

Ch/OLS/1; FROM C1500 TO C1700 AN OBLIQUE LATITUDE SCALE WAS USED THUS 200 YEARS OF COMPLETE NONSENSE ON CHARTS

ABSTRACT

The discovery of the Northern lands, Newfoundland, Labrador, Greenland and their mapping obviously gave cartographers of the early 1500's problems. Not only did the land extend northwards far beyond the basic 75N of Europe, to at least 85N, but it contained a myriad of Isles many seen or glimpsed through snow and ice. But, the magnetic compass sometimes used, but not understood, was also badly affected as they headed northwards towards the Magnetic North Pole. That of course was a point they had no actual knowledge of.

Then Pedro Reinel on his 1504 chart, one of the first charts to illustrate these new lands, decided that they could not be shown geographically positioned and drew what information he had, and included an Oblique Latitude Scale set at N22 ½ E and marked off latitudinal degrees with the same measurement as the main vertical latitude scale. Thus the die was cast for chaos to ensue in theoretical cartography with later cosmologists developing outlandish theories concerning the magnetic compass which they did not understand.

This text unravels the actuality from the outlandish and shows the simple answer.

The text is 8, A4 pages and contains 17, A3 diagrams

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INTRODUCTION

This text is an attempt to clarify the writings of Heinrich Winter, 1937 and EGR Taylor, 1939, regarding the Oblique Latitude Scale to be found on charts dating from 1504 to at least 1689 set adjacent to the coast of Newfoundland and Labrador which geographically extends from Cape Race, c47N/c53W to Cape Chidley, c60N/65W, ([Diagram ChOLS/1/D01](#)). They are intended to be measured on the Oblique Latitude scale set from c42N to c55N and at N22 ½ E.

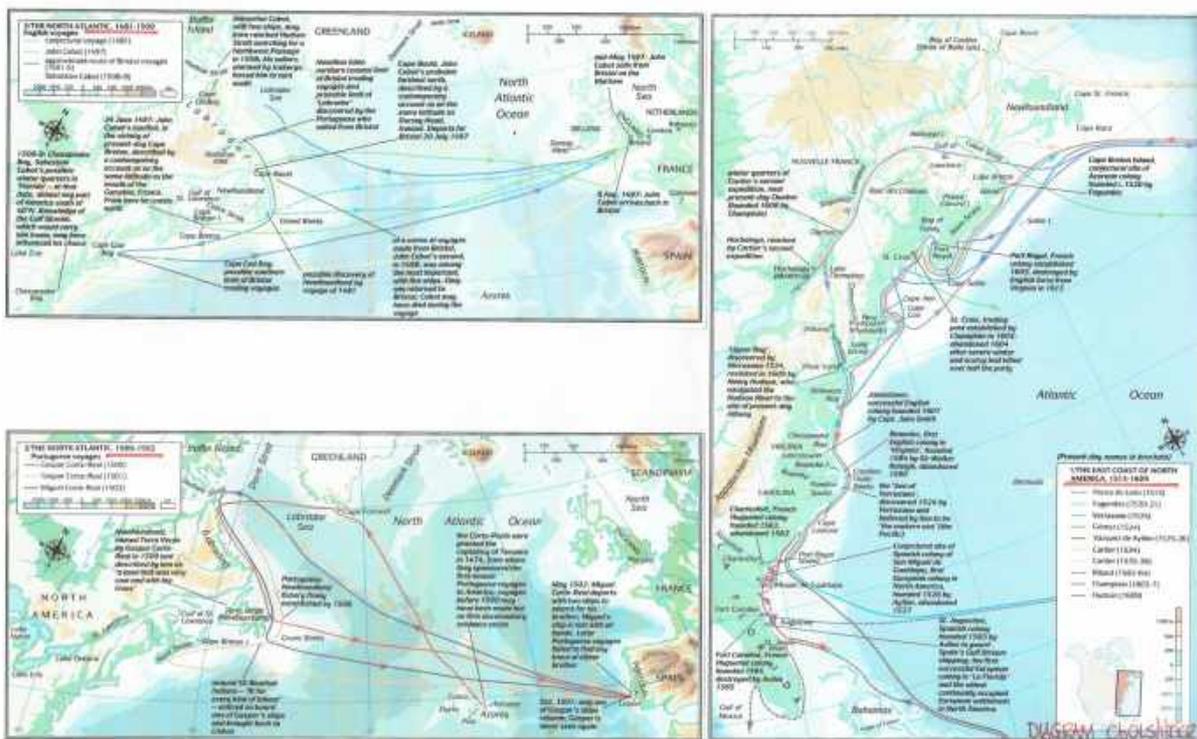


The Medieval Exploration of these coasts can be described in three phases as the included maps show; 1481/1509; 1500/1502; 1513/1609, (Diagram ChOLS/1/D02). The first explorers are English out of Bristol and the data indicates that by 1508/1509 from Chesapeake Bay at 40N to Hudson Strait at 60N, the basic coastline had been sailed and if any compass variation was noted it would show deviation from c10W to 28W without 'Fly' corrections.

Then 1500/1502 the Portuguese CORTE REALS sailed part of the above route from Nova Scotia to Hudson Strait, but as only one vessel made successful return voyages it is

doubtful that the compass bearings were taken and latitudinal readings may have been sparse.

The third period from 1511 to 1609 saw the whole coast of Eastern N America fully explored from Florida to Labrador, 10N to 60N.



MAGNETIC COMPASSES

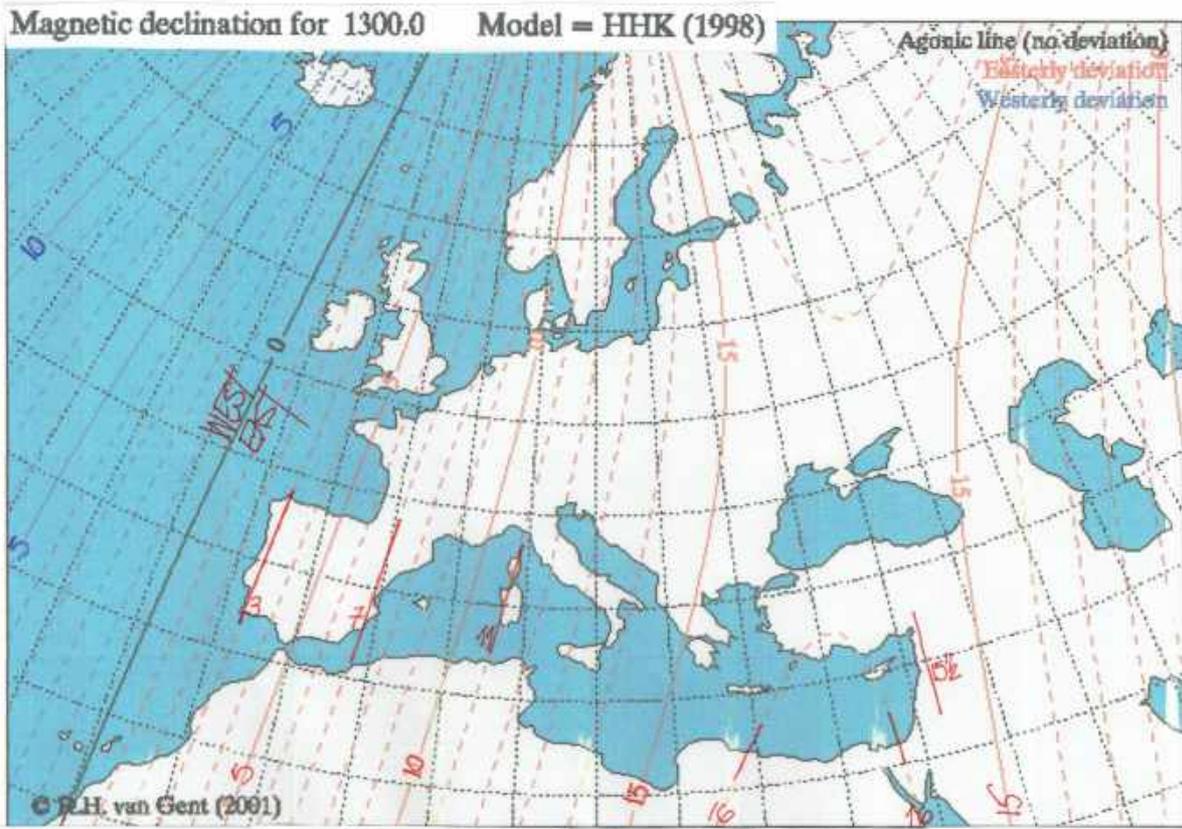
However, what those three periods contain are rather large movements of the Isogonic Lines of Magnetic Deviation as the included Isogonic Charts clearly indicate. They also indicate a complete lack of correct survey data to enable cartographers to accurately plot the Eastern Seaboard of N America using compass bearings.

In 1500 ships leaving Bristol would have (if in fact they had) their magnetic compasses adjusted to Geographical North with the 'Fly' being adjusted 3 degrees west reflecting the 3 degree east variation (Diagram ChOLS/1/D03). A simple exercise as Geographical North was the mainstay of navigation and could be found daily from the Sun at Midday and the Pole Star at Night (Diagram ChOLS/1/D04). There should have been no argument as to the exact position of Geographical North.

Then ships leaving Lisbon would have had a 5 degree variation East in 1500, but by 1600 that would increase to 8 degrees east and to compensate for the 5 and 8 degree east deviation of the needle the 'FLY' would possibly be turned the same west (Diagram ChOLS/1/D05).

But in 1660 there is no deviation from Geographical North for the compass from Bristol in the North to the West coast of Africa at 5N.

Then by 1700, the agonic line of no deviation, the dividing line between a west and east deviation had moved such that all of Europe, and the East to Singapore were in a negative or Westerly deviation, and this also included the whole of N America (Diagram ChOLS/1/D06).

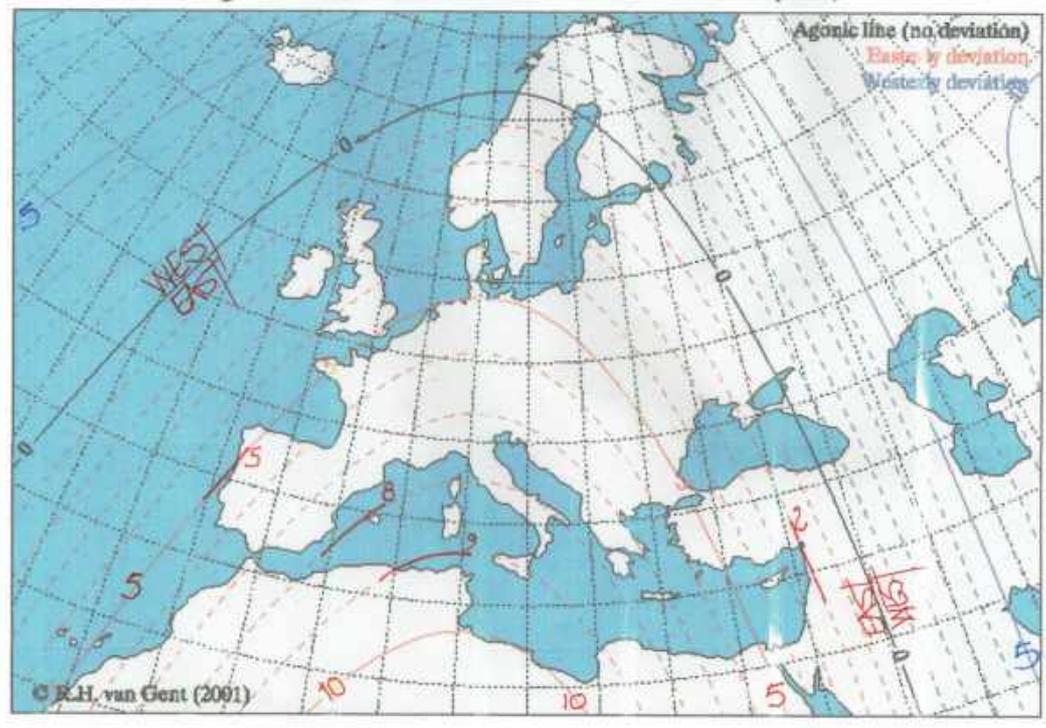


Magnetic declination in 1500 AD

Model from R.H. van Gent (2001)

DIAGRAM Chols/1003

Magnetic declination for 1500.0 Model = HHK (1998)



The manner for finding the elevation of the pole to the north star

DIAGRAM CHOLSKIPOL

It is to be kept that we have now meant for to take the altitude of the pole in any degree yet we do hold it good manner for the north star of all others

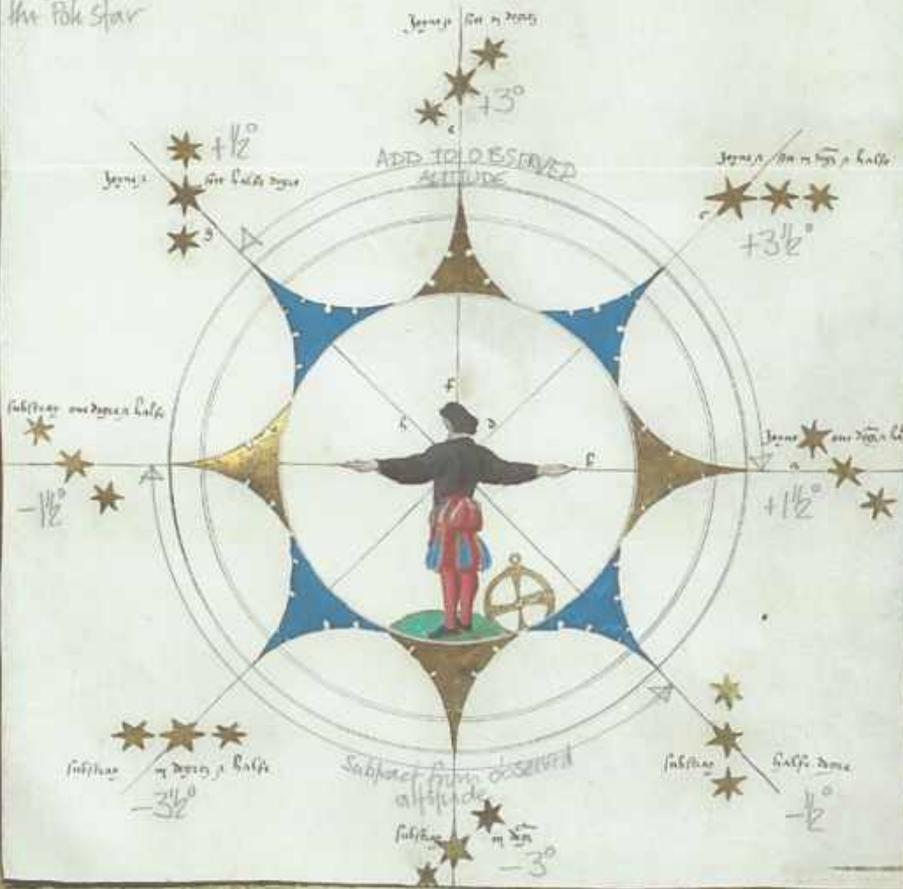
Such as for quere the desire to know the elevation of the pole above any degree first we do take and regard the north star to have more that it may stand forth against the face as in this present figure may be observed And thus proceeding the arched circle in this case of the five stars called to be our guardas degree above and stand to our right arm as appert to the line a b Then have the number of degree that he is equidistant to other instrument we defende the north star above and right we do have and set one degree half a half and the hulle number of degree shall be the elevation of our pole above the equator

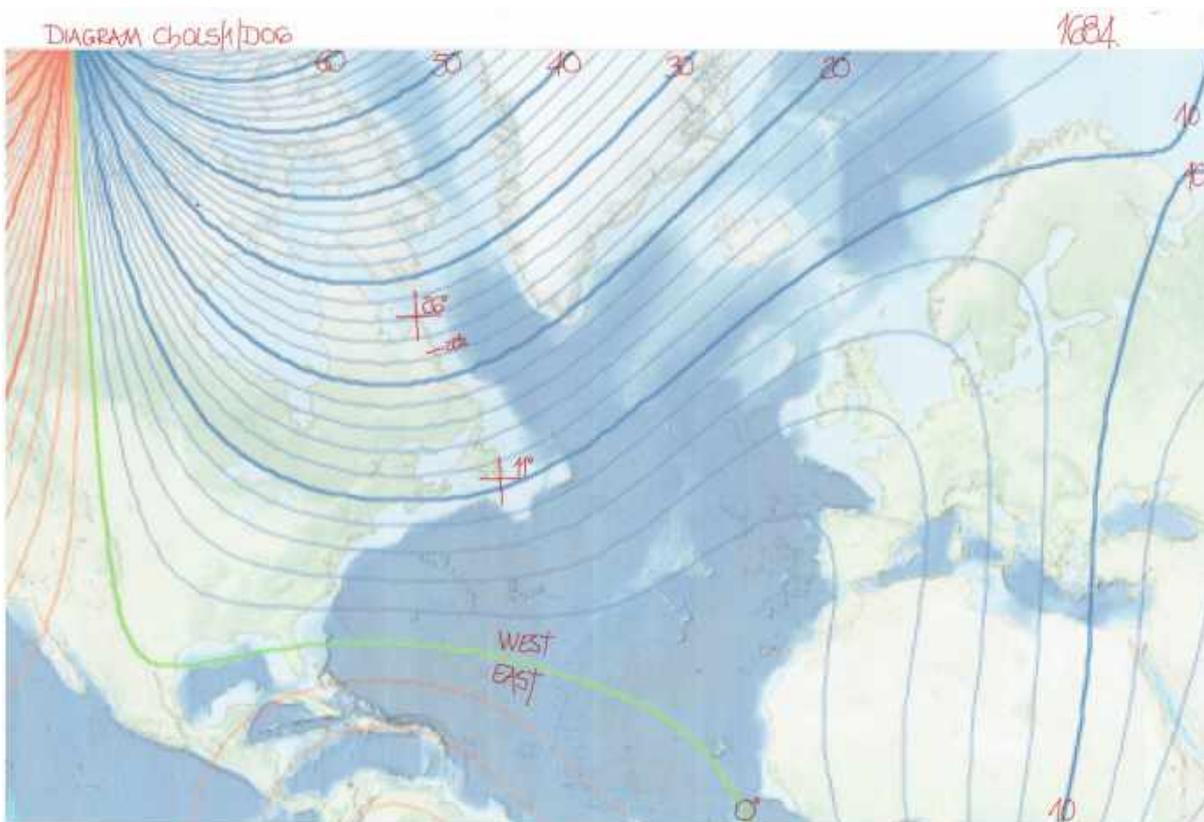
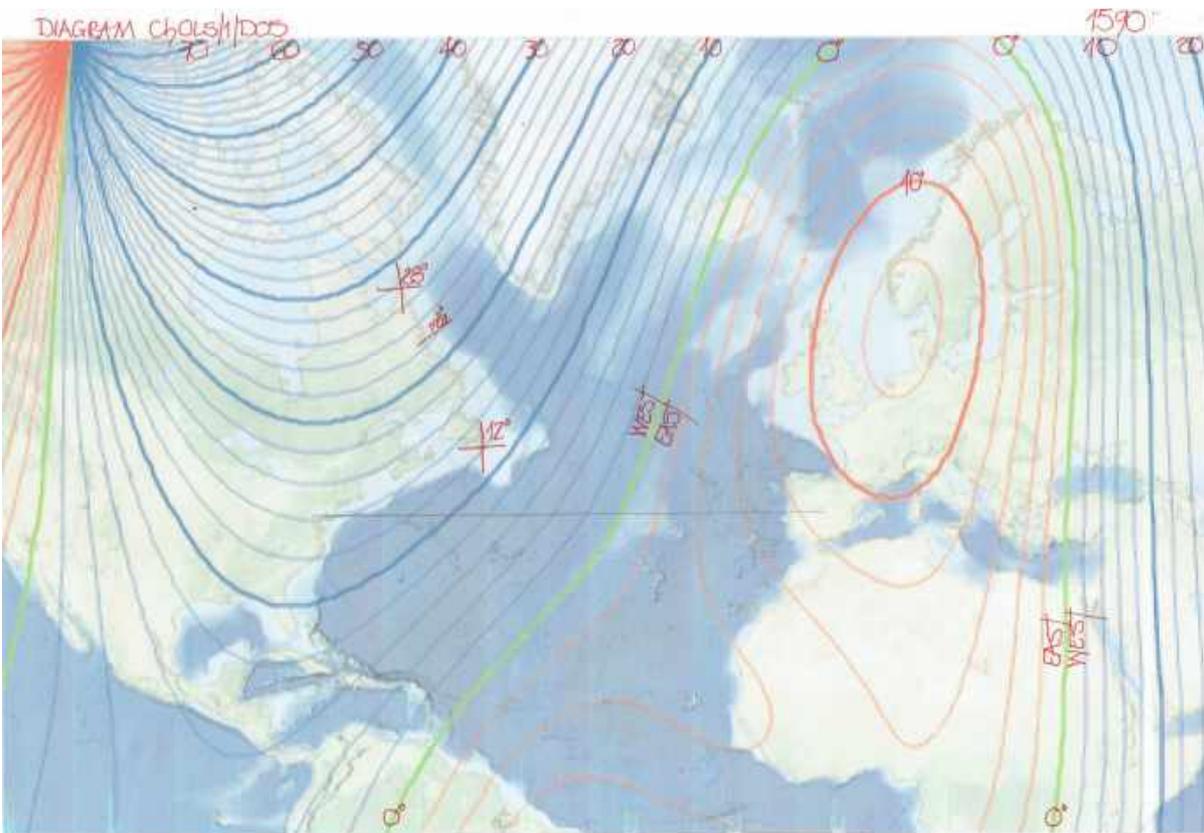
And thus the said guardas be in the middle between our head and our right arm as appert to the line c d Then we the altitude of the north star we do have and set three degree and half at the hulle and at together shall be the degree of the elevation of the pole

And also of the said guardas doth abide or stande in the middle between our head and our left arm as appert to the line e f Then we the altitude of the north star we do have and set three degree and half at the hulle and at together shall be the degree of the elevation of the pole

And the quiete thing may be done to the contrary of it that is to subtracte that is to say taking so many degree from the elevation of the north star The guardas being opposite and other against one of the other side yea And it appert plainly to this figure following

Regiment of the Pole Star





Therefore, the period of Portolan/Planisphere charts from 1500 to 1700 would show massive changes in the deviation of the compass and if they were in fact used to draw charts the coastlines would change exponentially, but we do not see any differences. Thus the adjustment of the compass 'Fly', if in fact it happened, would become ineffectual for navigation until the whole phenomenon was understood and could be effectively countered.

Thus, how do we account for these chart from 1500 to 1700 showing the same supposed Oblique Latitude Scale bar indicating that the coast of Newfoundland Island is a constant 22 ½ degrees E of N. They have been thought of as Magnetic and theoretical constructs as the mariners of those years knew nothing of the ever changing magnetic variations, or, if they had noted them certainly did not understand the readings.

We today write from a position of immense knowledge compared to 1500AD, but what the medieval theoretical writers were stating in their texts regarding the compass obviously led to cartographers perhaps thinking that the Oblique scale was magnetically based.

THE EASTERN SEABORD OF N AMERICA

The basic facts concerning this coast can be observed from two distinct methods of establishing the geographical direction of that coastline. The first is to assume a coastal sailing normally followed by mariners in the Mediterranean where North is well known and the coastal direction can be adequately noted and the second, if possible, is a direct alignment sailing from south to north at the required average course and reading off latitudes parallel to that course which can be plotted.

Commencing at 30N on the N Coast of Florida and sailing to Cape Hatteras at 35N, is E40N or N50E course. At Cape Hatteras sail due north (at 75W) passing Chesapeake bay and Cape Charles to the entrance of Delaware Bay, then N45E to Rhode Island and then east around Cape Cod. The Gulf of Maine could be sailed directly across to Cape Sable, Nova Scotia and then E30N to Cape Race, Newfoundland. Each point is a geographical place well known to the mariners of the age and whose Latitudes had been plotted.

But the average course to sail from 30N, Florida to 47N, Cape Race would be N45E where it requires a large change to N35W to reach Cape Chidley, the north point of Labrador.

EXTANT CHARTS

The charts which form this study have the N American coastline generally set E25N to E30N for a Geographic E45N from 30N to 47N geographically. They are individually discussed in a later section and are from 1504 to 1689, and are 7 in number.

They are; 1504, Pedro Reinel; 1550, Diego Gutierrez; After 1549 Anon: (Miller Atlas); 1568 Fernao Vaz Dourado; 1594 Jan Van Doetecum; 1594 Pedro de Lemos; 1674, Denis de Rotis; 1689 Pierre Detcheverry, and are a selection, not all that could be used.

Hence the whole coastline is some 15 or 20 degrees lower that it should be in the north; WHY? Look at the charts and note that the cartographers desire to include as much of the Atlantic Seabord as possible and where as the European/African Coasts are correct,

having been surveyed and drawn over 150 years, when it comes to N America from 30N to 47N, which would fit onto the charts correctly and even accommodate Cape Chidley at 60N, given that the N Coast of Britannia is 58/59N, perhaps the magnetic compass and the Fly variation caused this catastrophic drawing of this coast which could be drawn geographically..

That is best shown by looking at the typical voyage from Lisbon to the Hudson Strait and comparing it to the charts that have the Oblique Latitudinal Scale appended.

SAILING WEST, DIRECT BEARING OR COMPASS COURSE

Sail due west along the 39th or 40th parallel from Portugal to N America and arrive south of Long Island. Turn from sailing due west to E22 1/2N and coast to Cape Sable, Nova Scotia, then E30N to Cape Race, Newfoundland Island. When you departed Portugal your magnetic compass, if manufactured in Lisbon, could have been set to offset the deviation at that time varying from 5 to 8 degrees east. By slewing the compass card 'Fly' the same amount to the west of the magnetic north it would show Geographic North. Thus as you sailed west to the centre of the Atlantic Ocean the needle would gradually reduce its easterly slew until it met the zero degree Agonic Line and then move to the west. On your arrival at the N American coast the needle would read c22 degrees west, but that would be fallacious as you have already added 5 to 8 degrees and hence the actual variation recorded would be c14 degrees magnetic; i.e. $22 - 8 = 14$.

Therefore once you turn from due west to E22 1/2N you are sailing along the isogonic line of declination and the compass is constant. At Cape Sable it will commence to decline to 20 degrees; i.e. $12 + 8$, at Cape Race. Thus this part of the coastline may be considered on average W22 1/2N magnetically but actually E22 1/2N geographically.

But mariners would out of sheer common sense have applied the Regiment of the Pole Star, or the Sun Midday position on first arrival to determine geographical North. This would confirm latitude at landfall and also the actual direction of the Geographic North Pole at 74 West of Greenwich or 65 West of Lisbon. A second check at Cape Race would give 47N.

But now the magnetic compass becomes alive as the ship turns from an E22 1/2N course to a N30W course to coast Labrador until the Hudson Strait and the needle will move from the 20 ($12 + 8$) until the Hudson Strait through 16 degrees of magnetic deviation until at Cape Chidley the reading is 36 degrees or $28 + 8$ deviation.

Therefore the 22 ½ degree east of north setting out for the Oblique latitudinal scale bar represents what?

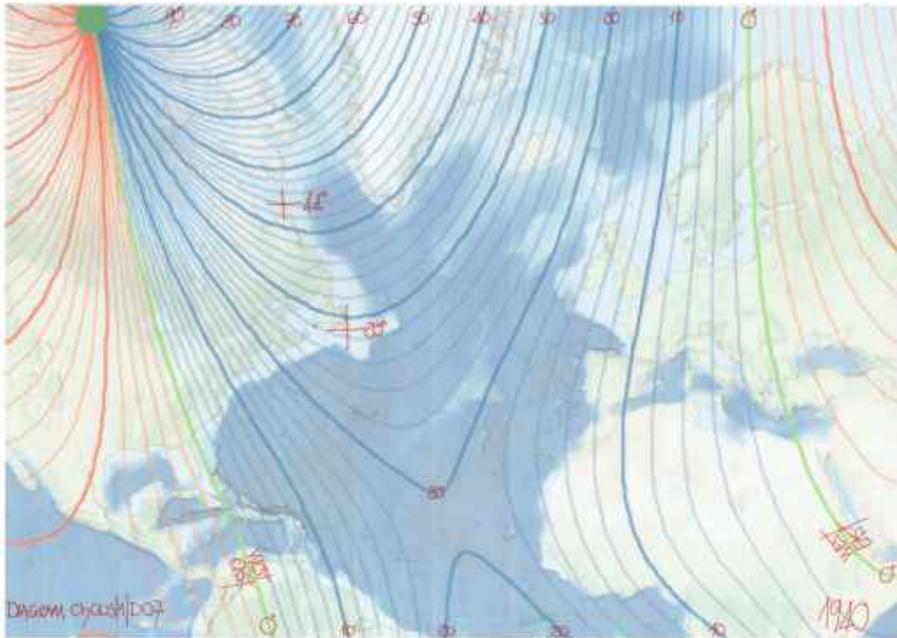
HEINRICH WINTER AND EGR TAYLOR

H Winter argues and EGR Taylor agrees that it represents the "*Direction of the Geographical Meridian on that part of the map*" and "*The magnetic variation postulated in 22 ½ degrees (two points) to the west and that this was the accepted figure for Cape Race on the New Land coast we know from the writings of Jean Alfonse and from the unpublished treatise on the variation Compass which John Rotz (Ross) of Dieppe composed for Henry VIII in 1542.*"

But as the actuality of magnetic variation shows the 22 ½ degrees is only if the 8

degrees variation east at Lisbon is accounted for in the magnetic compass setting out.

EGR Taylor then goes onto remark that *"the present day variation at Cape Race (see fig 1) is about 28West."* Indicated on the 1940 isogonic chart attached (Diagram ChOLS/1/D07).

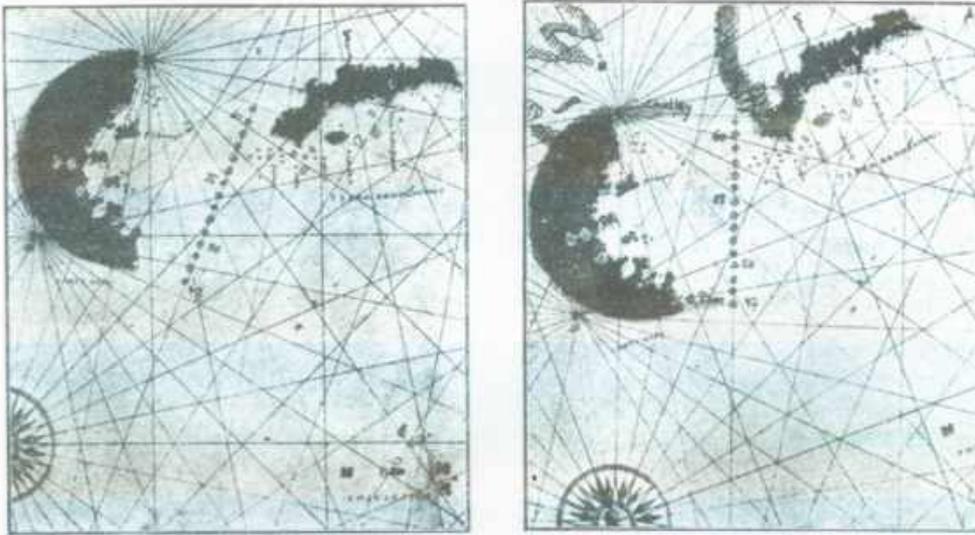


But surprisingly EGR Taylor then takes issue with Heinrich Winter's comment, *"Why Pedro Reinel did not follow the course which seems to us simpler, of changing the position of the area in question on the map itself remained a mystery."* EGR Taylor states *"to have done so would have rendered the chart worthless to the seamen, to whom a sea chart was a compass-chart and its Rhumb Lines compass Rhumbs"* (Diagram ChOLS/1/D08).

The Pseudo Labrador and the Oblique Meridian; IMAGO MONDI, 1957.
Heinrich Winter,

so that the latitude of Corte Real Land of 47° (*C. Raso*) to 57° (*Y da fortuna*) is correct according to the oblique scale but that of Greenland of 60° right according to the main scale. Why Pedro Reinel did not follow the course which to us seems simpler, of changing the position of the area in question on the map itself, remains a mystery. He could not bring himself, perhaps, to make so radical an alteration in traditional material. Indeed, we see that for a whole century certain map-makers⁽⁴¹⁾ did not dare to discard this oblique meridian (which must not be confused with oblique mile-scales). Pedro Reinel's oblique meridian was a unique phenomenon, evidently not understood by his immediate successors, not even by those who continued to use it, with the result that even if Reinel's delineation of the coast-line has been accepted, this does not apply to the key to the understanding of it.

V. On us devolves the task to-day, then, of doing what Reinel left undone, namely of moving the area in question through the angle of the oblique meridian. We must take, for this purpose, a map of the King group which we also assume was the prototype for Pedro Reinel. Let us now provide the map in the British Museum (facing p. 62) with an oblique meridian, then turn it so far round to the left that this meridian assumes a vertical position. We at once realise that the south coast



The oblique meridian applied to the map, Add. MS. 31, 316, British Museum.

of the "Terra laboratoris" agrees in marked manner with the south-east coast of Greenland sailed by Corte Real and the coast designated as "Corte Real" with that of present-day Newfoundland and Labrador. If we now complete the adjacent stretches of coast (West Greenland, Hudson's Strait), the map, so faulty before, becomes quite satisfactory in all such essentials as latitudinal position, coastal configuration and trend; and such discrepancies as the concave coast of Corte Real—easily explained by the general appearance of the southern part of this coast, with its deep bay, which commanded the whole aspect⁽⁴²⁾—become unimportant. We see at the same time that the oblique meridian applies,

⁽⁴¹⁾ Gutierrez 1550 (see MARCEL. *Recueil de voyages, etc.* Paris, 1893, Vol. I); Portuguese anonymous map, 1550 (in the *Dépôt Hydrographique* in Paris; see HARRISSE, *op. cit.*, and BJÖRNBO); Detcheverry 1589 (HARRISSE, *op. cit.*); Peter Plancius, c. 1592 (see *Six Early Printed Maps*, published by the British Museum in connexion with the Geographical Congress of 1928, where this map is erroneously ascribed to Gabriel Tatton); Luiz Teixeira 1600 (ARMANDO CORTESAO. *Cartografia e cartografos Portugueses dos seculos XV e XVI.* Lisbon, 1935, pl. 54); Champlain 1613 (WOLKENHAUER, *op. cit.*); ECKERT. *Kartenwissenschaft*, vol. 2, mentions Domingo Olives as drawing (1568) a half oblique meridian (*Periplus*, pl. 29.).

⁽⁴²⁾ A glance at the meteorological statistics of Belle Isle supplies a clue to the lack of consistent findings.

DIAGRAM CHOLS 1/1008

That to my mind is patently wrong as the chart is based upon Portolan Charts of the Mediterranean Sea which are not “Magnetic Charts” at all. My text ChUG/1 clearly sets down the arguments for the Mediterranean Sea. Study the Magnetic Declination Chart from 1500AD and note that sailing N/S in the Mediterranean Sea the deviation of the needle is generally no more than 1 degree and probably neither seen but if so, ignored. However sail from Barcelona, needle 7 ½ east via Sicily needle 9 east to Alexandria needle 5 east and the effects are noticeable but probably ignored as most mariners sailed landfall to landfall, coasting and those mariners had no requirement for the Compass unless neither the Sun nor the Pole Star were visible to possibly aid navigation in bad weather.

However, carry out that same journey at the dawn of Portolan charts, c1300 AD were fully formed and slewed anticlockwise, then the readings become, Barcelona 7East, Sicily 13East and Alexandria 16East deviation. This is supposed to be the birth period of magnetic compass usage as promulgated by writers such as Ramon Lull. But nobody understood the system! Thus I do not think the magnetic compass was in fact useful to mariners in the period 1300 to 1500 and as these mariners taught others the normal sailing methods of wind and sun, its usefulness would be surely ignored unless desperation set in!

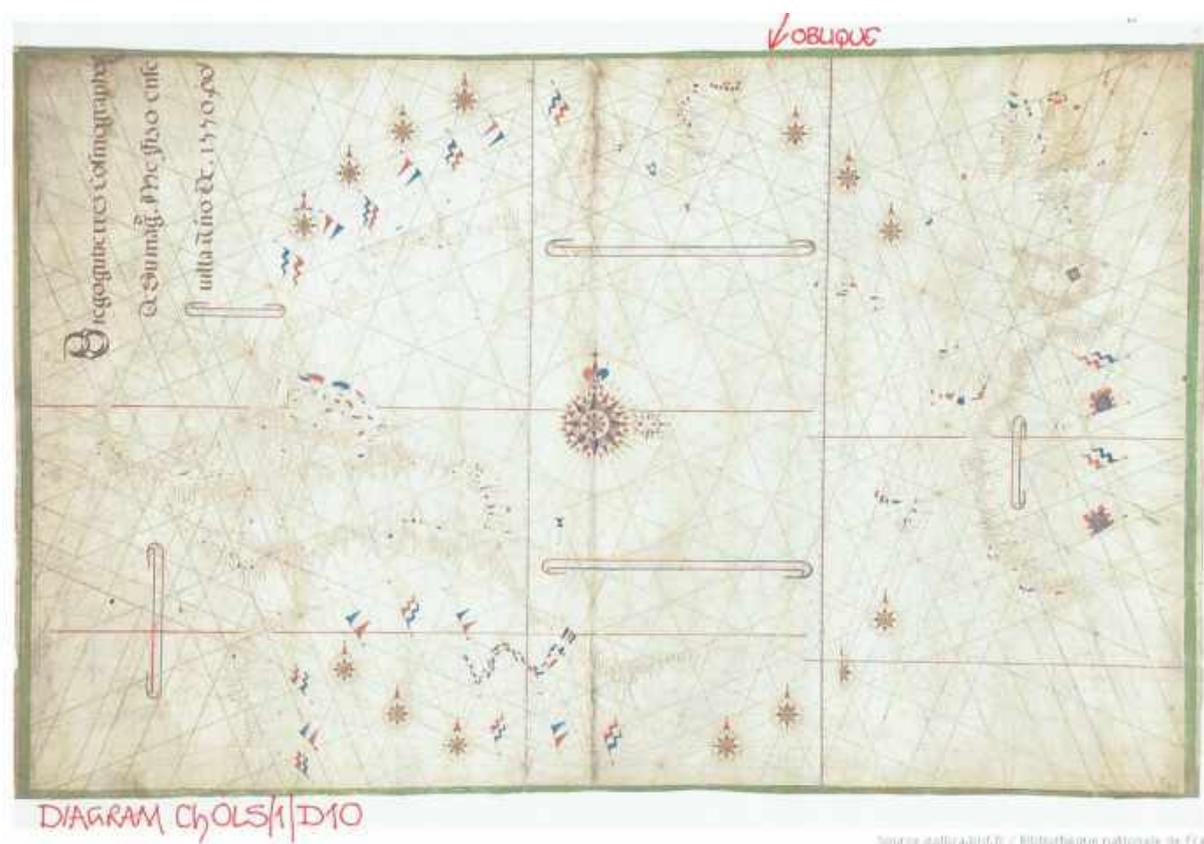
THE CHARTS WITH THE OBLIQUE SCALE DISCUSSED

1504 CHART BY PEDRO REINEL ChOLS/1/D09

Thus in 1504 Pedro Reinél had 200 years of Portolan Chart history to utilise and only after 1500AD when Jean de la Cosa drew his chart (which was actually a Portuguese original with the “Columbus” and “Cabot” discoveries appended on a cobbled together sectional joint) and then the charts of Cantino, Caverio and Ribeiro followed which do not have the oblique latitude scale appended this addition is somewhat strange and not required.



1550 CHART BY DIEGO GUTIERREZ ChOLS/11/D10



Source gallica.bnf.fr / Bibliothèque nationale de France

The second extant chart to have a diagonal scale is by Diego Gutierrez drawn 1550 in Seville. It is worth quoting the words of M M du Jourdin and M de La Ronciere from their "Sea Charts" book, text 46.

"On their crossings of the Atlantic, it was some time before the Spaniards and Portuguese distinguished true bearings from magnetic bearings despite the Rule of the North Star. In the Newfoundland area the instability of the compass needle was such that it proved necessary, from the beginning of the 16th century, to take astronomical bearings, as is shown on this chart by the presence of a special scale (inclined SSW-NNE) relating exclusively to the Grand Banks. However, the whole sea lane was influenced by magnetic variation, and the cosmographers of the Casa de Contratacion thought that pilots ought to be notified of this by a correction to the nautical charts. They indicated two graduations of latitudes differing from each other by two or three degrees, and this double graduation inevitably involved the representation of two equators and four tropics. This chart by Diego Gutierrez is a typical example of this apparently ingenious but totally unworkable theory."

The Oblique latitude scale set to the east of Newfoundland Island has latitudes from 43/44N to 55N set at N22 1/2E bearing and some 3 ½ degrees above the eastern latitude bar but only 1 ½ degrees above the western bar. Unfortunately the chart has little geographical detail for Labrador and is not in a state of visual certainty to be properly analysed.

[ANON CHART DATED AFTER 1549 ? REINEL OR LOPES. ChOLS/1/D11](#)

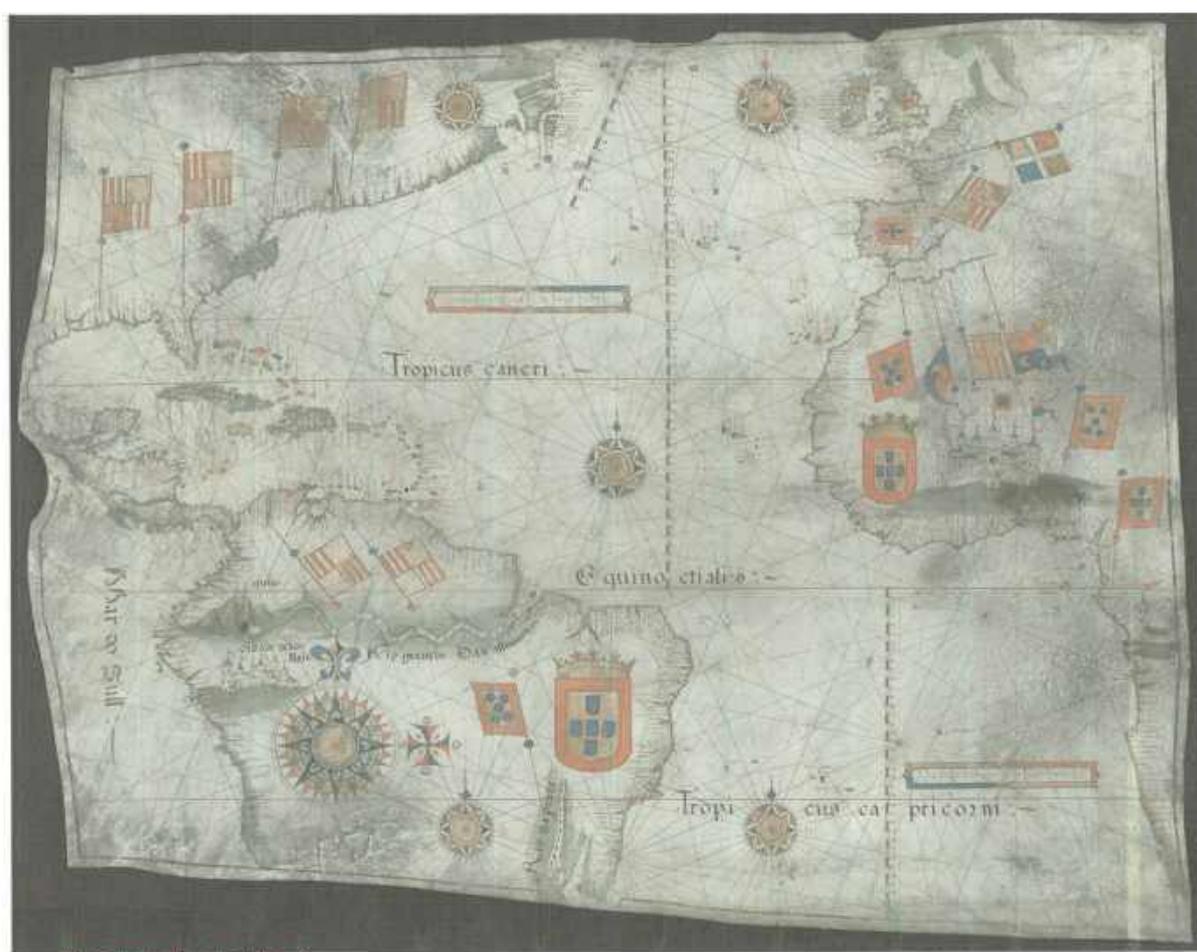


DIAGRAM CHOLSHIDM

Source gallica.bnf.fr / Bibliothèque nationale de France

The third chart is anonymous, but thought to be by Jorge Reinel and dated after 1549 by the fact it shows Cidade de Salvador (now Bahia) founded by the Portuguese in that year in Todos or Santos Bay, Brazil.

From the “Sea Charts” book given as No45 the following is stated;

“A new feature can be observed in the construction of this anonymous Portuguese document. In addition to the normal latitude scales, drawn in the northern and southern hemispheres, a second latitude scale appears in the Newfoundland area, inclined SSW-NNE. This scale indicates the degree of magnetic variation in this region, which is particularly affected by terrestrial magnetism. Indeed, “magnetic” variation continued to increase when travelling westwards; mariners sailing by dead-reckoning would unwittingly follow a course more and more inclined to the west the further they sailed from Europe and would arrive on the American coast at much lower real latitudes than expected.”

In 1551 Jorge Reinel along with Lopo Homem took the oath to become “Examiners of Charts”, thus it is probable that the unsigned chart is in fact drawn by another cartographer in his style and hoping to be accredited.

The Oblique Latitude Scale is from 41N to 57N and set at N20E, but the actual configuration of the Newfoundland/Labrador Islands and coast is mystifying given the format of the 1504 Pedro Reinel Chart and what is drawn on the Miller Atlas folio which is c1519.

Also by c1519 when the Miller atlas is thought to have been drawn by Homem and

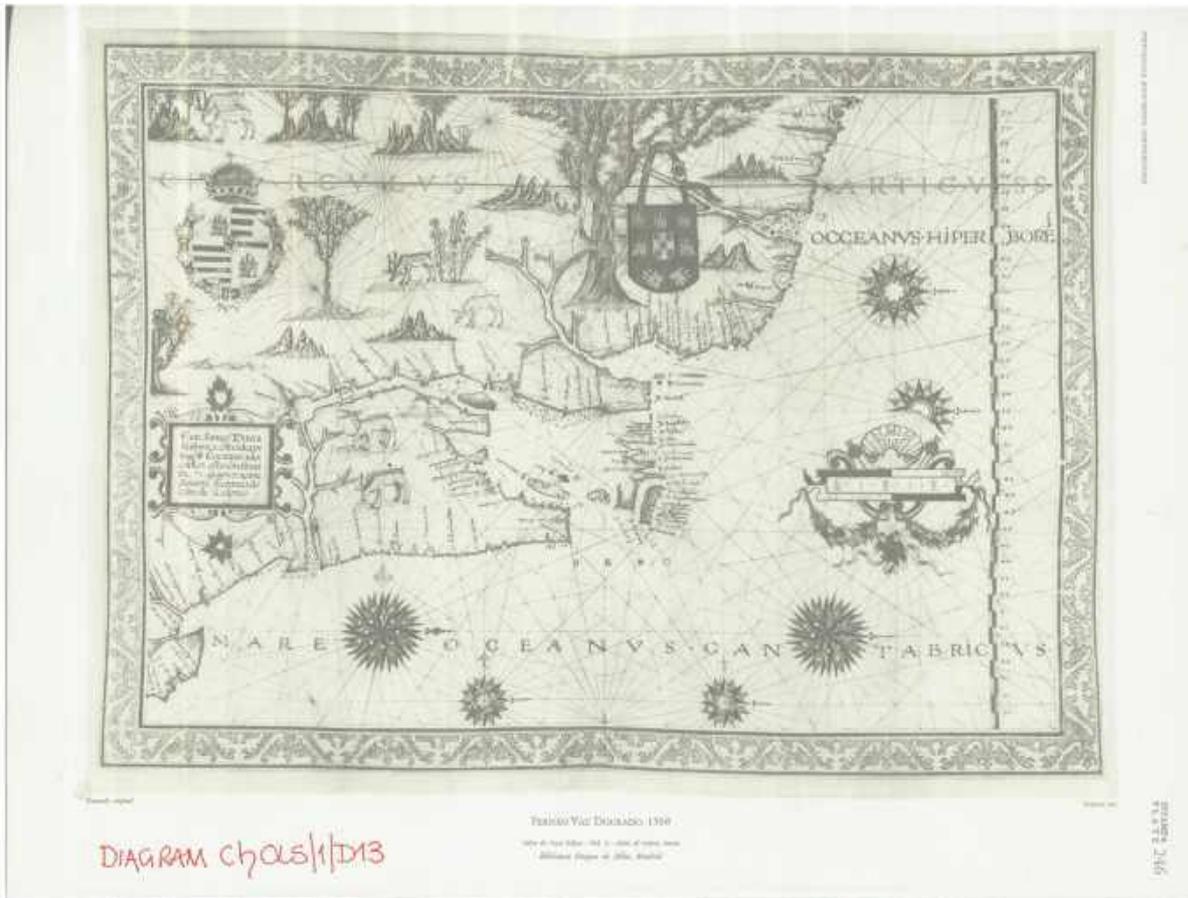
Reinel, Jorge was only 17 years old as text ChRH/1 discusses (Ch OLS/1/D12). But by c1550 the area had been flooded by explorers as the Kuntsmann Collection of Charts clearly shows. They are K1, 1504, Reinel; K2, c1506 “Four Fingers” chart; K3 c1506 Anon; k4 Anon 1519; K7 Battista Agnese c1542; K10 Fernao Vaz Dourado, 1580; K11 Fernao Vaz Dourado 1580; K13, Thomas Hood 1592.



FERNAO VAZ DOURADO, 1568 ATLAS FOLIO 5 ChOLS/1/D13

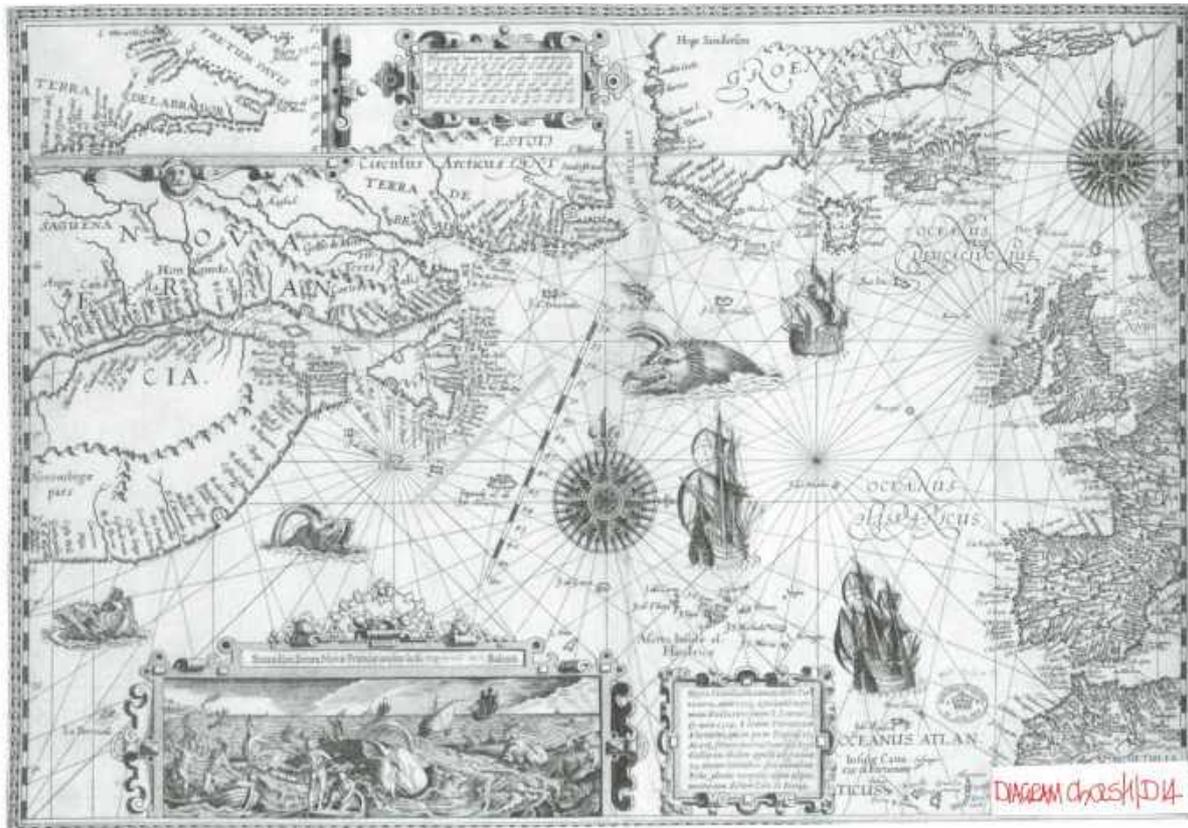
However Fernao Vaz Dourado also on an Atlas page in the 1568 edition of 20 folio's (folio 5) held in Madrid has shown Newfoundland/Labrador. He expanded the Labrador coast northwards to 72N with the coast around Cape Breton the same. But, the Island of Newfoundland is not actually completely drawn. The eastern side is shown as is Belle Isle in the north, but there is no western coastline.

Returning to the ?Reinel chart c1550 and the basic layout of 3 islands is the same but with the west coastline drawn. Fernao Vaz Dourado thus followed the c1550 chart, and working in Lisbon was probably aware of the whole Reinel and Homem oeuvre.

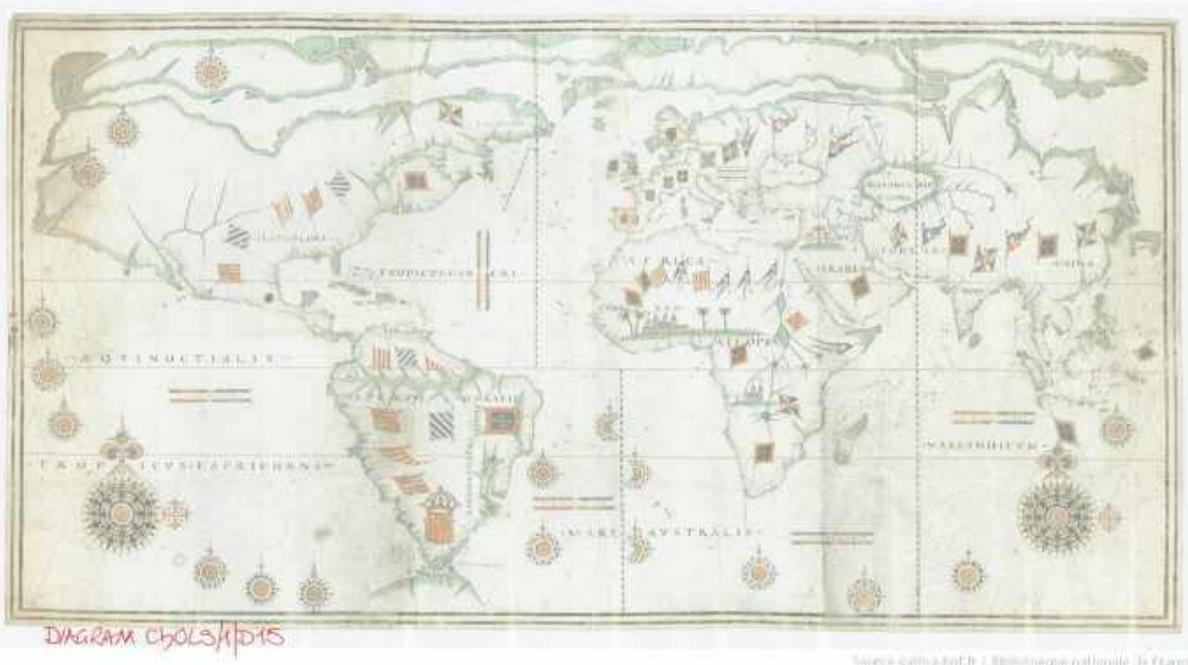


JAN VAN DOETECUM, 1594 ChOLS/1/D14

The next chart is by the Cartographer/Engraver Jan Van Doetecum in Holland, 1594, (BL Maps C. 2.a.3) and it has two latitude scales set either side of the chart and both aligned to each other from 27N to 74N. The Oblique scale is from 40N to 55N and is set c2 degrees north of the main scales. But in the NW corner of the chart is a small section of chart dealing with the Davis Strait and what would appear to be Baffin Island, but equally it could be another part of Labrador from Belle Isle west. It is without doubt a chart with details conflated, misplaced and misnamed.



PEDRO DE LEMOS, C1594 ChOLS/1/D15



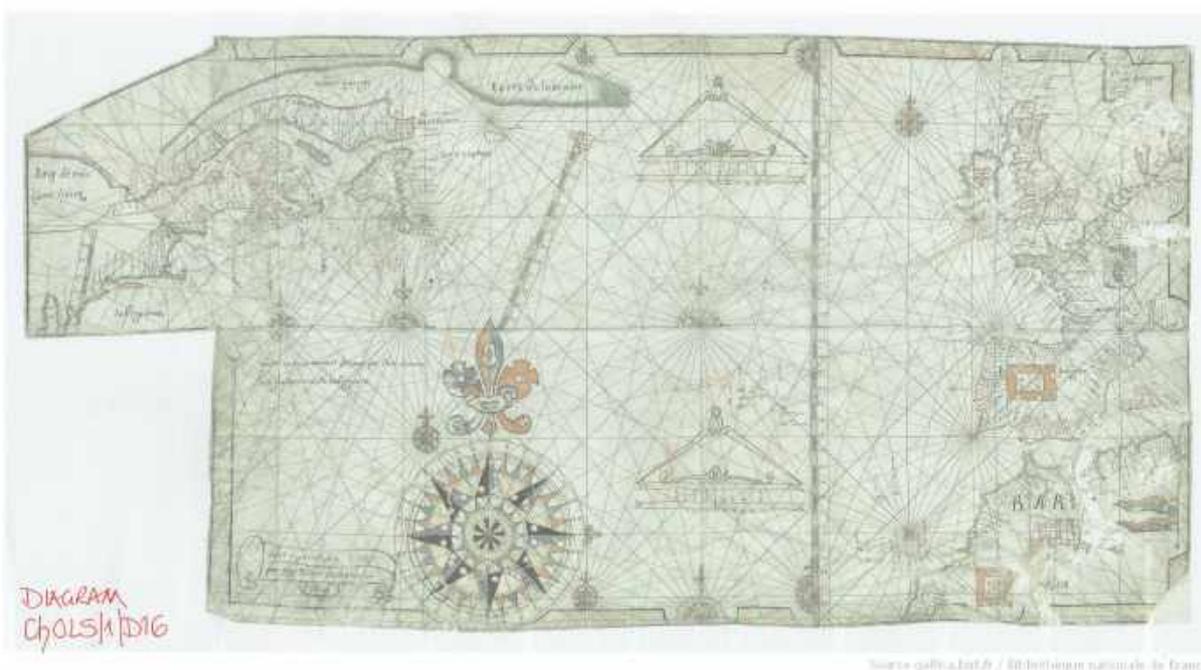
The Pedro de Lemos chart c1594 has the N American coastline set at a basic E25N from 30N to 47N, Cape Race and in fact has the eastern part of Labrador at Belle Isle set correctly. There is then a large land mass stretching past the longitude for Cape de Sao Roque, S

America at 35W/5S. Geographically the farthest east point in the North is St John's Newfoundland at 47N and 53W. In other words Medieval Cartographers have located St John's at the equivalent longitude of Baia de Sao Marcos 44W/3S and thus at least 9 degrees to far east. This difference can no doubt be because of the slant of the N American coastline changed from E45N geographical to E25N on these charts.

There is now an apparent large time gap to the next two charts of 1674 and 1689, by Denis de Rotis and Pierre Detcheverry.

DENIS DE ROTIS 1674 ChOLS/1/D16

The Denis de Rotis chart is dated 1674 with from Newfoundland Island to the west, Nova Scotia and the Gulf of St Lawrence and River. But, just to the north of Newfoundland Island, Labrador should commence where-as the chart has a peninsula of land labelled Canada which has to its North the NOROEST PASSAGE and the Terre de Labrador as a separate landmass disjointed from all others. The Oblique latitude scale is set from 43N to 57N with Newfoundland 47N to 52N correctly positioned, and the 43N of the Oblique scale bar is virtually correct to the main latitudinal scale. However, slightly unseen is another Oblique Latitude Scale in the West and not set at N20E as the main Oblique scale but at N10E and having degrees marked from 39N to 45N with the 43N aligned perpendicularly to the main Oblique 43N. This chart illustrates the confused data arriving in France c1650.



PIERRE DETCHEVERRY, 1689 ChOLS/1/D17

The chart by Pierre Detcheverry is dated 1689 and is a large scale chart of the land incorporating Nova Scotia, Newfoundland Island, and the part of Labrador named Canada bounding the St Lawrence River. Belle Isle is set at 51 ½ degrees perpendicular to the Oblique Latitude scale which is set at N20E, but Cape Race is set at 46N, but Cape Sable,

Nova Scotia is correctly positioned. The chart has the Bay of Fundy, “La Cadie” and Grand Manan Isle, “Manane” clearly shown in the west, but Newfoundland in the east is poorly drawn. However, set the Oblique Latitude Scale vertical to North and the chart is a decent geographical layout which should just have had a vertical latitude scale appended.

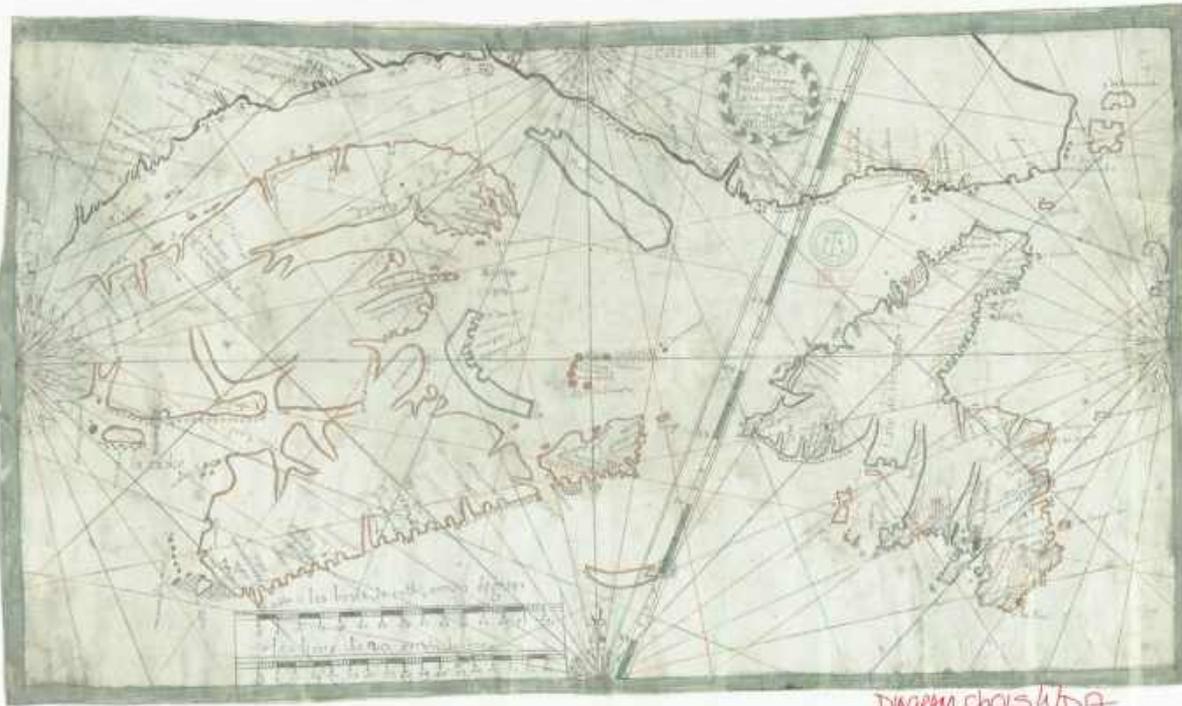


DIAGRAM chalski/DA
Source: gallica.bnf.fr / Bibliothèque nationale de France

RECAPITULATION

In the middle of the 16th century cosmographers wrote that the magnetic deviation at Cape Race, Newfoundland Island was 22 ½ degrees west. However, from 1500 to 1590 the magnetic North Pole moved southwards and westerly dragging the Agonic line west (the line of zero deviation) and hence the deviation at Cape Race was actually 12 degrees west in 1590.

In the period 1480/1510 the N Atlantic voyages by the English which preceded the Portuguese by several years until 1500/1502 when both English and Portuguese mariners were exploring the area, but only one Portuguese expedition was truly successful.

In 1500 the Magnetic Compasses made then would, if it happened, have had only a 5 degree shift to the Fly position west of North to counter the 5 degree east deviation. Thus readings then would have produced very similar deviation readings if in fact they were noted but the latitudinal readings should have been accurate and agreed.

ROUTES OF SAILING FOR THE ENGLISH AND PORTUGUESE

For the English the route from Bristol was the simplest for sailing. Leave the Bristol Channel at c51 ½ degrees north, sail due west along that parallel and arrive at Belle Isle.

The Corte Real 1500 voyage commenced from Terceira in the Azores and they sailed NNW to Greenland, west at 60N, south to 41N and thence an easterly course to Lisbon at 38 ½ N. If the magnetic compass was made on Terceira then it would already have a westerly

reading for north, the Agonic line being c24W geographical, and hence different magnetic readings would be obtained.

CONCLUSIONS

If therefore the idea of magnetic deviation is the reason for the Oblique Latitudinal Scale, it appears to be built upon quicksand and is the theoretical musing of cosmographers searching for a reason why Pedro Reinel included such a scale which it appears he obviously never articulated.

Believing in what I consider a truism by William Of Ockham (1289-1349), that the simplest answer is always the best, that is in matters of logic he insisted that assumptions should be as few as possible, “Occam’s Razor”, the E20/22 1/2N degrees layout of the Oblique Latitude Scale is no more than Pedro Reinel telling the world that the layout of the N American Coastline as drawn by him was in fact made to fit the vellum and should not be taken as a geographic coastline but pivoted 20/22 ½ degrees anticlockwise to give a correct resemblance. If only Heinrich Winter had stopped his text where he showed that by tilting the coastline 22 ½ degrees anti-clockwise it all became correct!

But, what really irks me is that in 1674/1689 two French cartographers with relatively small charts could not be bothered to draw them to their correct latitudinal layout, but still copied a spurious idea from c200 years earlier. By then the latitudes were near perfect and the magnetic compass re-engineered to compensate for deviation, as it became clearer the reason for the deviation which was then solidly west everywhere.

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