostri] Pascali accessit in nomine dei/omnipotentis longo tempore mansit estiuo et brumali postea versus Gronelanda redit/ad orientem hiemale deindo humillima obediencia superiori valutati processit.'

('By God's will, after a long voyage south from the island of Greenland towards the most distant remaining parts of the western ocean sea, sailing southwards amidst the ice, the companions Bjarni and Leif Eiriksson discovered a new land, extremely fertile and even having vines, which they named Vinland. Eric [Henricus], legate of the Apostolic See and Bishop of Greenland and the neighbouring regions, arrived in this truly vast and very rich land, in the name of the Almighty God, in the year of our most blessed Father Pascal, remained a long time in both summer and winter, and later returned north-eastwards towards Greenland and then proceeded [i.e. home to Europe?] in most humble obedience to the will of his superiors.')

The information conveyed by the VM legends to the effect that Vinland was discovered by Leif and Bjarne jointly is not corroborated by the Norse saga accounts. There is no suggestion of this joint voyage in the Norse material. According to 'Eirik's Saga Rau a', Vinland was discovered by Leif on his return journey from Norway in the year 1000. According to 'Groenlendiga átt', however, Bjarni Herjulfsson made this journey quite by chance around the year 986, and it was indeed Bjarni's account which inspired Leif to embark upon his Vinland voyage. Nor is the date of Bishop Erik's voyage to Vinland in the last year of our most blessed father Pascal confirmed by the sagas, which record the years 1112 and 1121. The year of the death of Pope Pascal would, however, have been in 1118. Leaving aside the historical dispute, I should like to express my conviction that in the case of any discrepancy between the VM legends and the Norse sagas, the latter should be regarded as the more reliable, being the reports of native Norsemen, written at a time far earlier than the VM legends.

As already mentioned, Skelton interprets the VM name for the locality of Vinland as 'Vinlanda Insula'. Vinilanda, however, seems a more likely interpretation.

'Gronelada', also Skelton's interpretation of the VM name for Greenland, is certainly not correct. Grouëlâda, or Grouëlâdu, would seem to be more accurate, as this is the spelling used in the long legend when Greenland is mentioned for the third time. Furthermore, the VM name for Greenland certainly includes a diacritical accent above the 'e' the second time the name is written in the legend. Skelton fails to include the accent. A close study of the Latin legend and the geographical place-names would indicate that the scribe had no native knowledge of the area and was not a Norseman.

A comparison of the texts of the VM and TR reveals a number of errors and inaccuracies which may well be due to carelessness. Such forms as 'Grouëlâda or Grouëlâdu', and to present the sole VM version of Greenland as Gronelada, is unacceptable in a work of this scope to be used by future scholars. I shall not tire the reader with further instances of the many other errors caused by mis-

interpretation, mistranscription or historical misapprehension, as these are not essential to the cartographic debate concerning the authenticity of the VM.

Many scholars suggest that the VM is a forgery, mainly because proof of its provenance is still lacking. Laurence Witten, the antiquarian who ensured that the VM reached America, explains that he has promised not to reveal the owner's identity for fear of losing custom. He categorically denies the rumour that the VM may have been stolen from La Seo Cathedral in Zaragoza, and supports his denial by stating that the work is not mentioned on the official Spanish list of books stolen from that cathedral. Finally, he claims that he has never received any formal request for the restitution of the work by any individual or government.

As I have mentioned before, the islands in the north-western Atlantic, which is the region of the Norse settlements, constitute the most interesting part of the VM. If it

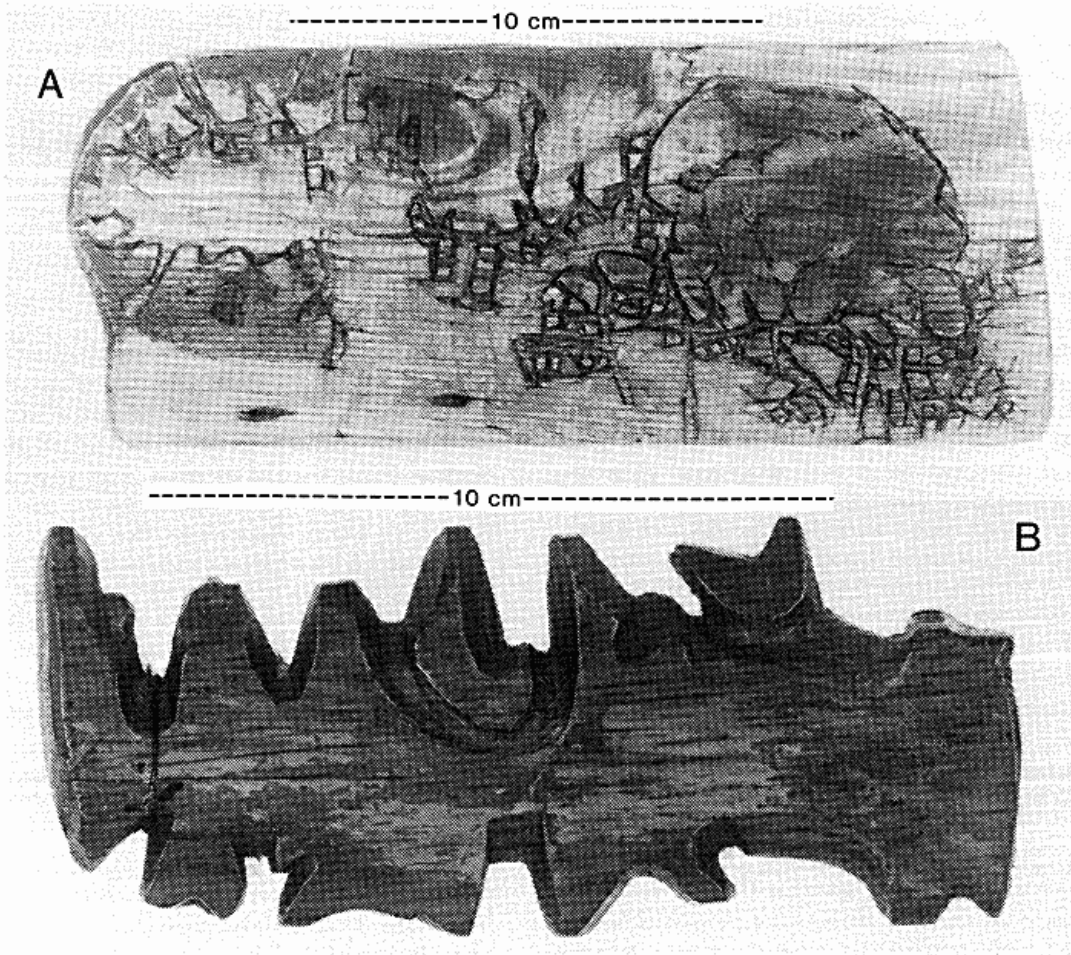


Fig. 2. Eskimo Wooden Maps. a) The territory round Kap Dan on the east coast of the Angmagssalik Fiord. Nationalmuseet L 66

54. Copenhagen. b) The coastline between Sermiligaq and Kang-erdlugssuatsiaq. Nationalmuseet. L.a.19. Copenhagen.

were possible to compare the VM with contemporary Norse maps, it would be of inestimable help. Unfortunately, this is not possible as the Norsemen left no cartographic record.

They appear to have lacked the map-making abilities of the Eskimos, as can be seen by the example of an Eskimo wooden map (fig. 2) owned by the Danish National Museum (Nationalmuseet). The map is on driftwood, a useful material, readily found by Eskimo seal-hunters, and on which important and familiar features, such as fiords, rocks, glaciers and islands, may be carved. The wooden map is the embodiment of the basic principles of present-day cartography, being the reproduction of a locality, seen from above, scaled down, and where distances between landmarks are kept in correct proportion. It constitutes a graphic model of the relief of the area, showing, in particular, the indented coastline.

People have often wondered why the Norsemen never compiled maps or charts of the sea areas they navigated, as did the South Europeans. The latter prepared charts of the Mediterranean Sea called portolans, on which they indicated the most distinctive coastal features and the position of ports. However, the Norse sea-farers were less likely to adhere to the coastline than their southern counterparts. They were more used to the open sea. Furthermore, they lacked the necessary instruments to navigate by such charts. The magnetic compass was not introduced to the north of Europe until the 13th century. Not able to make use of longitude, it would seem that the Norsemen traversed the oceans to Greenland and Iceland by means of latitudinal navigation.

In the northern hemisphere, latitudinal navigation is relatively easy, by measuring the angle of the Stella Polaris (North Star). As most of the voyages were made during summertime, when the sun hardly sets in the extreme north, the angle and position of the sun itself were used. The fact that the meridional altitude of the sun is constant can hardly have presented a problem to the Norsemen on their voyages to Greenland that usually lasted about a fortnight. Experience would have told them that the angle of the sun at noon indicated a certain latitude. To reach Greenland, which lies due west of Norway, it was necessary to ensure that the observed angle of the sun at noon was constant. A higher angle would indicate that the sea-farers had strayed too far south, while a lower one would mean too far north.

However, a 12th century document containing figures greatly resembling azimuth tables is to be found at the Royal Library Manuscript Department in Copenhagen. It bears witness to the fact that Norse interest in astronomy went beyond mere application. This document, which belongs to the Old Royal Collection of 1812 (Gl. Kgl. Saml. 1812), is probably based on hearsay and earlier

written records. It mentions a certain Oddi Helgason, also known as Stjörnu-Oddi (Star-Oddi), who lived in the 12th century and who had indicated the direction towards 'dæmringen' (dawn) in one of his azimuth-like tables. In cloudy weather, the Norsemen most probably made use of the Sölarsteinn, recorded in the sagas. One theory proposed by T. Ramskou, the late curator of the National Museum (Nationalmuseet), suggests, on the basis of his own investigations, that the Sölarsteinn may have been a piece of calcareous spar, which has the property of polarizing light and indicating the position of the sun during cloudy weather. Jørgen Jensen, a chief navigator employed by the airline S.A.S., likens the Sölarsteinn to the twilight compass used by S.A.S. on polar flights.

In view of the lack of cartographic material left by the Norsemen, the source of the VM cannot be traced back to them, in spite of their first-hand knowledge of Vinland and Greenland.

Was it at all possible to draw a map of the North Atlantic, indicating accurately the positions of Vinland and Greenland, as accurately as shown on the VM, by the mid-15th century? This question is continually being posed. Those familiar with the state of geographical knowledge and awareness in Scandinavia by that time would answer with an emphatical 'yes'!

Such knowledge, preceding 1440, the date of the VM, can be divided into two types, 1) legendary (particularly common in southern Europe), 2) factual (based on Norse sagas, Icelandic annals, or derived from these sources).

- 1) The legendary view of the world finds its cartographic expression in maps like that of Johan Ruysch from 1508 (fig. 3) which was based, like others, on the prototype 'The Inventio Fortunata'. The map portrays the North Pole as a rock, from which the sea flows outwards. Within an inner circle, four islands are shown, two of which are represented as being inhabited, while the other two are uninhabited. The outer perimeter encircles sixteen islands, interspersed by three peninsulas stretching northward. With variation, we recognize similar configurations of the arctic region on other contemporary maps, such as that by Mercator in 1569. ('The Inventio Fortunata', traditionally attributed to Nicholas of Lynn, has been lost. It is also referred to either as 'Inventio Fortunatae', 'De Inventione Fortunatae', 'Invencio Fortunata' and 'Invento Fortunae'. The only summary known to exist is in the Dutchman, Mercator's letter of 20th April 1577 to John Dee. This has been published, with a translation into English by E.G.R. Taylor, in 'A Letter Dated 1577 from Mercator to John Dee', *Imago Mundi*, vol. 13, 1956, p.56-58.)

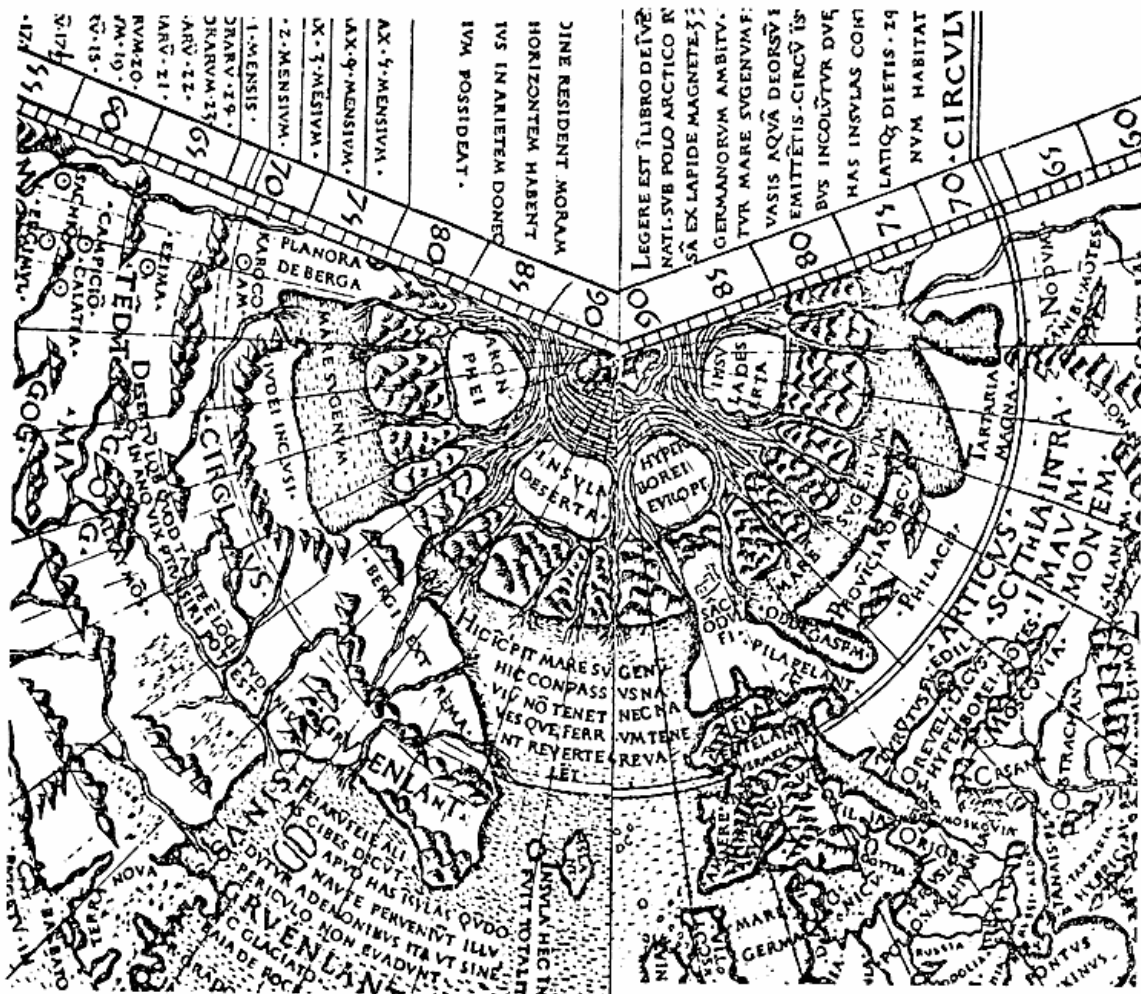


Fig. 3. Section of Johannes Ruysch's Map of the World from the Ptolemaios Edition, Rome 1508.

2) The factual, Norse view of the world merges true knowledge from actual discoveries with mythical extensions. The myths gradually became confined to remoter areas as true facts replaced fantasy. However, the accounts of the lands they knew well are all written in a sober, matter-of-fact style, characteristic of the sagas. Claudius Clavus represents the cartographic manifestation of the Norse conception of geography.

As early as 1075, Adam of Bremen, scholar and Principal of the Cathedral School of Bremen, wrote in his 'Description of the Norse Countries' that the Norsemen regarded Greenland and Vinland as islands. His informant was probably Svend Estridsen, King of the Danes. It should be emphasized, however, that Adam of Bremen's positioning of Vinland, north of Norway and east of Greenland, must exclude him from being a source of the VM.

The northward spread of Christianity improved the communication between the north and south of Europe. One such traveller was the Dane, Claudius Clavus. Scandinavian travellers, particularly Icelanders, would have passed on the accounts of viking voyages. In this way, more southern scribes, such as the friar in Basel, would have been able to compile maps delineating Greenland and Vinland. However, the apparent accuracy of the irregular coastline of Greenland on the VM must not be taken literally. It must, on all accounts, be incidental.

Skelton and Painter acknowledge that the source of the detail of the north-west part of the VM map must be attributed to Nordic tradition, perhaps related to the prototype of both Sigurdar Stefánsson's map of around 1590 and the Danish Bishop Resen's map of around 1605.

Sigurdur Stefánsson, (also known as Stephanus), was active about 1570-1594. He was headmaster of Skáholt



Fig. 4. Sigurdur Stefánsson's map. The original map has been lost. The present one has been reproduced from a copy made by Thordur Thorláksson in 1670 in his translation of Björn Jónsson's Grönlandsbeskrivelse (Description of Greenland). Det kgl. Saml. 2881, 4° (Dimensions: 14.5 cm. by 12.5 cm.). Copenhagen.

Grammar School. He is believed to have compiled a map of the North Atlantic in 1590. The original was unfortunately lost, but a copy was made about 1670 by Thordur Thorláksson (fig. 4) and included in his retranslation of Björn Jónsson's 'Description of Greenland'. This copy is to be found in the Old Royal Collection (Gl. kgl. Saml. 2881 4°) and reads as follows: ('Grönlands Beskriviffvelse Colligeret ag Iszlandiske Atiqvitäter ved en Curieux mand på Iszland ved naffn Biörn Jonsön paa Skarsaa. Men vdsat paa danshe och med nogle Marginalibus fork-laret. item med adshillige mappis Geogrphicis föröget, Aff Theodore Thorlacio Isl: Anno 1669 (Gl. kgl. Saml. 997, fol.)').

The date of the original map shown on this copy is 1570, but we must assume that it ought to be 1590, otherwise the scribe could not have been Stefánsson, according to Arni Magnússon (reported by Andreas Bussæus). Magnússon goes on to say that there may be some confusion caused by the fact that yet another Sigurdur was headmaster of Skáholt School between 1570-80 (Gl. kgl. Saml. 2886, 4°).

Degrees are indicated on Stefánsson's map, but the ratio of longitude to latitude is incorrect. The letters A to H are inscribed. The accompanying legends in the margin read as follows in the translation by Torfæus (Gl. kgl. Saml. 2885, 4° - 'Det gamle Grønland', eller, 'Det Gamle Grønlands Beskrivelse' - Authore, Tormod Torfesson). The translation of the legends (A to H) attempted by the author himself reads as follows:

- A: To these the Englishmen came. They bear the name of aridity as they are desiccated and made torrid by the sun and the cold.
- B: Next to this is Vinland, which has been called Good because of the fertility of the soil and the abundance of other useful things.
- C: This land they call Riise or Land of Giants, as giants with horns called Skrikfinner are said to live there.
- D: These are further to the east. They are called Klofinner (Claw Fins) because of their huge nails.
- E: Iotun Heimar or Land of the Monstrous Giants. One must assume that Geirod and Gudmund's capital was located here.
- F: Here we wish to indicate a large fiord, or sound, that flows into Russia.
- G: A stony region often mentioned in the legends.
- H: Which island this may be, I know not, except that it may be the same island as that discovered by a man from Venice and which the Germans call Friisland.

Hans Poulsen Resen's map of 1605 (fig. 5) is a manuscript owned by the Royal Library Map Collection in Copenhagen. It is dedicated to King Christian IV (1588-1648) and Chancellor Christian Friis. This map is virtually a copy of Stefánsson's map, but with additional information obtained as a result of the James Hall expedition to Greenland in 1605, which incidentally led to the Danish re-discovery of Greenland. A great number of legends are inscribed on Resen's map. Its most remarkable feature is, however, the relatively accurate positions of the localities of Vestebygden and Østerbygden, both on the west coast.

In Skelton and Painter's opinion, these two maps and the VM may well have been based on the same precursor. This source might have been Norse, adds Skelton tentatively, basing his theory on information inscribed on Resen's map, 'Indicatio Gronlandie et vicinarum regionum versus Septentrionem et Occidentem, ex antiqva qvadam mappa rudi modo delineata, ante aliqvot centenos annos, ab Islandis, qvibus tunc erat ista terra notissima et navticis nostri temporis observationibus'. According to this, Resen's map could be traced back to a 'map, some hundred years old, coarsely sketched by Icelanders who were at that time best acquainted with these countries'.

Painter, too, favours the idea that Resen may have had

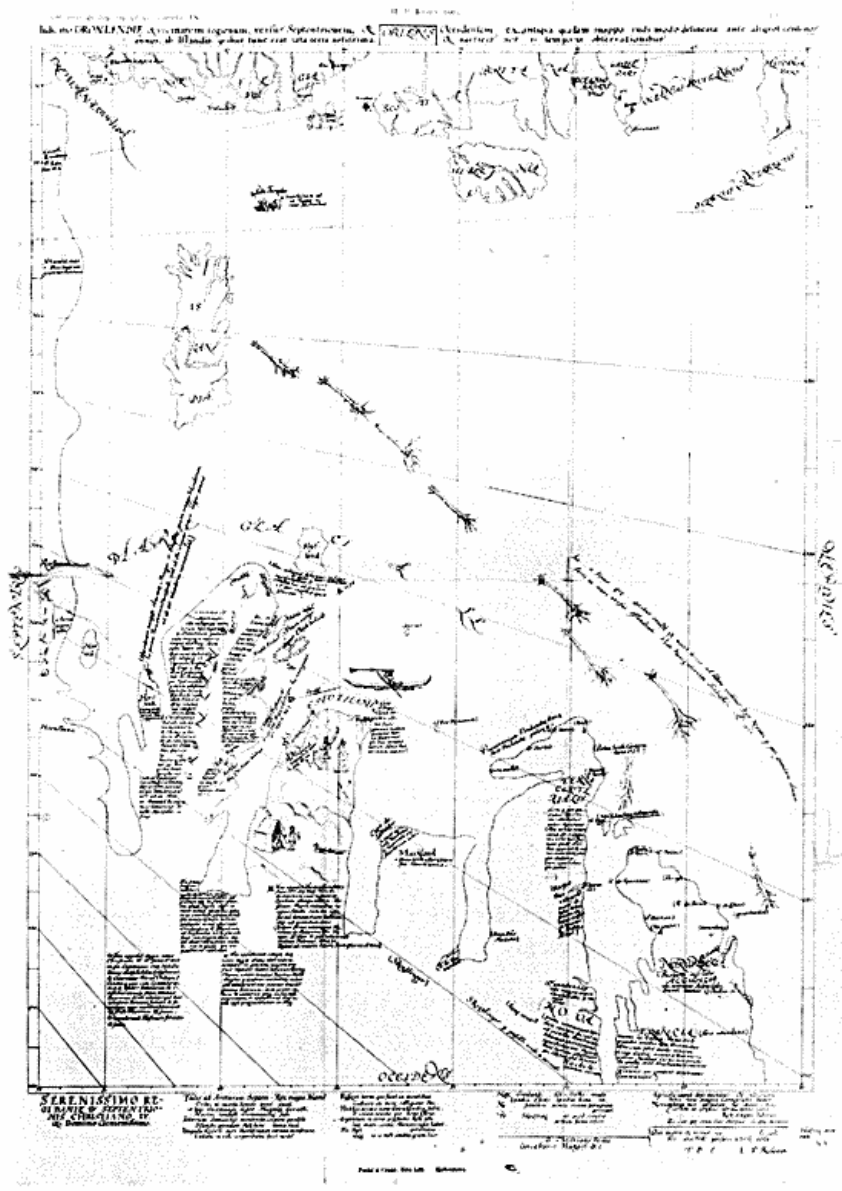


Fig. 5. Hans Poulsen Resen's map, about 1605. As the original map is in such bad condition, its reproduction would be pointless. It is owned by the Royal Library, in Copenhagen. It mea-

sures 76.5 cm. by 56.5 cm. On the other hand, the map shown here is a reproduction of the copy made by K.I.V. Steenstrup for *Meddelelser om Grønland* (*Information about Greenland*),

access to a couple of maps some hundred years old, although he is well aware that an ulterior motive might have prompted Resen to be less than honest. 'Perhaps', says Painter, 'even a bishop is not on oath when compiling a map, and a motive for fraud is provided by Resen's evident intention to show that the new discoveries on the north-east American coast had been anticipated long before by his own countrymen'. Resen may indeed have had a great many motives prompting him to write as he did.

In this context, I deem it elucidatory to point out that it was common practice during the 17th century to present one's statements and sources as being old. This was quite simply a continuation of the traditional method of medieval scholarship that was still encountered sporadically during the 17th century.

Resen's text should be viewed in the light of this knowledge. Moreover, a political motive may have been involved. One purpose of Resen's map was to support the

Danish Crown in the northernmost regions, just as one of the reasons behind the Danish King Christian IV sending an expedition to Greenland in 1605 was to sustain Danish supremacy in this area and the adjoining territorial waters. The fact that many other nations were exploring the territorial waters of Greenland made the Danish King apprehensive lest other nations should lay claim to the northern territories. When, during the middle of the 16th century, the English discovered a route to the White Sea, thus opening up trade with Russia, King Christian IV was afraid that this might result in a decrease of revenue from the Sound Tolls.

It may be taken for granted that Resen had written authorities for his placing of the Norse settlements in Greenland. But if the maps by Resen and Stefánsson are taken as proof of a hypothetical medieval map of Greenland and Vinland, they are valued above their worth. As Resen's map and its possible sources play such an important part for Skelton and Painter in the whole debate, I think some important information about it should be supplied.

The reproduction of Resen's map in 'The Vinland Map and the Tartar Relation' is a reproduction of a copy published in the 'Meddelser om Grønland', vol. 9, (1889). This copy was drawn at the request of K.J.V. Steenstrup. The following passage is found among his comments. 'The names and descriptions are written in two or three different hands; first a beautiful hand, then a less regular one, forming the transition to the third hand. The second hand is clearly discernible as its names and descriptions have been put in brackets. The third hand has been given prominence by means of underlining, and this is of particular interest, as it was no doubt Hans Poulsen Resen's own hand. The names added by Resen himself, (none of them has any bearing on Greenland), are as follows; on the south-east coast of Greenland 'Høgeland', on the south-west coast of Greenland 'Heriølsnes', on the west coast of Greenland 'Eric's fjord' and 'Vesterbýgds fjord', and inland 'Øster býgd'. These names of Norse origin were placed by Resen according to his written sources and as prescribed in the sailing directions. In my opinion, he fully realized that the location of Østerbýgd was by Eric's fjord. He placed 'Øster býgd' inland owing to lack of space on the map. 'Øster býgd' can have no connection with the legend placed on the east coast of Greenland, but must cover the area by 'Eric's fjord'. Painter's ensuing comments on these names therefore seem quite out of place. They read as follows. 'The version of Resen's map, redrawn by Gathorne-Hardy, is misleading as it places Osterbýgd (the Eastern Settlement) in its true position on the south-west coast by Eiríksfjord. In fact, Resen marks Osterbýgd at the foot of a long caption written along the east coast, indicating the possibility of the survival there of the

Norse settlers and the Christian religion while mentioning the fabulous monastery of St. Thomas, (a fabrication of the Zeno narrative), as being situated here. H.R. Holand's argument in 'Explorations in America before Columbus', (1956, p. 271), supporting the antiquity of Resen's source on the grounds that he locates Osterbýgd correctly on the west coast, is based on Gathorne-Hardy's error and is, in this respect, inadmissible. On the other hand, although Resen was thus deceived by the Zeno narrative and map (cf Lucas, pp. 11-15, 29, pl. XI) into believing that the monastery of St. Thomas, and with it Osterbýgd, was on the east coast, he nevertheless contradicts his own mistaken theory by placing Eiríksfjord, the very center of the Osterbýgd, in its correct position on the west coast within Herjòlsnes.'

In my opinion, Resen's map must still be regarded as a derivation of Stefánsson's map. The latter should be taken as a characteristic manifestation of the geographical positions of how the saga localities were understood in Iceland at the end of the 16th century; Vinland, Markland, Helluland, and others. The map is simply constructed on the basis of saga accounts and by using a Mercator projection. There is nothing in Skelton and Painter's theories that might tempt me to alter my opinion in that matter.

Before the VM was discovered, the earliest dated map on which Vinland is supposed to appear was by the Icelandic, Stefánsson in 1590. Yet, the first map to bear witness of Norse knowledge is the 'Nancy Map' by Clavus, dating from about 1427. It was probably drawn up about 25 years before the VM. I think it is very important to make that fact quite clear.

CLAUDIUS CLAVUS

Skelton does not think that Claudius Clavus had any influence on the VM. I know that many readers will be acquainted with Clavus, but nevertheless I shall take the liberty of explaining some facts about him. His credentials are in the form of a Latin manuscript, dated about 1430. He was born in Sallinge, on the Danish island of Funen, on 14th September 1388, two hours before dawn.

More than a trace of self-glorification is evident in the various statements made by Clavus, and he did not suffer from a great desire to idolize others. Thus, when he gave names to various areas that he listed in his geographical tables, he never used the names of other persons. In these lists and tables, which he drew upon when making maps, one will search in vain for names or place-names connected with royal or ecclesiastical personages. We know that Clavus made a splendid map of Greenland about twenty years before the VM was drawn. His method of selecting place-names on that map was unique. He took each word in order of succession from the following stanza of a then well-known Scandinavian ballad:

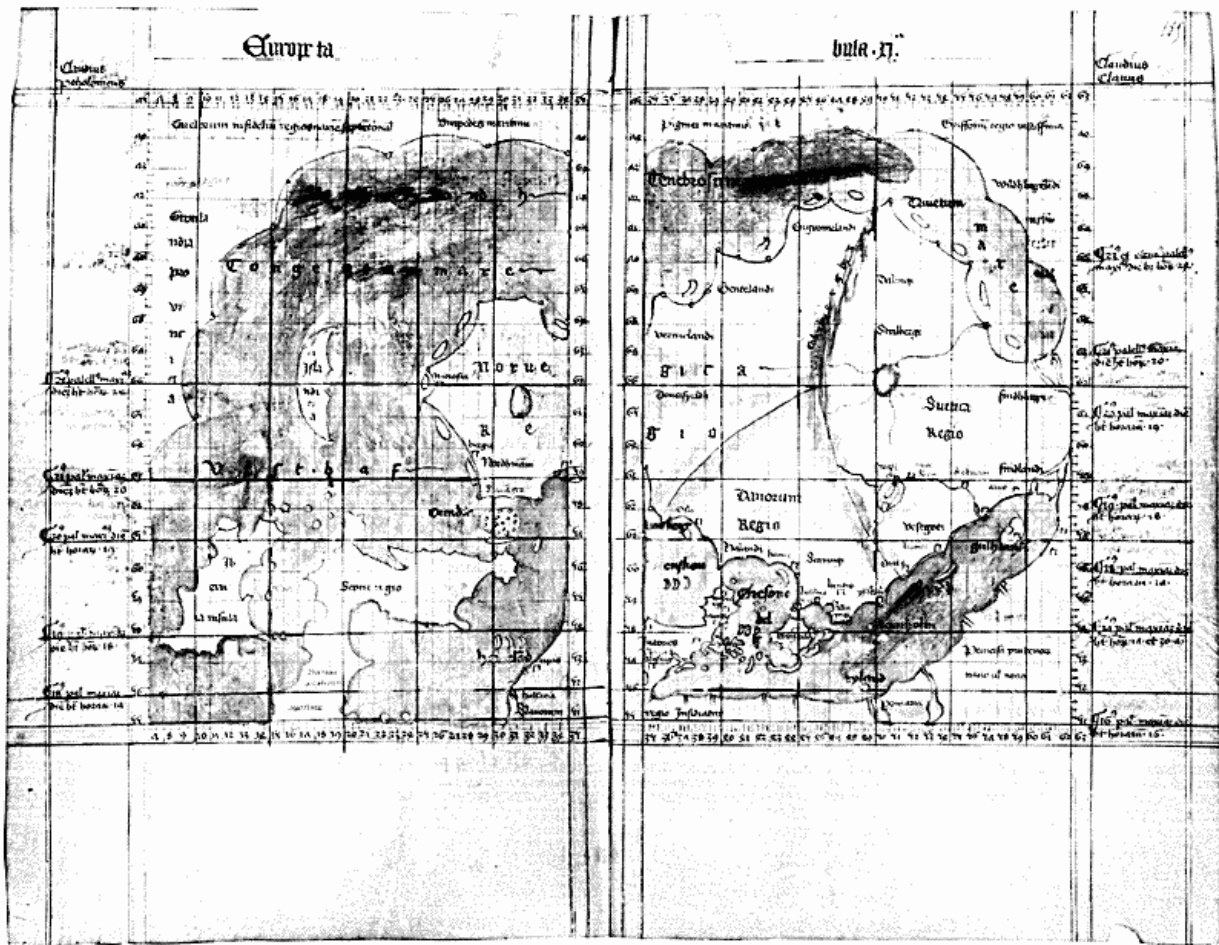


Fig. 6. Claudius Clavus's 'Nancy Map' from about 1430. The oldest, recorded, special map of The North that indicates Greenland by name. The City Library, Nancy, France.

'Der bor en mand i en -grønlands å,
og Spjeldebod monne han hedde,
mer haver han af hvide sild,
end han haver flæsk hint fede.
Nordenom driver sandet på ny.'

(Translation: 'There lives a man by a river in Greenland,
and his name is Spjeldebod./He owns more white herring/
than he owns fat of pork./The sand drifts northward once
more.')

Beginning with the north-east corner of Greenland, he put
down the following place-names; 'Der'- a cape (long. 18°,
lat. 65°35', 'Bor' - a river mouth (long. 16°20', lat. 65°30'),
and so on. Some people have objected to his method and
characterized it as unscientific. Why don't we just accept
the fact that it is unique?

Only two cartographic works by Clavus are known to
scholars; the Nancy volume and the Vienna text. The
former work (fig. 6), which is the older, also contains the
earliest map on which the name 'Greenland' appears. The
original has been lost and is known only through a copy
bound as an appendix into a 1427 copy of a manuscript by
Ptolemy. This copy is now in the city library of Nancy.
Much greater importance, however, is attached to the
Vienna text (fig. 7), so-called because two copies of it
exist, bound together with manuscripts, in the library of
the University of Vienna.

Clavus augmented Ptolemy's 'Geographia' (fig. 8) with
various pieces of information, in part relating to the Scan-
dinavian countries and in part to the north-west Atlantic
area. His placing of the southern tip of Greenland is
astonishingly accurate. How was it possible for him to
make such an exact determination? Among the primary

Ego Claudius Clavius imperatoris
 petri Cocens et marie de flevem
 Strampois Uemich solus Combricus:
 Ragna subterpea mihi uisa exparcedi
 mathematica cogita potiore deliqui
 ad necnon scriptibde memoria postearis
 uelaliter pennare Comdai que pto
 maio hypercho et marmo erat madama:
 Combroz Chernofesus extensio occidu
 edis post albm flumem:
 Hamburg Civitas impialis pass prood
 a mari: 32.0. 15.3.
 Thimaskem Chernofesus: 31. 50. 50.
 Holzdace latus: 32. 51. 0.
 Erise inferioris latus: 33. 51. 20.
 Ripis Civitas: 24. 51. 20.
 Burglansis civitas: 35. 58. 20.
 Eius latus Kobiarphide: 36. 58. 20.
 2m latus latus: 31. 58. 20/3m latus: 38. 58. 20.
 Salgenharret smus aq: 38. 20. 58. 35.
 Smus 29. 38. 20. 58. 55.
 Smg 39. 38. 50. 59. 15.
 Smg 29. 38. 55. 59. 25.
 Septentrionalis descriptio:
 Vardafesal Civitas: 39. 59. 20.
 prima latus: 39. 30. 59. 55.
 secundam latus: 20. 20. 59. 55.
 Orientalis descriptio
 Skand promontorium: 20. 59. 55.
 latus Orientalis: 20. 55. 59. 20.
 Smus Orientalis: 21. 59. 30.
 Uberg Civitas pass a mari distans: 20. 59. 20.
 Eius promontorium: 20. 35. 59. 15.
 Extremus smus: 20. 20. 59. 0.
 Intermg aq smg: 39. 30. 59. 10.
 Arus Civitas: 39. 55. 58. 25.
 Smus orientalis: 20. 20. 58. 25.
 Nlemg aq smg: 20. 30. 58. 30.
 Faldungh Vella murata: 20. 10. 58. 10.
 Uechlis vella murata pass a mari: 38. 10. 51. 20.
 Eius Orientalis latus: 39. 51. 20.
 2m latus: 38. 20. 51. 31.
 Metalfar pass in phasoma insula: 38. 30. 51. 20.
 Eius latus extra ma: 38. 51. 25.
 Smus Ulemus: 38. 51. 20.
 Latus Ulemu: 38. 5. 51. 10.
 Flansborghis portus: 38. 51.
 Flansborghis Civitas: 31. 20. 51. 20.
 Slesinck Civitas: 36. 30. 51. 15.
 portus aq: 36. 20.
 Ignefjordh Vella: 36. 30. 56. 25.
 portus: 36. 25. 56. 25.
 Velle Vella: 35. 35. 56. 20.
 Dorcus meridionalis: 35. 20. 56. 35.
 Kylis portus a: 35. 25. 56. 30.
 Kyl Civitas: 35. 5. 56. 5.
 portus meridionalis: 35. 25. 56. 20.
 Eruu portus primus: 35. 5. 56. 15.
 portus secundus: 35. 10. 56.
 Lubk Civitas impialis Caput regni
 Danor anno xpi: 12. 20. parant distans
 a mari: 38. 30. 56.
 Regni Sclauor extensio septentrionalis
 portus magnus: 35. 20. 56.
 Eius prima latus: 35. 50. 56.
 Usmara Civitas: 36. 20. 55. 55.
 Roseth Civitas et portus: 39. 20. 55. 20.
 Rabanus Vella: 22. 10. 56.
 portus: 22. 20. 56. 5.
 Eius latus: 23. 30. 56.
 portus secundus: 25. 56.
 Sandus Civitas: 25. 55. 20.
 hostia aderm flu: occ: 25. 55. 30.
 Kyan promontorium: 25. 20. 56.
 latus 1: 25. 20. 56.
 latus 2m: 21. 10. 56. 5.
 latus 3m: 28. 35. 56.
 latus 4m: 50. 56.
 Ostia orientalis aderm flu: abesse
 mura pomaria: 50. 56.
 prima latus: 51. 15. 56. 20.
 2m latus: 52. 30. 56. 30.
 Nlemu latus hostio Rubmo: 53. 51.
 Prascia prima latus: 54. 51. 20.
 secundum latus: 51. 30. 51. 30.

Fig. 7. Clavius's nomenclature and determination of the Greenland localities as they appear in the Vienna text. (Cod. Vindob. lat. 5277). In order of succession, the initial words of each line will make up the stanza quoted on page 9.

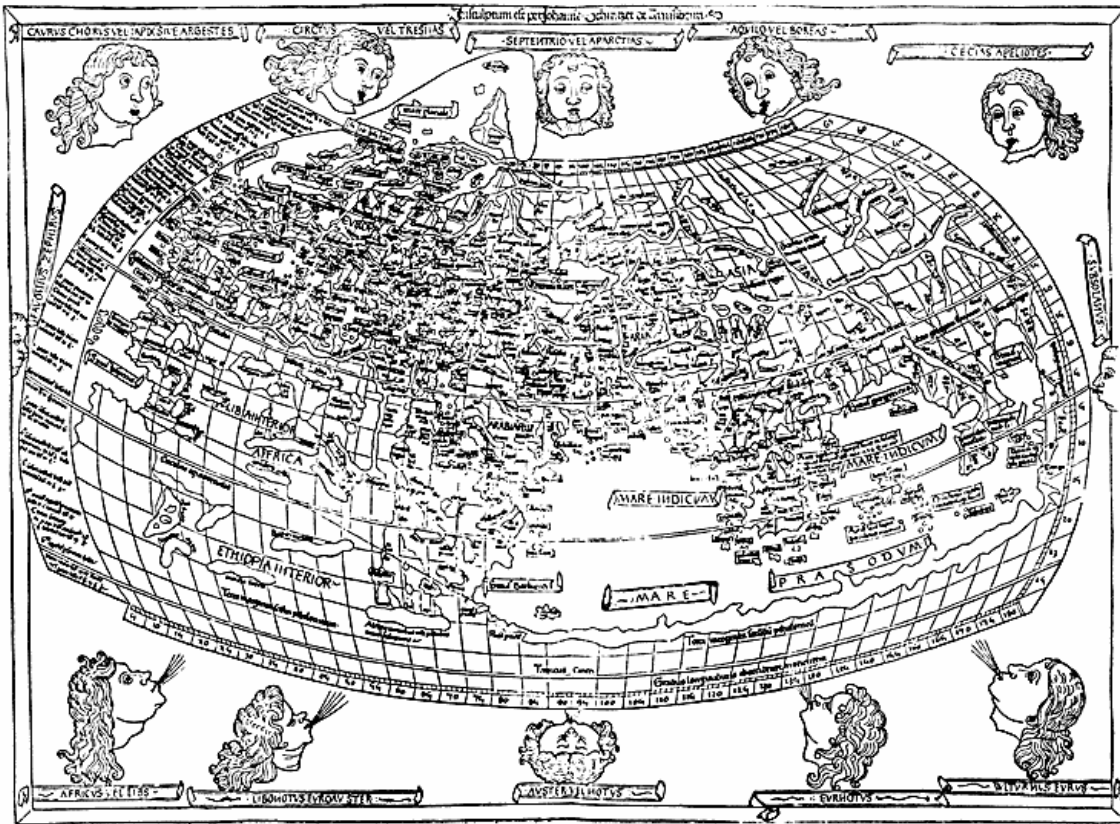


Fig. 8. 'Map of the World' in the Ptolemaios Edition of 1482, Ulm, Germany. The world picture has been broken up, the information which Clavus contributed to the cartographical

world can no longer be kept within the general framework. It must be stressed that the delineation of Clavus's Greenland is highly distorted.

sources available to him were the sailing directions for ships going to Greenland, which were given in great detail by the sagas. When sailing from Norway to Greenland, one should sail directly westward as far as Hvarf (Cape Farewell in Greenland). One would not pass far south of Iceland and twice that distance again north of Ireland. If we look at the Nancy map, we will discover a very close correspondence with these sailing directions. Clavus most probably related the information derived from the sailing directions to astronomical notations made by clerks and prelates in the towns of Trondheim, Bergen and Roskilde. In this manner, it was possible for him to arrive at an accurate determination of the southern point of Greenland. There is much material to indicate that quite accurate determinations of latitude had actually already been made for these three cities. If we look at their location on the map in relation to other places indicated, we can observe an amazingly accurate determination of their latitudes. Moreover, there is a report in 'Liber daticus Roskildensis' to the effect that calculation of the latitude of Roskilde was made in 1274. Clavus, who was a cleric in

Sorø, had every opportunity to acquaint himself with this calculation.

It is quite possible that the map that Skelton postulates as the precursor of the VM derives from Clavus, either directly or indirectly.

As already mentioned, Skelton is of the opinion that Clavus did not have any influence on the making of the VM. In support of his own point of view, Skelton (inter alia) mentions a discussion that the Norwegian arctic explorer Fridtjof Nansen once had with the Danish cartographic historians, Axel Anton Bjørnbo and Carl S. Petersen. The problem discussed was the enigmatic Clavus, to whom Nansen was unwilling to give much credit as a geographer and cartographer. (Incidentally, it was Bjørnbo and Petersen who discovered Clavus's Vienna text). Skelton states, 'It appears that Bjørnbo and Petersen 'in all essentials' came round to Nansen's point of view.' However, much depends on how we interpret the phrase 'in all essentials'. Nansen and Bjørnbo were merely exchanging views, since both were writing books touching upon this subject. Nansen's book, 'Nord i Taakeheimen',

(‘In Northern Mists’), was published in Oslo in 1911, and Bjørnbo’s ‘Cartographia Groenlandica’ was issued in Copenhagen the following year. It is correct to say that Bjørnbo yielded to Nansen’s contention that Clavus had never been to Greenland. True or false, Bjørnbo insisted that this was not an essential point. Eventually, however, he abandoned his theory.

Bjørnbo also accepted Nansen’s theory that Clavus, in his later work, to some degree relied on an older world map, namely, the Medici World Map of 1351. But there is no indication that Bjørnbo, for that reason, altered his view of Clavus’s place in the history of geography. There is no evidence to that effect in his manuscripts and printed works, nor in his letters to Nansen. Why should Bjørnbo have done so? If Clavus relied on older maps at all, they merely served as a basis for association and comparison. Clavus became aware of the fact that he was the possessor of information which, up to that time, had never been put down on parchment.

Skelton dwelt circumstantially on the ‘island shape’ of Greenland on the VM. It seems unlikely that this rendering of an island should be based on first-hand information describing Norse circumnavigations of Greenland. On the contrary, the source material, which include ‘Kongespejlet’, recounts difficulties caused by drift ice. At the end of the 13th century, the crossings were more southerly, on account of the ice. Every reproduction of Greenland as an island must be accepted as being based on tradition. Still more fanciful than the island postulate, is the theory that 17 localities on the VM portrayal of Greenland can be identified on modern maps. That would correspond to a comparison between a modern map of Denmark and America on the world map by Waldseemüller. That is to say that some matching points would be found, and the theory of continental drift would then be cheerfully advanced. Skelton insists that the draftsman who made the VM was a bad copyist when using Andrea Bianco as his model. Why should he turn out to be a better and more accurate copyist when using the Norse original as his source?

Like Skelton, Professor Einar Haugen is sceptical about the possibility of regarding Clavus as a source of the VM. In his article, ‘The Sources of the Vinland Map’, he writes, ‘an unconvincing attempt to attribute the VM to Clavus is made by Ib Rønne Kejlbo (1966). The differences between Clavus’s Greenland and that of the VM are too great for them to have a common source’ (‘Arctic’, vol. 19 no.4., p.290, Dec. 1966). But as Clavus was the only cartographer engaged in the compilation of maps of the North Atlantic territory, at least the only one known to us at the time when the VM is supposed to have been prepared, I am still of the opinion that Clavus’s claim to be considered as a possible source of the VM has not been

superseded by that of anybody else. If, indeed, Clavus was still alive when the VM was compiled, he would have been about fifty years old.

On the maps which are used by Clavus as source material, Greenland is shown as a peninsula. Yet, is that in accordance with his own conviction? We do not know his own maps, but on the other hand we have the text of his source material ‘Gronlandie Insule chersonesus dependet a terra inaccessibili a parte septentionis uel ignota propter glaciem’ (The peninsula of the island of Greenland stretches from a country inaccessible to the north or unknown because of the ice). In other words, the text proves that he was uncertain as to whether there was an overland connection between Asia and Greenland. It is therefore evident that Clavus cannot be excluded as an authority just because Greenland appears as an island on the VM.

CONCLUDING REMARKS

The VM is particularly significant as the oldest existing map giving information about the discovery of America by Norsemen. The question of which sources the VM scribe relied on for the drawing of the north-west area is still an open one. Unlike Skelton, I do not think that there is any valid reason for dismissing Clavus’s work as a possible precursor, on the basis of the cartographic material currently at our disposal. Nor can Clavus be excluded because of the theories proposed by Skelton and Painter, which often appear to be based on weak foundations, unsupported by Norse source material. Their account of the VM is certainly a scholarly achievement, much to be praised. Yet, as regards Norse history and knowledge, they seem to me to have relied too heavily on the Norse literature available in translations.

It is often said that the Vinland voyages of the Vikings were completely forgotten and of no importance to later permanent discovery. That, however, is not at all true! I grant that the Norsemen did not put a Norman stamp on the culture of the North American people and that it was in fact Columbus who opened up the North American continent to the Europeans, but the significance that the Norse voyages were to have for the mapping of the Atlantic Ocean and its shores has been greatly underestimated. The way the waters and the coasts have been drawn on the VM in 1440 demonstrates very clearly that the Vinland voyages had not been forgotten. Furthermore, the knowledge of those exploratory voyages was not merely barren information. It influenced, as so many subsequent maps would indicate, the geographical concepts, perhaps the entire intellectual horizon, of the scholars of the day and the following centuries.

Whether Clavus himself was aware of the fact or not, his Vienna text, which may also be thought of as a cartographic representation of the voyages of the Norsemen in

the North Atlantic Ocean, influenced all the maps and charts made of this area during most of the 15th and all of 16th centuries. His inclusion of Greenland in his cartographic work was one of the factors that led to the breaking up of the narrow medieval view of the world. The Norse voyages gave impetus to the theory of a North-west Passage to Asia. Moreover, this theory led directly to the re-discovery of America in 1492. There is therefore no question of doubt that Columbus ought to be greatly indebted to the 'old' Norsemen.

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