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The Vinland Map and the Tartar Relation. R.A. Skelton, Thomas E. Marston, and George D. Painter.

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The Vinland Map and the Tartar Relation. R.A. Skelton, Thomas E. Marston, and George D. Painter. New Edition; New Haven, CT.: Yale University Press, 1996. lxvi +291pp., illus.,figs., biblio., indices. US$45.00, cloth; ISBN 0-300-06520-5.

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IN 1550, ELEONORA, Duchess of Toledo and wife of Cosimo I, bought the Pitti Palace in Florence from the wealthy merchant, Buonacorso Pitti, to serve as a new home for the Medici family. The structure, designed by Filippo Brunelleschi ca. 1440 and considerably expanded thereafter, is now an exquisite art museum. One of its walls is adorned with a large map of the world painted as a fresco in 1491, the year before Columbus blundered into the New World on his way to China. In the place where the continent of America should be, the map is blank save for the legend: *Cui ci sono dei mostri* ("Here be monsters"). The Pitti fresco and many other mediaeval world maps (the *mappemundi*) seem to demonstrate clearly that Europeans had no knowledge whatsoever of the existence of the Americas prior to the voyage of Columbus. It is only relatively recently that archaeological evidence from the site of L'Anse aux Meadows has obliged us to recognize that at least one small satellite of European civilization in Greenland had already found their way west to Newfoundland ca. A.D. 1000. But apparently knowledge of that contact, though preserved in Greenlandic and Icelandic sagas, was never transmitted to continental Europeans who continued to believe that if one sailed far enough to the west, one would either (a) fall off the edge of the world or (b) be devoured by monsters or (c) eventually get to China.

Anyone with even a passing interest in things Norse and Newfoundland has probably heard of the infamous Vinland Map originally published in 1965 by Yale University Press in the first edition of this volume. The map bound together with the text of the *Tartar Relation*, a fifteenth century record of a missionary expedition

to the Mongols, initially surfaced in 1957. Laurence C. Witten II, the American antiquarian bookseller, bought the volume in Geneva from an Italian book-dealer of somewhat dubious reputation who claimed that he could not divulge its ultimate source. However, there was some reason to believe that it might have come from the library of a Spanish monastery. Witten offered the volume for sale to the Yale University Library but at a price they could not afford. They turned to an anonymous donor (now known to be the philanthropist, Paul Mellon) for assistance. Mellon purchased the volume and initially lent it to Yale on condition that the loan would become a donation only after the map had been authenticated. Yale assembled a panel of three highly qualified British and American experts who in 1964, after seven years of deliberation, pronounced the map to be genuine and publication followed.

The map, which purportedly dated to around A.D. 1440, created a scholarly and public sensation. In its upper left quadrant corresponding to the north-west Atlantic, it showed, lying to the south-west of Greenland, a large island with two deep inlets on its eastern coast. A Latin legend beside the island read: *Vinlanda Insula a Byarno reperta et leipho socijs* ("Island of Vinland discovered by Bjarni and Leif in company"). A longer Latin legend written above Vinland and Greenland read:

> By God's will, after a long voyage from the island of Greenland to the south toward the most distant remaining parts of the western ocean sea, sailing southward amidst the ice, the companions Bjarni (*Bjarnus*) and Leif Eiriksson (*leiphus erissonius*) discovered a new land, extremely fertile and even having vines, the which island they named Vinland (*Vinilandã* or *Vimlandã*). 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 Almighty God, in the last year of our most blessed father Pascal, remained a long time in both summer and winter, and later returned northeastward toward Greenland and then proceeded (i.e. home to Europe?) in most humble obedience to the will of his superiors.

If the map was genuine, and there was doubt about that from the very beginning, it became the earliest known cartographic representation of the land explored by the Norse as related in the Greenlandic and Icelandic sagas. The Beinicke Rare Book and Manuscript Library at Yale University was jubilant — "one of the crown jewels of our collection", "the greatest treasure in the Yale map collection" and "exceeding in significance even Yale's Gutenberg Bible" trumpeted the press releases. The book was featured in a front page story by the *New York Times* and in a lead article in *American Heritage* magazine. It was the monthly selection of both the Book-of-the-Month and History book clubs. Review articles appeared in dozens of popular publications and scholarly journals. Within months, the volume had met that rarest of fates for a scholarly publication, it had become a bestseller.

While most scholars accepted the judgement of the expert panel, there were many sceptics. Ten years later, as a result of scientific tests of the ink on the map which detected the presence of titanium dioxide in an apparently modern form, the map was declared to be a forgery. But controversy continued, leading to further scientific analyses of the ink which indicated that the presence of titanium was not inconsistent with a mediaeval origin. This finding and other considerations led to the new edition.

This second edition reproduces the first edition in its entirety supplemented by new contributions from George D. Painter, sole survivor of the original team of scholars; Wilcomb E. Washburn, Director of the Smithsonian Institution's American Studies Program; Thomas A. Cahill and Bruce H. Kusko, scientists from the Crocker Historical and Archaeological Projects at the University of California, Davis; John G. Ryden and Chester Kerr, respectively Director and Director Emeritus of Yale University Press; and the late Laurence C. Witten II.

The mid-sixties was an exciting time for Norse studies. In 1964, *National Geographic* had published Helge Ingstad's first description of the L'Anse aux Meadows site discovered five years earlier. However, all previous claims for the discovery of Norse ruins and runes in North America had proven to be spurious and Ingstad's account was initially greeted with considerable scepticism. There was, indeed, little he could show to prove to the doubting Thomases of the public and scientific communities that the site was genuinely Norse. Thus the publication of the map in the following year was hailed by many as corroboration of the claim that the Norse had indeed pioneered the way to North America half a millennium before Columbus.

However, suspicions about the map multiplied and scholarly debate on its authenticity eventually led to a conference at the Smithsonian Institution in 1966. About the only thing upon which opposing sides could agree was the need for scientific tests. In 1973, an effort was made to resolve the controversy over the map's authenticity by the compositional micro-analysis of the ink by Walter C. McCrone Associates of Chicago. Tests of some of the microparticles showed they contained up to 50% anatase, a tetragonal crystalline form of titanium dioxide. This was damning evidence for ink pigments based on crystalline TiO_2 became available only in the 1920s. Consequently, on January 23, 1974, chagrined Yale University officials announced that the map was a forgery, a very clever forgery but a forgery nonetheless. Though debate continued (another symposium entitled "The Strange Case of the Vinland Map" was sponsored by the Royal Geographical Society in London in 1974), the sceptics seemed vindicated.

The contention that the map was a forgery centred on a number of major issues. First, the provenance and history of the map was shrouded in mystery. Second, there was the presence of titanium dioxide in the ink. Third, the depiction of Greenland posed two separate problems. The map showed it as an island when all evidence indicated that late mediaeval Europeans thought it was a peninsula and

its shape was remarkably close to reality or so it was claimed. Fourth, critics have pointed to a number of other "mistakes." The legend above Vinland suggests that Bjarni and Leif Eiriksson discovered the New World together and thus contradicts the sagas which attribute the first sighting to Bjarni and the first landing to Leif in two independent voyages. In addition, there are problems with the manner in which the Scandinavian names were rendered into Latin.

THE PROBLEM OF PROVENANCE

I shall not seek to summarize the account provided by Witten of how he obtained the map and from whom. His narrative about the murky world of the antiquities trade in a post-World War II Europe awash with objects plundered by the Nazis and others is as fascinating as a John Le Carré novel. Whether Witten knew more about the real provenance of the map than he let on, we will probably never know since the gentleman is no longer with us. Thus, since the early history of the manuscript is not known by received tradition, it has to be reconstructed from internal evidence. At some stage in its recent past, the map had been bound together with the mediaeval *Tartar Relation* manuscript whose twenty-one pages described the extraordinary missionary voyage (1245-1247) of the Franciscan Friar John of Plano Carpini and two companions to the great Khan of the Mongols. The Franciscan Friar C. de Bridia interviewed all three on their return and wrote the *Historia Tartarorum (Description of the Tartars)*, a.k.a the *Tartar Relation*, as a report on the mission for Pope Innocent IV. Apart from the present exemplar, no other copies of de Bridia's manuscript are known to exist. Carpini produced his own account of the mission and a description of Mongol culture and history entitled *Historia Mongalorum [sic] quos nos Tartaros appellamus (Description of the Mongols Whom We Call Tartars)* which appeared in two editions. The first edition exists in five early manuscripts and the second in two.

It was noticed early on that the wormholes in the map and those in the *Tartar Relation* did not coincide. In addition, a notation on the map suggested that it was part of a larger volume. Several months after Witten had first shown the map to Thomas E. Marston, Yale University Library's curator of mediaeval and Renaissance literature, the latter made the extraordinarily fortuitous purchase of a modestly priced portion of the *Speculum Historiale (Mirror of History)*. This was compiled by the Dominican Friar Vincent de Beauvais in the fifteenth century as part of his *Speculum Majus*, an encyclopaedic collection of all human knowledge. It quickly became apparent that the 239 pages of the *Speculum*, which on purchase came in an attractive fifteenth century binding, fitted in between the map and the *Tartar Relation*. When inserted back into position, the wormholes became continuous throughout the entire manuscript. In addition, the two texts were written in the same hand, *Oberrheinische Bastarda* cursive confined to the period 1415-1460.

Moreover, the watermarks on the paper were also identical and could be traced to the same period, most likely having been produced at a paper mill which began operating in Basle ca. 1433.

Vincent of Beauvais' chronicle of world history entitled *Speculum Historiale* comprised thirty-two sections or books which became a standard reference in monastery libraries throughout Europe. In the thirty-second and last book, Vincent incorporated an abridgement of Carpini's manuscript. It is surmised that some mid-fifteenth century scribe noticed the relevance of the *Tartar Relation* to the *Speculum Historiale*, Book XXXII, and combined the two. The Vinland Map, it is argued, was produced to illustrate the associated manuscripts.

THE PROBLEM OF THE INK

In 1983 a team at the Crocker Nuclear Laboratory (University of California, Davis) analyzed the inks of the rare and much celebrated mediaeval thirty-six line Bible and the even more celebrated forty-three line Gutenberg Bible. The UC Davis team used the external beam proton milliprobe PIXE (proton-induced X-ray emission) system, a much more accurate analytical technique than that employed by McCrone Associates. To the surprise of everyone, except perhaps George Painter who had resolutely continued his defense of the Vinland Map, the inks from both Bibles showed trace amounts of titanium. Further tests on the Vinland Map showed similar results as did examinations of a number of other mediaeval manuscripts.

This really should cause little surprise since titanium ranks eighth in the list of chemical elements occurring in the earth's crust, occurs in practically all rocks and is an important constituent of many minerals. Thus, it is highly likely that any mineral based ink would contain at least trace amounts of the element. However, the problem posed by the McCrone analysis was the very high amount of anatase. The non-specialist should know that there are fundamental differences between the two methods of analysis which affect their reliability. First, the McCrone analysis being a destructive process had to be limited to an extremely small sample of the ink. Second, the Crocker analysis being non-destructive could test the composition of the ink much more extensively and accurately. Even so, the McCrone results must still be explained. Over half of the world production of over two million metric tons of titanium dioxide is by the sulfate process which produces anatase. This is consumed in the production of paint (60%), paper (14%), plastics and floor coverings (12%), printing inks (3%) and various appplications including rubber, ceramics, roofing granules and textiles (11%) (Considine 1976:2212). In short, titanium dioxide is everywhere in our domestic and professional environments and careless storage and handling of the Vinland map before it came under the protection of the Yale Library could very easily have caused anatase contamination. Despite all this, the reaction by the Yale Library staff was paradoxical. Undeterred

by the presence of titanium in their copy of the Gutenberg Bible, they continued to treat the Vinland Map as a forgery and as late as the summer of 1990, they lent it to the British Museum for an exhibition on "Fakes." Clearly they have changed their minds since then.

THE GREENLAND PROBLEM

As mentioned before, the Vinland Map is unlike any other mediaeval map of the North Atlantic in that it depicts Greenland as an island and many have claimed that its overall shape shows a startling and suspicious correspondence to reality. Several critics have pounced on these points as obvious evidence for forgery. Chief among them was Professor E.R.G Taylor, a leading expert on ancient cartography at the Geographical Institute of the University of London who argued that Europeans only knew *for sure* that Greenland was an island after Peary's polar voyage in 1902. In her estimation, the map was therefore an obvious forgery.

The contention that the Norse in the North Atlantic did not know that Greenland was an island is indeed supported by the *Skálholt* map drawn ca.1590 by the Icelandic schoolmaster, Sigurður Stefánsson and the map drawn in 1605 by Hans Poulsen Resen, then professor of theology at the University of Copenhagen, later thrice-elected president of the university and Bishop of Zealand. In both, Greenland is shown as a large peninsula emanating from an Arctic landmass which in the *Skálholt* map is called Riseland and stretches south to Helleland, Markland, Skralingeland and Vinland. Moreover, neither the *Skálholtsbók* version of Eiriks saga rauða nor the *Hauksbók* version written by Karlsefni's descendant a century before were accompanied by maps. Nor are there maps in any other surviving mediaeval version of either of the Vinland sagas. It was not normal practice for the mediaeval Norse to record their sailing lore on maps. For this reason, one critic rejects the assertion that the Vinland Map had mediaeval Scandinavian cartographical antecedents or that "the Norse discovery of America was represented in cartographic form and transmitted to southern Europe at least once within the first half of the fifteenth century" (Seaver 1996:164-5 *contra* Skelton *et al.* 1996:192). On the other hand, in his 1605 map Resen twice refers to "an old map crudely drawn several centuries ago by the Icelanders" (Skelton *et al.* 1996:252). So, despite the statements made above, at least some maps were being drawn by the mediaeval Norse and it is just possible that the Vinland Map may be derived from one of them.

But we are left with the problem of Greenland being depicted as an island and in a form which is allegedly close to its real shape. If the Norse did not have this knowledge, then who did? What seems to have been ignored in all this debate is that there was one ethnic group in the north-west North Atlantic who may well have been the source of this information. In 1949, the recently deceased polar explorer, Eigel Knuth, discovered a large Inuit skinboat or *umiaq* in Pearyland on the northern

coast of Greenland. The boat and others like it from the eastern coast of Ellesmere Island to the west can be dated to ca.1440 so it would seem likely that the Inuit at least knew that Greenland was an island. And since we have ample evidence that the Greenlandic Norse were in contact with the Inuit, they may well have learned this fact from them and, in turn, transmitted the information to some mainland Europeans.

Furthermore, the ability of ethnohistorically-known and modern Inuit to produce maps of great accuracy is well-documented. Writing about the Central Eskimo of the late nineteenth century, Boas noted:

> The Eskimo exhibit a thorough knowledge of the geography of their country...knowing the distance's by day's journey ... and the directions by the cardinal points.... They distinguish quite a number of constellations.... As their knowledge of all the directions is very detailed and they are skillful draftsmen they can draw very good charts ... it is remarkable that their ideas of relative position and direction of coasts far distant from one another are so very clear. (Boas 1964:235-6)

Boas provided examples (figs. 154-7) of maps of Cumberland Sound and Frobisher Bay which had a remarkable degree of accuracy even when the most distant points on the maps were as much as five hundred miles apart. Similarly, Briggs (1970:34) notes that, among the Utku, the:

> ... accuracy with which they observe and mentally record the contours of the terrain are proverbial; their map-making (and -reading) abilities are phenomenal. I showed several Utku men maps of the entire North American Arctic. They pointed out and correctly named all the major rivers, lakes, inlets, and islands from Baker Lake in the south to King William Island in the north, and from Perry River in the west to the west coast of Hudson Bay in the east, a territory approximately 135,000 miles square. One man even pointed out Bathurst Inlet and Southampton Island correctly, from hearsay. He had never been to either place but he had heard them described by other Eskimos on his travels.

Rasmussen (1931) found that the Netsilik could produce fairly accurate maps of areas of a similar size. In conclusion to this section, it should finally be emphasized that the correspondence between the shape of Greenland in the map to the real shape of the island has been exaggerated by critics. Careful comparison shows that the resemblance is a general one (Skelton *et al.* 1996:184).

THE PROBLEM OF THE "MISTAKES"

One of the most vociferous critics of the Vinland Map is the Scandinavian historian, Kirsten Seaver. In a fascinating but, in my estimation, a highly tendentious article she even identifies the forger, one Father Josef Fischer, S.J. (1858-1944). Fischer was a scholar of cartography, especially of world maps of the fifteenth and early sixteenth centuries. He was also the author of *Die Entdeckungen der Normanden in Amerika* (1902) in which he argued that Vinland was to be identified with Nova Scotia. Furthermore, in this book he was also under the mistaken belief that Bjarni and Leif had sailed together to discover Vinland. In short, Fischer's experience in mediaeval cartography and his confused understanding of the sagas make him an ideal candidate for being the forger. But what do Seaver's accusations boil down to?

First, she argues that Fischer's handwriting "has a wavy tendency similar to that of the Vinland Map legends whenever a ruler has not been used" (Seaver 1995:35) but this is hardly a very compelling argument.

Second, she notes that the legends and personal names in the map display a poor knowledge of mediaeval Scandinavian usage. She points out that Fischer, though proficient in Latin, French and English, could not read any of the Scandinavian languages and had made similar mistakes in his earlier historical work. I find this also unconvincing. Surely any scholar worth his salt could easily have found out what proper mediaeval Scandinavian usage would be for these personal names if he was attempting to produce a convincing forgery.

Third, when Fischer observed that the authorities with which he was familiar "differ entirely as to the name and person of the first discoverer (of Vinland)," according to Seaver he was never able "to untangle the Leif-Bjarni problem in terms of the early material known to Scandinavian scholars" (Seaver 1995:35). But this is based on the supposition that the legend on the map means exactly what Seaver thinks it means i.e. that Bjarni and Leif *together* discovered Vinland. However, I find the text somewhat ambiguous. On the one hand, it could imply that the author mistakenly believed that Bjarni and Leif were in the same boat which would contradict the sagas. On the other hand, it could also imply that it was the sum total of their individual efforts that led to the discovery and naming of Vinland. The "in company" immediately after Leif's name may be a reference to the fact that, when Leif set out to locate the land that Bjarni had sighted, he did so with a large group. Moreover, in both references to the two men, the author of the legends names Bjarni first as if recognizing that he had some sort of precedence over the much more famous Leif. Seaver doesn't entertain this second possible interpretation of the legend. To her the conflation of Bjarni and Leif's voyages means that the map cannot be earlier than "... 1765, the publication year of the only source putting Leif Eiriksson and any sort of Bjarni aboard one ship" (Seaver 1995:33). But if David

Crantz, the German Moravian historian, made that mistake in 1765, why couldn't it have been made in 1440?

Fourth, Seaver argues that "... the delineation of the island (in the map) uncannily resembles the actual Cape Breton-Nova Scotia constellation" and notes that Fischer, in his *Entedeckungen*, unequivocally identified Vinland with "the present Nova Scotia in conjunction with Cape Breton" (Seaver 1995:36). Her conclusion is that the shape of Vinland on the map betrays Fischer's obsession. Now, this really is a bit of a stretch. Try as I might, I can see no uncanny resemblance whatsoever. Inasmuch as Vinland resembles any physical feature on the north-east coast of North America, the Great Northern Peninsula is obviously the closest comparison and yet Seaver does not even mention that. Had Fischer forged the map to make Vinland look like Nova Scotia, it surely would have been represented quite differently. This entire article reminds me of an attack on another Jesuit. For years the famous biologist, Stephen Jay Gould, unfairly pilloried Teilhard de Chardin as the forger of the Piltdown fossils only to be recently proven wrong. Far be it from me to defend the honour of a priest but the simple fact is that there is not a single piece of compelling evidence in Seaver's arguments and the entire article is quite biased. To give a glaring example, at the beginning of her article, Seaver describes the detection of modern titanium dioxide by the McCrone analysis and then simply notes that "Scientists at the University of California at Davis took issue with some of these findings in 1987, but the McCrones stood by their original analysis" (Seaver 1995:33). Readers can make up their own minds whether this is a reasonable and fair characterization of the analyses made on the ink!

CONCLUSIONS

Here I am glad to plead "mea culpa" and to take this opportunity to correct my entry on "Norse Discovery" in the fourth volume of the *Encyclopedia of Newfoundland and Labrador* (1993). There, in my ignorance of further testing of the inks on the Vinland Map and prior to the appearance of this new edition, I characterised it without reservation as a fake. Now, while all of the major objections to the map have been substantially rebutted, we are still faced with the question of whether it is really genuine. On the whole, I am now persuaded that it probably is and that the burden of proof rests solidly with the doubting Thomases. I must register some surprise that the Yale Library did not submit samples of the map parchment to radiocarbon analysis. The relatively new technique of accelerator mass spectrometry (AMS) radiocarbon analysis requires only a few milligrams of sample to produce a date accurate within a decade. Such an analysis would not necessarily prove that the map is genuine for a forger could have obtained a sheet of parchment dating to the fifteenth century. But if the parchment proved to be more recent, the question would be definitively resolved. It is astonishing that this was not done before issuing

this second edition. Even that other notorious forgery, the Shroud of Turin, was subjected to AMS analysis.

In conclusion, everyone agrees that if the Vinland Map is a forgery, it's an extremely clever one. Why therefore would a knowledgeable forger make such a monumental blunder in showing Greenland in roughly its modern form as an island? Further, why would such a forger use a modern pigment in his ink when a standard mediaeval iron-gall ink could easily have been devised. If anything, these anomalies point to the genuineness of the map, rather than the opposite.

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