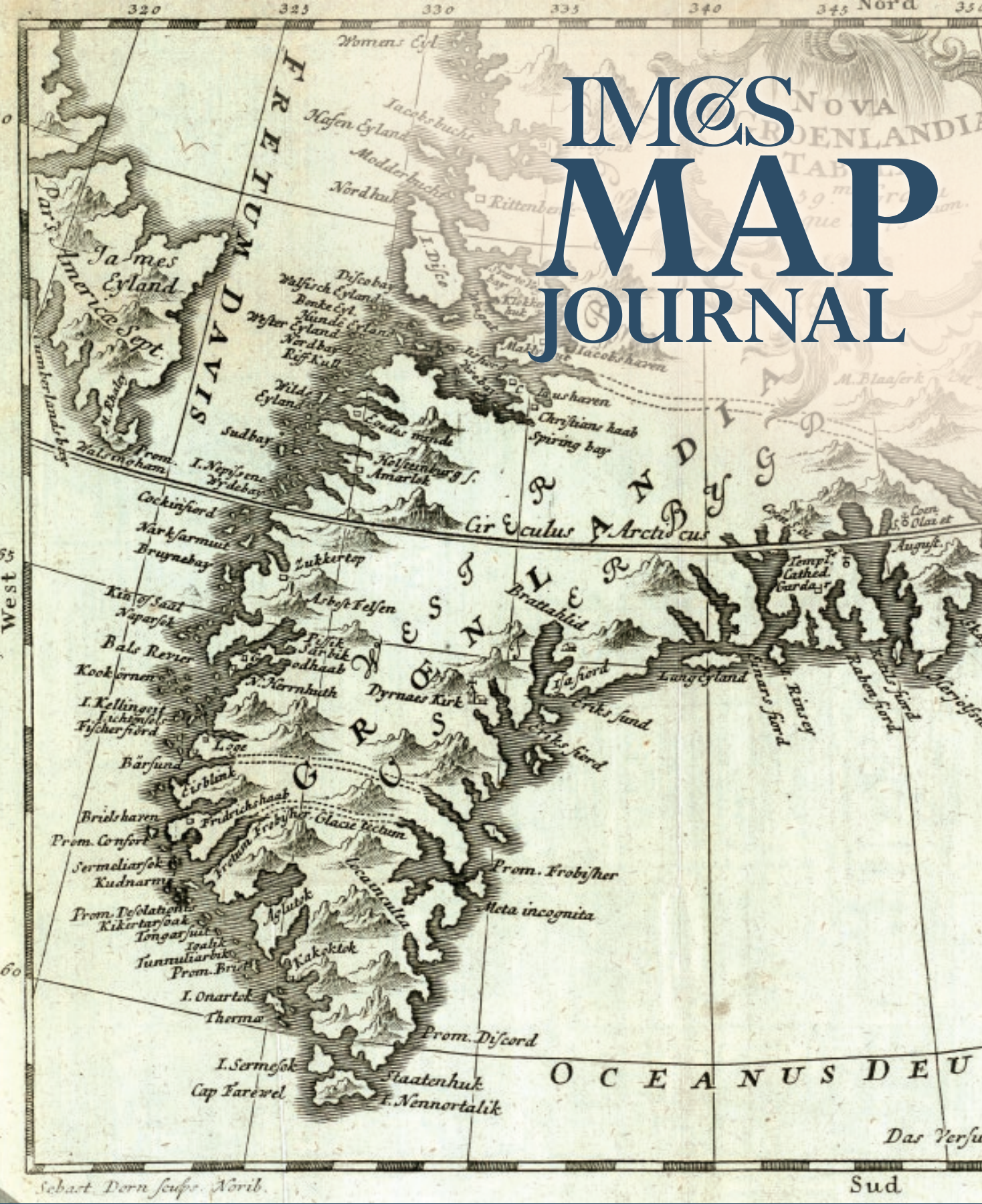

INTERNATIONAL MAP COLLECTORS' SOCIETY JUNE 2025 | No. 181

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Herman Moll's monumental wall map of South East Asia published circa 1726

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ARTICLES

REGULAR ITEMS

Front cover Detail from 'Nova Groenlandia Tabula a 59. mo Gradu usque ad 73 mum' in David Crantz' *Historie von Grönland,* 1770. Copenhagen: Royal Library Map Collection, Shelf Mark KBK 8-677

INTERNATIONAL MAP COLLECTORS' SOCIETY

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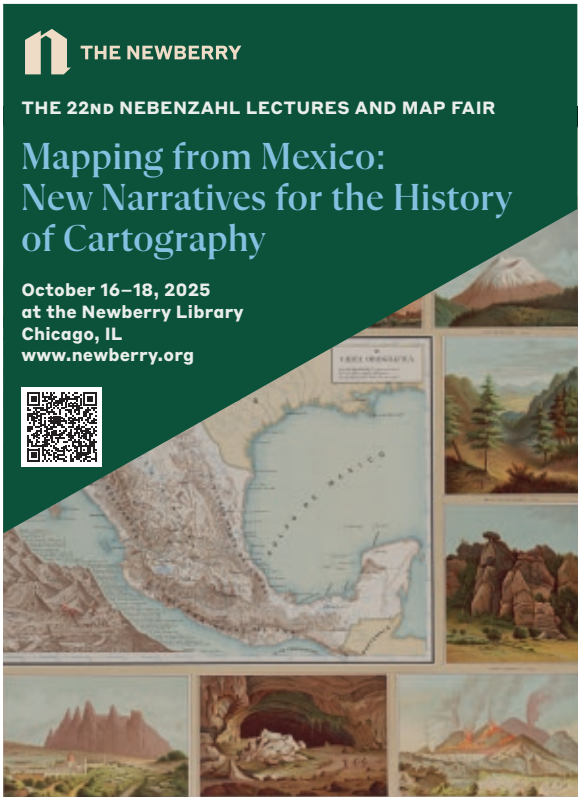
Assad Ramzanali, USA
Coll. interest: US maps, maps of places with changing political lines



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LETTER FROM THE CHAIRMAN

Mike Sweeting

My letter to you this issue is about the virtues of human contact for map collectors, academics and dealers. We have obviously all lived through a major 'sea change', whereby the local scenes in many countries have been permanently altered by the advent of the internet.

I do not class myself as a 'senior' collector but still started early enough to be part of the 'old ways'. I walked into every shop that sold maps that I ever saw. I replied by letter to classified ads in the *Map Collector* or similar, getting typed or hand-written stock lists in return. I sometimes attended the monthly fair at London's Bonnington Hotel (at the time, a 4-hour rail journey each way). I got to know some of the characters of the day and formed buying relationships with 'scouts' like Doreen Green. The huge upside of such a relationship was her willingness to send me multiple maps prior to payment – the old 'on approval' system.

Living far away from the nexus of the UK map world, as I did, meant that meeting authors like David Bannister or Rodney Shirley felt like huge honours. I felt that it was a privilege to buy a map from Yasha Beresiner at the first IMCoS event I ever attended. The downside was that I did not know a single other collector of maps! Almost all map related auctions were far away and often underpublicised. I was probably fifty before I darkened the doors of a specialist auction house and had been collecting for fifteen years.

Looking at the situation today, we all know that the mechanisms for buying and selling maps have altered dramatically. Today, as I write, there were 200,000 plus *purportedly* antique maps on eBay. All dealers have an online presence, as do all auction houses. It is very easy indeed to bid internationally too. Meanwhile, 'bricks and mortar' operations have reduced dramatically, and many of the 'characters' have disappeared. We have also lived through the era of the professional map thief. The big international map fairs have moved closer and closer to the top end of the antiquarian book trade. It is now far easier for an experienced person to buy what one wants, at any price point – and far easier for a newcomer to buy a fake or reproduction.

My own experience has inverted. I now know many, many fellow collectors but few of my suppliers. The regional and national map societies around the world are a great asset to our interest and are part of what I might call the post-internet 're-humanising' of the map-collecting universe. However, in all this, I feel that the London Map Fair has been a beacon of personal contact and do recommend that you try and attend at least once. We will have Committee members and a stand there as usual this June. We are also supporting the new Amsterdam Fair again in September. Help keep map collecting relational!

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EDITORIAL

Ljiljana Ortolja-Baird

In April Julie Stoner, librarian in the Geography and Map Department at the Library of Congress, posted a blog called 'A Unique Perspective – Unusual Topographic Maps in the Collections' (https://blogs.loc.gov/maps/). In it she drew attention to the Library's collection of three-dimensional relief maps. Known also as plans-reliefs and terrain models, they are generally constructed for urban planning or military and educational purposes. In some cases they were objects of prestige, commissioned by rulers to impress visiting dignitaries. The Musée des Plans-reliefs in Paris holds are large number of eighteenth-century models of French territorial possessions and city fortifications. In the following century the genre became a form of popular entertainment.

Relief maps are generally constructed from plaster, papier-mâché, sponge rubber, or vinyl plastic; all materials that damage easily. Often large and heavy, they are awkward to handle and store. Thus, it is not surprising that their survival rate is low – as much a consequence of their fragility as the storage challenges they present.

Ms Stoner highlighted a personal favourite – 'Map of the Crown Prince Islands, Disko [sic] Bay, Greenland' by Inuit hunter Silas Sandgreen – which resonates with Henrik Dupont's article 'Mapping East Greenland's Coast' in this issue. Dupont mentions Gustav Holm who, in 1884–85, led an expedition to map the Ammassalik coast of eastern Greenland. The party was forced to overwinter in Tasiiliq and while there encountered several Inuit communities. Holm was eager to use this time to document their customs, language, and stories. He traded European wares for Inuit items that shed light on their way of life. On his departure he had amassed a collection of over 500 objects that included traditional clothing, hunting and fishing gear, furnishings, toys, talismans, masks, and ritual objects. A hunter named Kunit presented Holm with three maps carved from driftwood that served as tactile guides to the coastline north of Tasiiliq.

Silas Sandgreen's map the of islands in West Greenland Disko Bay was made for the Library of Congress in 1925 at the request of U.S. Secretary of the Navy, Commander R. E. Byrd, P. Rosendahl, the Administrator of North Greenland, and M. P. Psild, the Chief of the Danish Arctic Station. Like Kunit, Sandgreen relied on his own observations, utilising sledge and kayak to access the 83 islands and ten reefs he depicted. He carved the islands from driftwood and sewed them to sealskin, then painted them in colours to represent the terrain – yellow for grass and swamp land; blue for lakes; and black for areas covered in lichen.

At the time Sandgreen was creating his map for the Library, the United States had no territorial claims over Greenland, having relinquished them in the purchase of the Danish West Indies in 1917. However, the positions held by the map's commissioners would indicate that America's interest in the assests of the world's largest island continued through the 1920s, as it does to this day.

THE 'NAVY OFFICER CHART'

How an unfortunate engraving error reversed the Gulf Stream for the Siege of Havana chart, 1762

Joseph W. Grubbs

In October 1762 the *London Magazine* offered readers a frontline view from the siege of Havana (March–August 1762), which ended with England's capture of the Spanish capital in the New World.[1] The coverage featured letters from fleet and field commanders, lists of ships and stores seized as prizes, and tables of the wounded and killed. Folded inside within the Havana narratives was a nautical chart of Cuba and surrounding seas 'made by an Officer in the Navy', which gave a visual context to the English assault and the stronghold's surrender **(Fig. 1)**.[2]

The Navy Officer, who remains unnamed, rendered the Chart beautifully with soundings of depths, demarcation of shoals, ships courses, and decorative elements. However, when carving these details into the copper plate, the engraver failed to transpose the directional arrows for the most significant hydrological feature in the Chart – the clockwise-moving ocean current that soon would become known as the Gulf Stream. This unfortunate engraving error resulted in the Gulf Stream's current being printed flowing in the opposite, counter-clockwise, direction. From its origins south and west of Cuba to the edge of the map extent in the north, all directional arrows for the Gulf Stream pointed in the wrong direction; and this error would prove ironic given the engraver and the importance of the current's true direction in England's battle plan against the Spanish.

The Navy Officer Chart

Printed in ink on paper for R. Baldwin, then publisher of the *London Magazine*, the 'Navy Officer Chart' measures 26 × 36 cm, (10 × 14 in) making it just larger than present-day tabloid format. The Chart centres on the island of Cuba, bound in the north by the 'FLORIDA Shore' and the 'Bahama Island', east by the Windward Passage and Hispaniola, south by Jamaica, and west by islands off the Yucatan peninsula. The path of 'THE COURSE OF THE CURRENT THROUGH THE GULF OF FLORIDA' has been marked with hashed boundary lines and narrative annotations. **Table 1** gives a description of the relevant annotations and their significance.

The 'Navy Officer Chart' was designed as an illustration, supporting the narratives from the Havana campaign. It accompanied letters from the British commanders, Admiral Sir George Pocock (1706–92) and Lieutenant General Lord Albemarle (1724–72), reporting on actions by fleet and land forces, respectively. The Chart shows details around the island of Cuba and includes an inset in the top left of 'A Plan of the Harbour & Town of Havana taken on the Spot by an Officer in the Navy', with landmarks indexed for identification.

While charts of this period were frequently inaccurate for positioning land masses and coastlines, the Chart's demarcation of the ocean current, 'THE COURSE OF THE CURRENT THROUGH THE GULF OF FLORIDA', supported by other annotations such as 'Track of the Galleons home', indicates that the chartmaker was familiar with the Gulf Stream's flow. The Spanish explorer Juan Ponce de León (d. 1521) first observed the Gulf Stream in 1513 while sailing from Puerto Rico to Florida,[3] and Benjamin Franklin charted the 'Gulph Stream' in 1768 based on a sketch made with his cousin, Timothy Folger, a Nantucket, Massachusetts, whaling captain **(Fig. 2)**.[4] Franklin wrote, quoting his source, 'We are all well acquainted with that stream, says he [Folger], because in our pursuit of whales, which keep near the sides of it, but are not to be met with in it, we run down along the sides, and frequently cross it to change our side'.[5] Therefore, the error in the Gulf Stream's direction should be attributed to the engraver rather than the source, namely the naval survey.

A matter of engraving

When engraving on copper, the engraver must pay close attention to any feature indicating direction or bearing. Amalia Raines wrote, 'In order to produce a readable, accurate image, everything had to be inscribed in reverse, as a mirror-image. In some cases, metal punches could be used for repeated symbols,


A Plan of the HARBOUR & TOWN OF HAVANA. taken on the Spot by an Officer in the Navy.
A Scale of one English Mile.
Carlos Bay
FLORIDA Shore
Cape Florida
Bahama Island
Cat Keys
THE COURSE OF THE CURRENT THROUGH THE GULF OF FLORIDA
HAVANA
Colorades
C. S.t Antonio
C. Corintos
Indian Keys
Gulf of Jagua
Pinos
The Jardines
Freshwater River
Sand Bank
C. Catoch
Mugera
Cozumell I.
Grand Caymanes
Cayaman Brack
The Bay of Campeche
S.t Millan
I. Guana
C. Honduros
R. Grande
Truxillo
C. Cameron
Hayon I.
Serranilla
The Current
A New Chart of the Seas, Surrounding the Island of CUBA, with the Soundings, Currents, Ships Courses &c. And a Map of the Island it self, lately made by an Officer in the Navy.

Fig. 1 The 'Navy Officer Chart', in full extent. The Chart features rich detail, illustrating narratives from the Siege of Havana, but an engraving error caused the ocean current, soon to be known as the Gulf Stream, to be printed flowing in the opposite direction.


HUDSONS
BAY
TERRA DE LABRADOR
NEW BRITAIN
NEW SOUTH WALES
NORTH AME
RICA
CANADA
NEW FRANCE
NEW SCOTLAND
BAY OF S^T. LAURENS
NEW FOUND LAND
Esquimaux P.
The Bancks of Newfoundland
Falsche
Banck
NEW YORK
PENSILVANIA
MARYLAND
VIRGINIA
FLORIDA
Bermudas
To find the Distance of two Places in this CHART
GULF of MEXICO
Mouth of the Missisipi River
BAHAMA ISLANDS
Bahama Banck
CUBA
HISPANIOLA
CARIBBE ISLANDS
Barbadas
Campeche
Iucatan
HONDURAS
Moskitos
CARTAGENA
TERRA FIRMA
SOUTH AMERI
Equinoctial Line
GALLAPAGOS ISLANDS
AMAZONS
Mouth of the Amazons River
North Cape
C. Orange
Surinam

Fig. 2 Detail from the Franklin-Folger chart of the Gulf Stream, to date the first known chart of the Stream, but which appeared six years after publication of the 'Navy Officer Chart'.

such as the circles indicating towns'.[6] Failure to reverse a directional feature during the engraving process would result in the feature being printed on the opposite course. In the 'Navy Officer Chart', such an error in the Gulf Stream's directional arrows simply cascaded once the engraver placed the first arrow going in the wrong direction; the other arrows could only follow **(Fig. 3)**.

The Chart lacks an engraver's signature, but the *London Magazine*'s table of contents for volume 31 lists it as 'engraved by Kitchin'.[7] Furthermore, David C. Jolly in *Maps in British Periodicals Part I* attributes the chart to Thomas Kitchin (1718–84), a respected engraver, highly regarded for his technical detail. Kitchin produced more than a hundred maps and charts for the *London Magazine* and became Royal Hydrographer to George III in 1773.[8] It would have been uncharacteristic for Kitchin, who had expertise as both a cartographer and engraver, to make such an error.[9]

Printing and engraving errors happen in any publication, and given the nature of the *London Magazine*, with multiple engravers and monthly production cycles, one could consider them inevitable. Add to this, the magazine's staff may have had little time to prepare the Havana content for publication. Pocock's letters from 'off Chorera River' were dated 16 and 19 August, and a separate letter originally in the *London Gazette Extraordinary* (and reprinted in

Fig. 3. Detail from the 'Navy Officer Chart' showing the Gulf Stream directional arrows going in the opposite, counter-clockwise, direction. Given the nature of directional symbols, once the engraver placed the first arrow going in the wrong direction, the other arrows could only follow.

volume 31 of the *London Magazine*) places Royal Navy Captain Augustus Hervey (1757–96), who delivered the news of the English victory to George III's court, in London on the night of 29 September. Therefore, assuming the 'Navy Officer Chart' accompanied Hervey with the Havana dispatches, Kitchin and the other engravers would have had only a few weeks to complete their work for the following month's *London Magazine* edition.[10]

Kitchin's error in the 'Navy Officer Chart', while obviously significant, would not have detracted from the Chart's purpose. It contained all the geographical and hydrological information needed to set the context for England's victory at Havana, and the chart's small size would have made directional arrows secondary to other details. That said, the error becomes more compelling when considered in the context of the Royal Navy's strategy for approaching the Spanish capital.

Pocock's gamble

Ships bound for Havana during the mid-eighteenth century normally would have approached from the west to avoid dangerous shores and shallows all along Cuba's northeast coast. The usual route involved riding prevailing winds and currents westward along Cuba's southern coast, as noted on the Chart (south of Jamaica) 'Track of the Galleons from Carthagena to the Havana', reaching around western Cape San Antonio ('C.St.Antonio') then steering east in the favourable current to Havana's harbour entrance. However, Admiral Pocock, the Royal Navy's operational commander at Havana, chose a more daring route.[11]

Pocock 'had despatched Captain Elphinstone in the *Richmond* frigate to survey [The Old Straits of Bahama] as far to leeward as Cay Sal, where the five hundred miles of danger came to an end', wrote Julian S. Corbett in *England in the Seven Years' War.*[12] 'Elphinstone performed his duty admirably. No hitch of any kind occurred. The narrowest and most dangerous part of the channel between Cay Lobos ['Cayo lobos'] and Cay Comfite ['Cayo Confito'] was actually passed at night by means of fires burning upon the rocks'.[13] Leading the combined fleet through the narrow straits, navigating by signals and bonfires to stay clear of the shoals, Pocock's gamble succeeded, handing English forces the tactical advantage of surprise by arriving from the east.

The high concentration of soundings through 'The Old Straits of Bahama' suggests the Navy Officer had as a source the type of survey performed by Elphinstone. A comparable concentration of soundings appears in Havana port, in the upper-left inset. Such detailed depth information in these areas reinforces the importance of navigation and seamanship in the context of the England's Cuba operations.[14] In addition, the chart features several cartographical elements documenting the traditional approach to Havana. **Table 2** gives a description of the relevant elements and their significance.

Had the Gulf Stream flowed in the direction engraved by Kitchin and printed in the *London Magazine*, Pocock's gamble would have been unnecessary. The English fleet could have rendezvoused off the American colonies then travelled the current southwest into Havana harbour. Indeed, it raises the hypothetical question of whether Havana would have been as significant as a capital and port had the Gulf Stream flowed in the opposite direction. A counter-clockwise current would have made Havana an outbound port for Spain and, given their colony at St. Augustine, Florida, which offered clear approaches from far more compass bearings and would have been a closer haven after the trans-Atlantic crossing, one may question if Spanish ships would have favoured St. Augustine as a more convenient, accessible port.

'This great and important acquisition'

Havana proved to be a major victory for England. In addition to capturing Spain's colonial capital, the Royal Navy took control of Havana's arsenal and port, *Real Astillero de la Habana*, which could accommodate an estimated one hundred vessels and featured one of the largest shipyards in the Americas.[15] Pocock called it 'this great and important acquisition to his majesty'.[16] English forces occupied Havana for only eleven months, during which the Spanish city became part of the peace negotiations to end the Seven Years' War. For Spain, the Treaty of Paris, signed 10 February 1763, returned Havana to Carlos III of Spain; for England, the treaty swapped Havana for Spanish Florida, strengthening George III's hold on the North American mainland.[17]

As mentioned, Hervey had the honour of delivering the news from Havana to George III's court, a reward from Pocock for the captain's bravery in the naval assault.[18] Some may consider Hervey as the Navy Officer likely to have prepared the subject chart, since he carried the dispatches and would have been on hand to assist with Kitchin's reproduction in the

London Magazine. However, a case also may be made for Elphinstone, who had performed the actual survey of 'The Old Straits of Bahama' and thus had all of the soundings and related hydrological information.

The question of authorship will be central for future research. Should the 'Navy Officer Chart', which appeared six years before the Franklin-Folger Chart of 1768, be considered the first chart documenting at least the origin and partial flow of the Gulf Stream? The Chart clearly demarcates an expansive ocean current, 'THE COURSE OF THE CURRENT THROUGH THE GULF OF FLORIDA', which, absent the engraving error, flows to the northeast in a manner suggesting it extends well beyond the map's border. Does the annotation, 'Track of the Galleons home', sufficiently demonstrate the Navy Officer's knowledge of the ocean current's true direction, as evidenced in its use by the Spanish fleet? Or does the engraver's flaw snuff all claims?

And what of the Navy Officer's original survey or navigational chart, the source of the foldout published in the *London Magazine*? If found, and if it confirms the hypothesis of an engraving error that led to the reversal in the current's direction, would the Navy Officer's original chart be recognised as the first statement of the Gulf Stream? Could the chart printed in the *London Magazine* be part of a series prepared by the Navy Officer, documenting more or all of the Gulf Stream? Should the Navy Officer be given authorship credit, alongside Franklin and Folger? Such questions become clouded by the Navy Officer's anonymity. Where to begin searching the naval archives, such a vast, formidable sea, with no author to navigate?

Setting aside these questions, the 'Navy Officer Chart' served its purpose and deserved its place in the *London Magazine* with the Havana narratives. The chart provided exquisite detail on key elements of the action, from Pocock's dodging shoals by firelight as he sailed through the Bahamian straits, to the courses of English ships on their homeward journey. That Kitchin's error allowed the Gulf Stream to travel in the opposite direction only adds an interesting twist. Most likely, the magazine's readers would have gathered from the annotations the current's true direction. Those who had sailed the current would have taken the Gulf Stream's direction as a given; for in those Atlantic waters, coastlines change with each passing storm, tides flood the land then return to the sea, but the Gulf Stream remained.

TABLE 1. GULF STREAM ANNOTATIONS AND SIGNIFICANCE

Annotation	Description	Significance
'THE COURSE OF THE CURRENT THROUGH THE GULF OF FLORIDA'	Annotation aligned with directional arrows impacted by the engraving error; sits inside of current demarcation lines; lettering begins along west coast of Cuba, runs between Florida and Cuba, and extends along the east coast of Florida	Highlights the directional arrows as a prominent error in the map display; however, annotations and current demarcation lines demonstrate the chartmaker's knowledge of navigation and the extent of the Gulf Stream; this reinforces that the error occurred in engraving not the source chart
'Track of the Galleons home'	Annotation off the eastern coast of Florida adjacent to directional arrows impacted by the engraving error; made outside of the current demarcation lines	Demonstrates chartmaker's knowledge of enemy (Spanish) ship activity and (treasure) fleet history; placement next to the Gulf Stream shows the chartmaker's awareness of the Gulf Stream and the use of the current by Spanish ships for their return to Europe; reinforces that the error occurred in engraving not the source chart

'The current setting to the N.W. beware of the Martiers Rocks'	Annotation to current directional arrows impacted by the engraving error; made inside of the current demarcation lines along the bend in Florida's east coast and the 'Bahama Island' and smaller islands to the east	Reinforces chartmaker's knowledge of navigation; specifically, the chartmaker references the navigational problem of set (and drift), in that if seasonal variations or wind effects cause the Gulf Stream to set (direction of current) toward the northwest, navigators should steer away from the 'Martiers [Florida Keys] Rocks' Note: drift defines speed of current
'The Current'	Annotation in the southernmost origins of the Gulf Stream current, below Cuba	Highlights the directional arrows as a prominent error over the course of the entire Gulf Stream; however, annotations and current demarcation lines demonstrate the chartmaker's knowledge of navigation and the extent of the Gulf Stream; reinforces that the error occurred in engraving not the source chart

TABLE 2. NAVY OFFICER CHART ELEMENTS AND THEIR SIGNIFICANCE

Element	Description	Significance
'The Old Straits of Bahama'	Annotation in the channel between Cuba's northern coast and the Andros Islands	Provided reference for the route chosen by Pocock for the combined fleet's approach to Havana; included Elphinstone's soundings, demonstrated the risk accepted by the Royal Navy for the reward of tactical surprise
'Trade Winds from the N.E.'	Annotation in the southeastern portion of the chart	Reinforced the traditional approach to Havana, which involved riding the trade winds and currents around Cuba's southern coast
'Track of the Galleons from Carthegena to the Havana'	Annotation in the southeastern portion of the chart, below Jamaica	Reinforced the traditional approach to Havana, which involved riding the trade winds and currents around Cuba's southern coast; also reinforced Havana as a primary port for the Spanish fleet
Ships' Courses (Signs)	Chart symbology showing the path taken by ships navigating the Caribbean Sea around Cuba	Reinforced the traditional approach to Havana, which involved riding the trade winds and currents around Cuba's southern coast; also showed return route of English ships from Jamaica through the Windward Passage

Notes

1 *London Magazine: or, Gentleman's Monthly Intelligencer* 31 (1762): October, pp. 537–47.
2 'A New Chart of the Seas Surrounding the Island of Cuba with the Soundings, Currents, Ships, Courses &c. And a Map of the Island itself lately made by an Officer in the Navy', London: Printed for R. Baldwin, 1762. Map https://www.loc.gov/item/00560614/. References to annotations and other chart elements from the subject chart have been given in quotation marks.
3 Ponce de León's original logs and maps have been lost, but court historian Antonio de Herrera y Tordesillas (1559–1625) used de León's logs to describe the voyage in *Historia general de los hechos de los castellanos en las islas y tierra firme del mar oceano, decada primera*, first published in Madrid, 1601. See Carlyn Osborn, 'Charting the Gulf Stream', in *Worlds Revealed: Geography and Maps at the Library of Congress*, Library of Congress Blogs, ISSN 2692-2045, January 2016; https://blogs.loc.gov/maps/2016/01/charting-the-gulf-stream/.
4 Benjamin Franklin, Timothy Folger, 'New and Exact Chart of Mr E. Wrights projection […] Mercators Chart, Con[…] y[…] Sea Coast of Europe, Africa, &c America, … According to ye Observations Capt E. Halley, fellow of ye R[oyal] S[ociety] To the Rt Honble Principle Officers & Commissioners of his Majesties this chart is most humbly dedicated […] by these most obedient faithfull servants John Mount & Th. Page. Sold by Jno Mount and Tho. Page … London' *c.*1768. Map: https://www.loc.gov/item/88696412/ .
5 Benjamin Franklin, 'A Letter from Dr. Benjamin Franklin, to Mr. Alphonsus le Roy, member of several academies, at Paris. Containing sundry Maritime Observations, At Sea, on board the London Packet; Capt. Truxton, August 1785', *Transactions of the American Philosophical Society* 2 (1786): pp. 294–329. A transcription of this article can be found at https://oceanexplorer.noaa.gov/history/docs/gulf.html.
6 Amelia Raines, 'Fabricating the world: Copperplate Printing', 27 March 2024. In the blog *Worlds Revealed: Geography and Maps at the Library of Congress*, Library of Congress Blogs, ISSN 2692-2045; https://blogs.loc.gov/maps/2024/03/fabricating-the-world-copperplate-printing/.
7 *London Magazine*, note 1, p. 513.
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UPDATE: *The Mapping of North America*
The latest updated version of the 'Addenda' for both volumes of *The Mapping of North America* by Philip Burden is now online and free to download. It now amounts to forty-eight pages and updates the previous version from 2024. This makes available all new information since it was published in 2007. See: https://www.caburdenraremaps.com/rare-maps-catalogues-and-other-publications/

Fig. 1 Sketch map of Greenland showing place-names mentioned in the article.

A. Cape Morris Jesup (83° 39' N), northernmost point of Greenland

B. Independence Fjord (82° 08' N), east coast

C. Nordostrundingen [both a Cape and a region, northeasternmost area

D. Danmarkshaven (76° 46' N), east coast

E. Clavering, Sabine, Little Pendulum Islands (74° N) east coast

F. Scoresby Sund (70° 30' N), east coast

G. Blosseville coast [between 65° and 70° N] east coast

H. Tasiilaq (65° 36' N), east coast

I. Kap Farvel [Cape Farewell] (59° 46' N), southernmost tip of Greenland

J. Paamiut (Frederikshaab) (61° 59' N), west coast

K. Hope Island (64° 07' N), west coast

L. Sisimiut (66° 56' N), west coast

M. Upernivik Island (71° 49' N) west coast settlement on a fjord

N. Kap York (75° 92' N), northwest coast

MAPPING EAST GREENLAND'S COAST

A brief chronology 1427–1900

Henrik Dupont

East Greenland is the area between Kap Farvel (Cape Farwell; near the southernmost tip of Greenland) and Cape Nordostrundingen in the far northeast (**Fig. 1)**. Its coastline was not mapped until the early twentieth century due to its punishing climate and sparse population, but primarily because its coastline is icebound with only at a few areas with open water, called *polynyas,*[1] from where access to the shore is possible. Before the International Court in The Haag ruled in 1933 that Denmark had sovereignty of the whole island, mapping the east coast was undertaken by many different nations. Unlike the west coast, the east coast was not within the Danish monopoly zone which prevented foreigners from making maps of the area from the mid-eighteenth century to 1956. Before Danish colonisation began in 1721 little was known of the east coast's geography despite many earlier endeavours to access its shoreline.

The original people of Greenland were the Inuits and the Norsemen. They were able to survive in the harsh conditions. Neither group used maps in the sense of our understanding. Nonetheless both were geographically skilled and successfully sailed the island's challenging coastline. The Inuits are known to have travelled over the land mass but probably were unaware that Greenland was an island. The Norsemen lived along the southwest coast only and would have sailed along East Greenland's southern coast but did not establish settlements there.

The first cartographic acknowledgement of Greenland's east coast appeared on a map by Danish scholar Claudius Clavus (b. 1388). His 'Map of the North' also shows Iceland, Ireland, Scotland, northern England and western Norway. Clavus claimed to have travelled north along the coast of Greenland as far as 70 degrees. Later he settled in Rome to which he brought hitherto unknown information about the Norsemen on Greenland. Cardinal Guillaume Fillastre included Clavus's map in his manuscript version of Ptolemy's Geography (1427).

Other early European travellers appear to have sighted Greenland. Among them was Gaspar Corte-Real (1450–1501) who, in 1500–01, in his search for the Northwest Passage sighted 'Terra Verde' [Green Land] though it is more widely thought that Terra Verde refers to Newfoundland. It is marked on the Cantino maps of 1502. Martin Frobisher (1539–94) tried to access the southern coast in 1577 on his way to Baffin Island, John Davis (1550–1605), in the summer of 1586, explored a part of the southwestern coast, and a year later in his attempt to find the Northwest Passage reached 72° 12' North. Both English men made sketchy maps of the area.

In 1590 Sigurd Stefánsson, the grandson of Bishop Thord Thorlákssson, produced the first known Icelandic map of Greenland. It shows a sketchy peninsula attached to North America, probably based on fourteenth and fifteenth Icelandic sagas rather than on observation or measurement.

The polar map **(Fig. 2)** by Dutch cartographer and explorer Willem Barentsz (1550–97) was a milestone in the depiction of the far northern regions. As its long Latin title claims it is a 'Description of the three navigations made by the Dutch to the north of Norway, Muscovy… including parts of Greenland up to 80° … also the eastern part of America, by Willem Barents of Amsterdam, the famous pilot'. On his third expedition he discovered Svalbard, (on the map called 'Het nieuwe land') so it likely that he sailed along the east coast but it is unclear whether he mapped it. This area became an active whaling centre with ships from The Netherlands, France, Spain, Germany and Britain competing for catch. Subsequent east coast maps bear names of whalers and expeditions in the area.

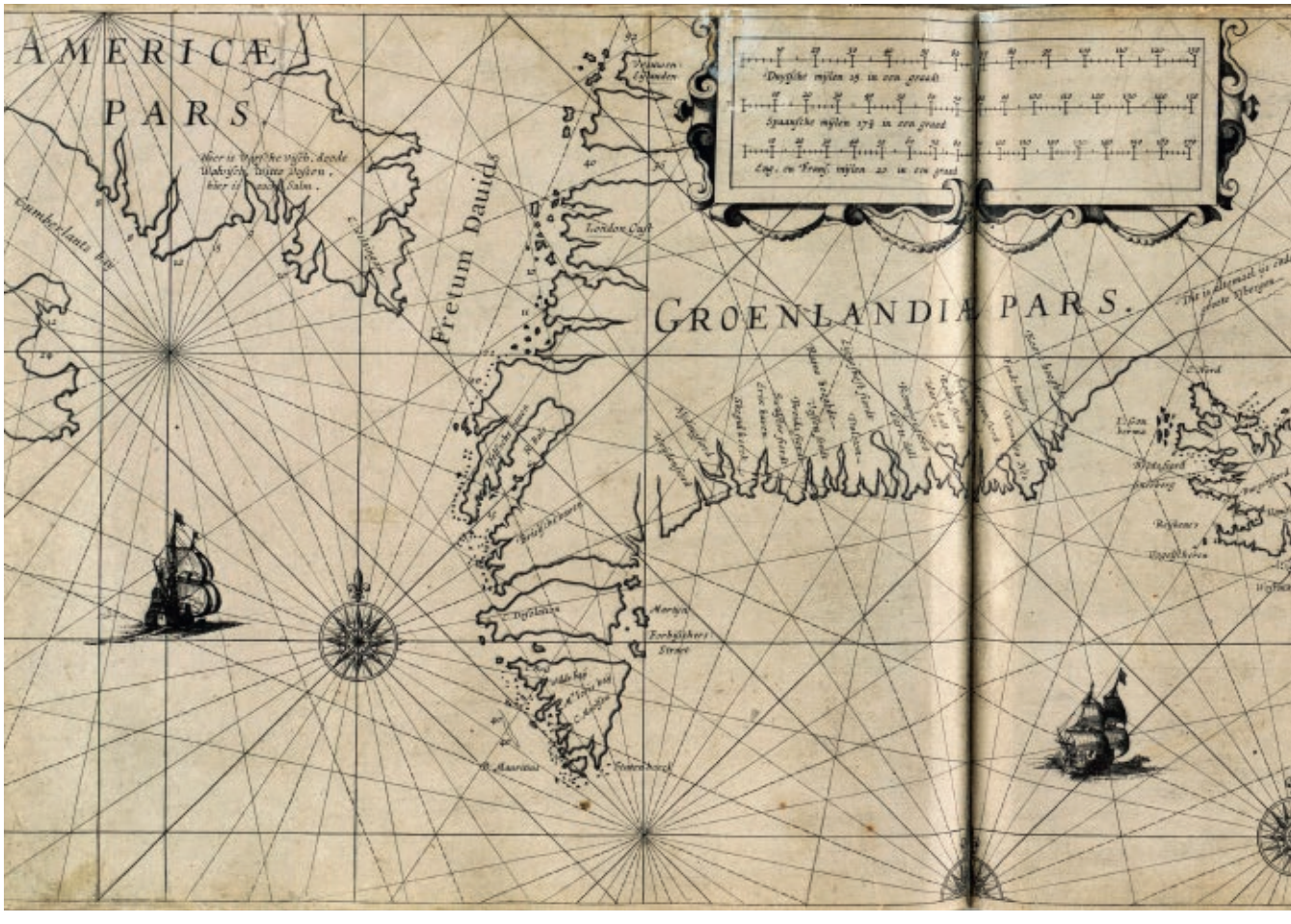
In 1605 the Danish king, Christian IV, who had been trying to establish a contact with the Norsemen, finally succeeded in reaching Greenland. Although the expedition failed to find any evidence of Norsemen it produced the first known map from

Fig. 2 Theodore de Bry and Gerrit de Veer, 'Deliniatio cartae trium navigationum per Batavos, ad Septentrionalem plagam, Norvegiae, Moscoviae, et novae Semblae, et perque fretum Weygatis Nassovicum dictum, ac juxta Groenlandiam, sub altitudine 80...', 1589. First map of Greenland showing the east coast. Engraved by De Bry from journals kept by De Veer who accompanied Willem Barentsz's on his Arctic journeys. https://en.wikipedia.org/wiki/File:1598_map_of_the_Polar_Regions_by_Willem_Barentsz.jpg

observations of the area around Sisimiut on the west coast. In 1626 he ordered Dutch explorer and cartographer Joris Carolus (*c.* 1566–*c.* 1636) to make a reliable map of Iceland, Greenland and northeastern America. Carolus completed 'Pascaarte van de Custen van Histlandt, Yslandt ende voort naer Oudt Groenlandt' in 1634 **(Fig. 3)**. Although not a surveyed map it was adopted by future cartographers, including Van Keulen, as a prototype to copy.

Danish General Customs Administrator Henrik Müller, who had royal privileges to sail his ships to Greenland, commissioned and financed David Urbanus Dannel (1608–61) in 1652–54 to explore the east coast for possible trade and fishing opportunities and search for the Eastern Settlement. Because of the name of the settlement it was, for centuries, thought to be the main settlement for most of Greenland's population and where the bishop resided. Dannel had failed on an earlier attempt to reach the east coast and for Müller's expedition chose to approach Greenland from the north of Iceland. Again he failed to make landfall, as happened on his two subsequent attempts, nevertheless his experiences and knowledge informed later Danish mapmakers and aboveall Johannes Mejer (1606–74) the Danish state cartographer.

In 1721 the Danish-Norwegian priest Hans Egede (1686–1758) established the first colony in Greenland on Håbets Ø (Hope Island) off the southwest coast. He had been educated in surveying methods before his departure from Bergen. In 1723 he travelled down the west coast in search of the Norsemen and the Eastern Settlement, but failed to reach his goal. His map 'Nova Delineatio Groenlandia Antiqva' (1737) used information from Icelandic sagas that contained place-names of the Eastern Settlement to indicate where he thought the Norsemen had lived **(Fig. 4)**. The map was intended as part of an application to the king for an expedition to the east coast in search of the Norsemen. It was not approved. His grandson Christian Thestrup Egede (1761–1803) participated in



a search for the east-coast Norsemen in 1786 which had been planned by 'Søkortarkivet' (Sea Chart Archive), a newly established organisation responsible for mapping in Greenland, which lasted for the next hundred years. The expedition set out from Iceland and despite several attempts it failed to reach the coast due to ice. Some sketch maps of the east coast as seen from the ships have survived.

David Crantz (1723–77) a missionary for the Moravian Church spent more than a year in Greenland where he collected material for his successful *Historie von Grönland* [*History of Greenland*], published in 1765. In it he detailed his observations of the country, its people and their way of life, including a history of the Moravian mission there. It was illustrated with Egede's map. The second edition, published in 1820, included a new map that incorporated the discoveries made by whaler and Arctic explorer William Scoresby junior (1789–1857) **(see front cover)**.

Scoresby published his maps in his book *Journal of a voyage to the Northern Whale-Fishery including Researches and discoveries on the eastern coast of West Greenland made in the summer of 1822* (Edinburgh 1823). In it he describes how he had measured the coast, found a big fjord complex (Scoresby Sund [Sound]), mapped the coast and produced a new map of Greenland. Scoresby was convinced that Scoresby Sound went through Greenland, this was based on both observations of currents and the fact he had seen the German geologist Carl Ludwig Giesecke's (1761–1833) manuscript map of the area around Disko Bugt and the big ice fjord on the west coast, precisely on the same latitude. Giesecke spent seven years in Greenland between 1807 and 1813, employed by the Danish authorities, to locate the rare mineral Cryolite on the southwest coast. Scoresby's map is the first based on actual surveys and heralds a beginning of the mapping of East Greenland based on facts **(Fig. 5)**.

The year after Scoresby's 1822 expedition another British expedition found its way to northeast Greenland, this time to determine the shape of the earth. Edward Sabine (1788–1883) was the expedition's scientist and Douglas Clavering (1794–1827) the ship's captain. Sabine had conducted experiments in north Norway, in Spitsbergen and now was searching for a suitable place in east Greenland. They made landfall at around 75° North, where Sabine made his observations, while Clavering surveyed the coast to the south and produced 'Chart of the East Coast of Greenland between Latitudes 72° and 76° from observations in *H.M. Ship Griper*' (1823). It included his discovery of several islands off the east coast. In recognition of their work Karl Koldewey (1837–1908) of the German Arctic Expedition of 1869–70 named the islands respectively 'Clavering' (74° 16' N), 'Sabine' (74° 36' N), and 'Little Pendulum' (74° 40' N), the last being where Sabine carried out his gravimetric experiments with a pendulum.

Worried about the predominance of British expeditions in the area and the lack of Danish interest, Frederick VI ordered Lieutenant Wilhelm August Graah (1793–1863) to explore the east coast from Kap Farvel to 69°North, Scoresby's final destination in 1822 and where he had made his observations and measurements. Graah relied on support from local

Fig. 3 Joris Carolus, 'Pascaarte van de Custen van Hitlandt Yslandt ende voort naer Oudt-Groenlandt...' ('Map of the coast of Shetland, Iceland and Old Greenland ...') 1634. 25 x 55 cm. Made for Christian IV to provide information on potential trade and fishing opportunities. Copenhagen: Royal Library Map Collection, Shelf Mark KBK 4-10, pl. 21.

Fig. 4 Hans Egede, 'Grønlandia Antiqva secundum utramque partem Orientalem & Occidentalem seu Wester et Øster-Bygd delineata' ('Old Greenland as to its Eastern and Western Parts'), 1741 from his book *Det gamle Grønlands nye Perlustration* (*A Description of Greenland*). It is based on his own survey from 1723–24 and Icelandic sources. 28 x 36 cm. Copenhagen: Royal Library Map Collection, Shelf Mark DK001663

Inuits and their boats (*umiaqs*) to map the coastline, reaching 65° North, four degrees short of Scoresby's achievement **(Fig. 6)**.

Graah's map was given to the Danish charting organisation 'Søkortarkivet', which in 1832, published the first official map of Greenland. It delimited what the Danish authorities considered to be Greenland: a part of the west coast and a small portion of the east coast. They did not show the areas covered by Clavering's 1823 surveys. The notes accompanying the Søkortarkivet map state that it was based on several maps which were produced under a variety of conditions, using diverse methods of different quality **(Fig. 7)**.

In 1833 French lieutenant Jules de Blosseville (1802–33) was sent to the area to survey the coast of East Greenland between 65° and 70° North. He made two attempts to reach the coast and disappeared on the second. He left a sketchy map of the coast which was later printed by fellow Frenchman, Joseph Paul Gaimard (1793–1858) who, between 1835 and 1836, led an expedition to gather information on Blosseville's disappearance. Gaimard was also charged with investigating Iceland and Greenland and protecting the French fishing fleet in the waters between the two islands. He made several unsuccessful attempts to make landfall along the east coast of Greenland. However, he managed to reach

Fig. 5 William Scoresby, 'A map of Greenland including the recent surveys and discoveries', 1822, in *Journal of a voyage to the Northern Whale-Fishery including Researches and discoveries on the east coast of West Greenland made in the summer of 1822*, Edinburgh, 1823. This map shows the first surveys of the east coast by Scoresby including the outline of geologist Giesecke's sketch map of the Disko area. Scoresby was trying to prove that there was a connection between the east and west coast. Copenhagen: Royal Library Map Collection, Shelf Mark P 1050151


A MAP OF
GREENLAND
Including the Recent
Surveys and Discoveries
Made in the Ship Baffin in the Summer of 1822
By
WILLIAM SCORESBY Junr
BAFFINS BAY
DAVIS STRAIT
ATLANTIC OCEAN
GREENLAND SEA
ICELAND
Dixon I.
C. Discord
Cape Farewell
Supposed Communication between Jacobs Bight and Scoresbys or Davy's Sound
Published by A. Constable & Co. Edinr. 1823

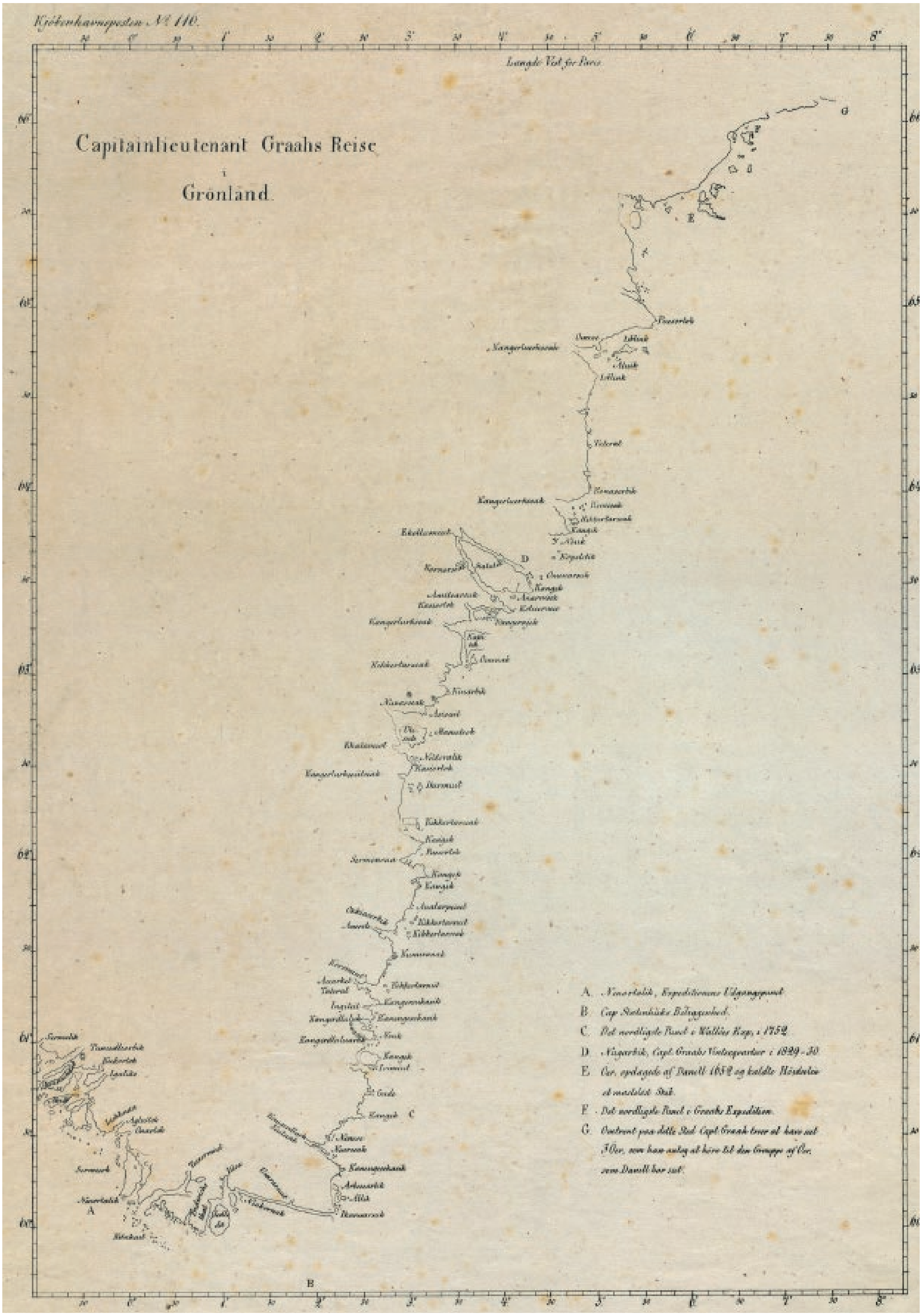

Kjøbenhavnsposten № 110.
Længde Vest for Paris
Capitainlieutenant Graahs Reise
i
Grønland.
F. Det nordligste Punct i Graahs Expedition.

Fig. 6 W. A. Graah, 'Captainlieutenant Graahs Reise i Grönland' 1830. The first Danish map of the east coast. Copenhagen: Royal Library Map Collection, Shelf Mark DK003898

Frederikshaab (Paamuit) on the west coast and here met with local people and Danish officials. He produced a number of maps and books on his expeditions in which he included Blosseville's survey.

Greenland's east coast witnessed a flurry scientific expeditions in the last decades of the nineteenth century. While the Danish authorities remained absent from the area, other nations continued to be actively engaged. A second German polar expedition set out in 1869 to find a way to the North Pole and to investigate the structure of the polar sea and the area around the pole. Karl Koldewey led the expedition and Julius Payer (1841–1915) was the cartographer. They mapped the east coast from 74° to 77° North and were the first Europeans to overwinter so far north. They undertook intensive investigations on a range of scientific subjects and produced several maps.

The expedition started out with two ships, *Germania* and *Hansa*, but only *Germania* found its way to northern Greenland. This part of the expedition managed to survey large areas of the northeast enabling Payer to create quality maps of hitherto unknown areas of the Arctic. The *Hansa* never reached the coast, for it was crushed by the ice floes and the crew had to abandon it and build camp on the ice. They managed to unload plenty of supplies and floated southward along the coast to Kap Farvel and, following the current, continued up the west coast, spending 194 days on the ice and 38 days in boats before entering the west coast. Their experience

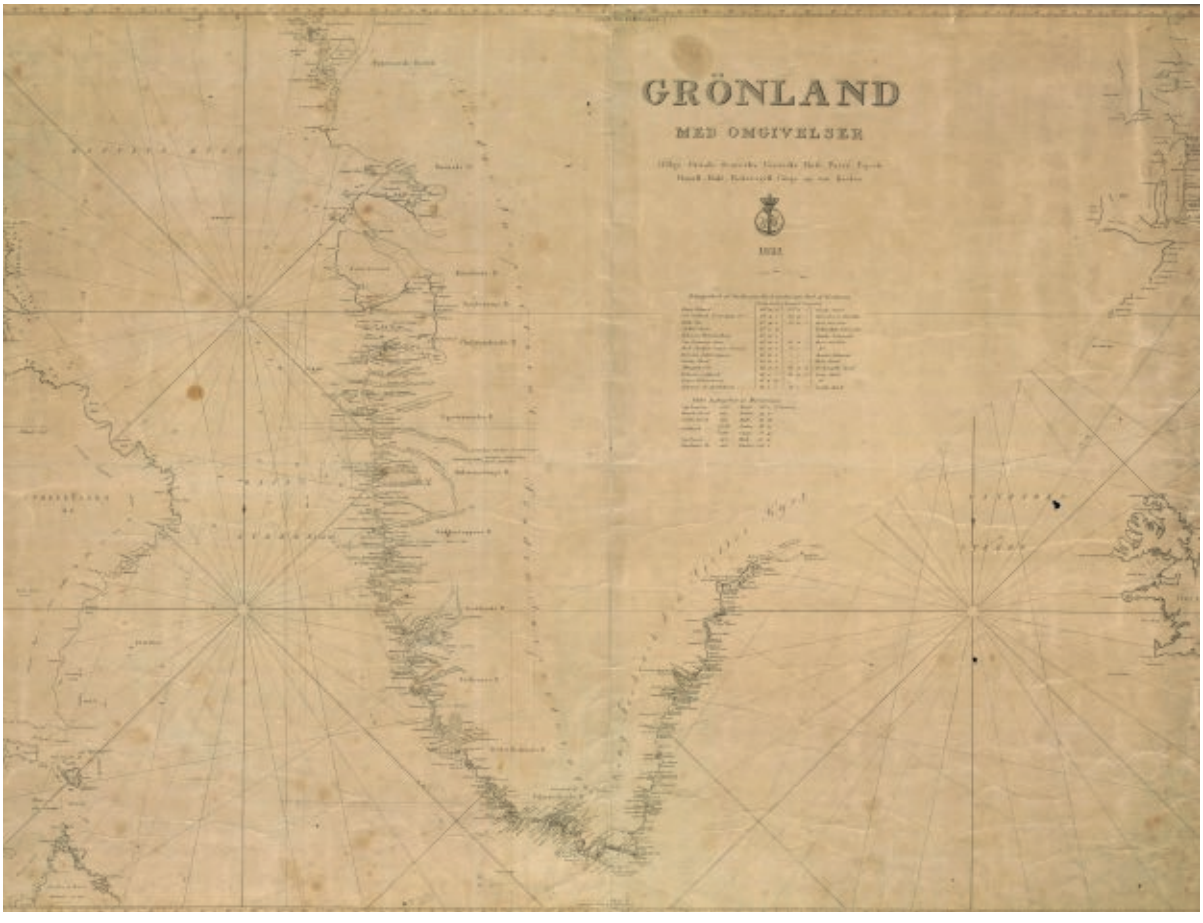
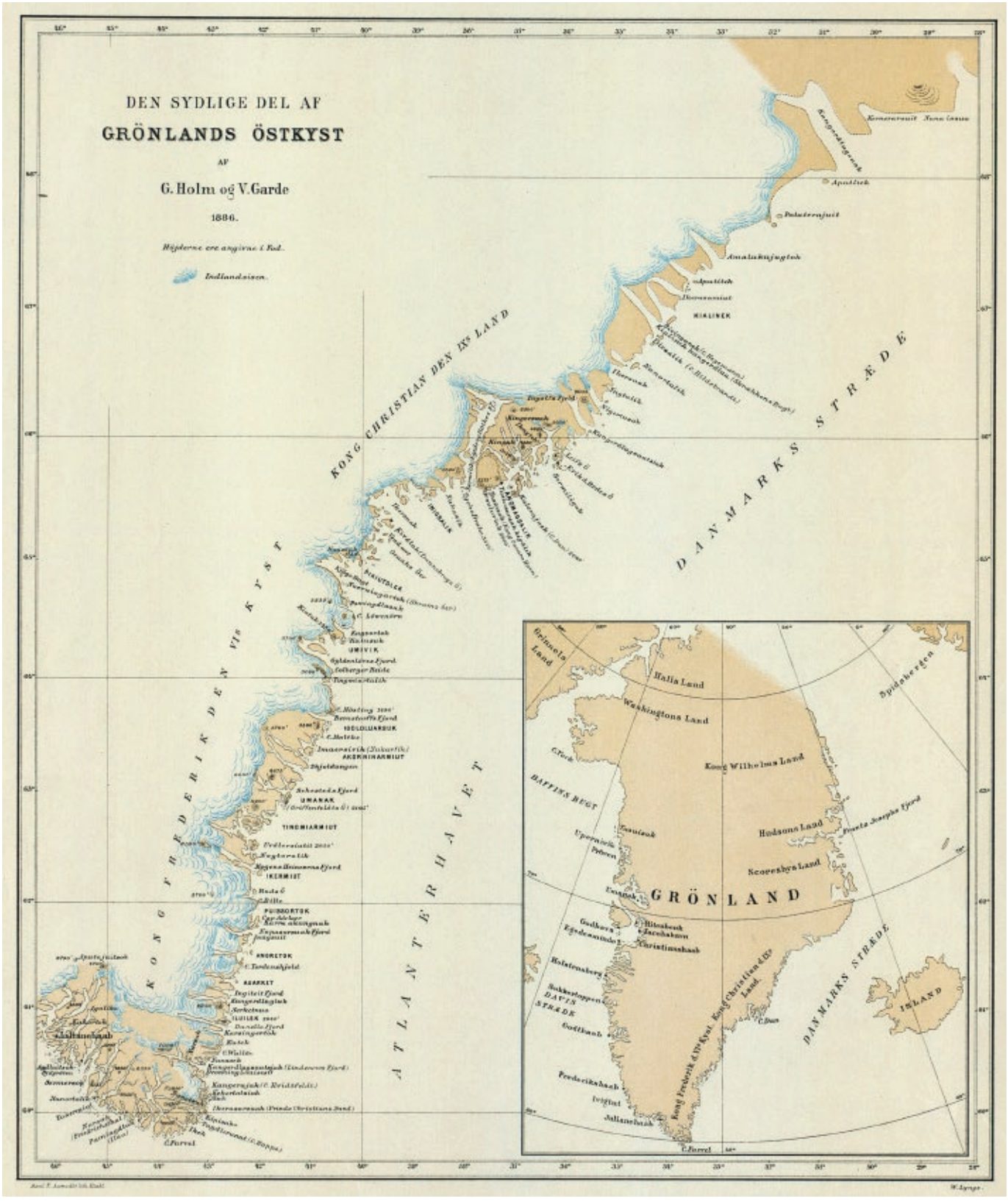


Fig. 7 Grønland SKA (Søkortarkivet), 'Grönland med omgivelser ifölge Graah, Scoresby, Giesecke, Rofs, Parry, Egede, Danell, Hall, Pickersgill, Ginge og van Keulen', 1832. The first official map of Greenland by Søkortarkivet the Danish Survey Institute. It was compiled from information taken from many different maps. Copenhagen: Royal Library Map Collection, Shelf Mark DK003204/526035


DEN SYDLIGE DEL AF
GRÖNLANDS ÖSTKYST
AF
G. Holm og V. Garde
1886.
Højderne ere angivne i Fod.
Indlandsisen.
KONG CHRISTIAN DEN IX.S LAND
KONG FREDERIK DEN VIII.S KYST
DANMARKS STRÆDE
ATLANTERHAVET
GRÖNLAND
Hall Land
Washingtons Land
Kong Wilhelms Land
Hudsons Land
Scoresbys Land
BAFFINS BUGT
DAVIS STRÆDET
DANMARKS STRÆDE
ISLAND

provided the expedition with a vast store of new information on oceanic conditions.

While the Danish State may have been unconcerned in advancing knowledge of one if its territories, those within the Danish scientific community argued for limiting foreign explorations, wishing to prevent German, Swedish and Norwegian expeditions from taking over. In 1876 leading Danish geologist Johannes Frederik Johnstrup (1818–1894) suggested that the nation undertake a more thorough and systematic mapping of Greenland. One of the first initiatives took place in 1879 when the navy ship *Ingolf*, under the command of Captain A. Mourier, set out to investigate the area north of 65° North where Graah's exploration had stopped in 1830 and to plan the best way of mapping the whole coast from the south to the area mapped by the German Arctic Expedition in 1870.

Before the Danish project was fully underway, the Finnish Arctic explorer and geologist Adolf Nordenskiöld (1832–1901) was on his second Greenland expedition (1883). His venture succeeded in breaking through the great east coast ice barrier, a feat which had eluded Arctic explorers for more than three centuries. The cartographer C.J.O. Kjällstrom who accompanied Nordenskiöld produced a small map of Konung Oscars Hamn, current day Tasiilaq Fjord.

The Danish authorities finally completed an expedition along the east coast in 1884–85. It was led by Gustav Holm (1849 –1940). The expedition navigated the shallow waters between the coast and the sea ice using Indigenous boats called *umiaqs* rowed by women, to carry equipment and supplies, and kayaks in which the men travelled. The party wintered in the area and encountered several Inuit communities who had never seen Europeans before. They presented Holm with 'maps' carved from driftwood that accurately showed islands and the coastline. These are the first known examples of Indigenous maps from the east coast. Holm also encouraged local Inuits to draw sketch maps of the area; they are preserved in his archive but were never published.[2] Holm made maps based on surveys of the coast as far as Tasiilaq (65° 36' North) but relied on information from the Inuits to map the coast north of Tasiilaq **(Fig. 8)**.

After the success of the 'Umiaq' expedition Danish authorities decided to establish a colony at Tasiilaq (then named Ammassalik) to help alleviate the dire living conditions of the Ammassalimmiuts.

In 1891–92 the Commission for Scientific Investigations in Greenland (KVUG) sent Danish lieutenant and Arctic explorer Carl Ryder (1858 –1923) to map the area around Scoresby Sund. They wanted more detailed maps than those made by Scoresby in 1822. Ryder succeeded in creating a comprehensive body of maps of the area.

American explorer and naval officer Robert Edwin Peary (1856–1920) was the leading figure in the exploration of the northern reaches of east Greenland in the 1890s. He was the first to use local Inughuits, the northernmost group of Inuits from Kap York (75° 92' N) as guides for his expeditions. In 1892, sledging from Kap York on the northwest coast, he reached Independence Fjord (82° 08' N) on the east coast. There he sketched a map showing how he imagined this area. He thought he saw the open eastern Greenland Sea and to the north a channel separating a great mass of land from Greenland. This he suggested could be an island which the United States could take possession of.

Peary returned to the area in 1894 convinced that Greenland was an island. In 1898 he reached the northernmost point of Greenland which he named Cape Morris Jesup (83° 39'N) after one of his benefactors. On this trip he was in competition with the Norwegian explorer Otto Sverdrup (1854–1930) who had also set out to survey North Greenland with the intention of appropriating it as Norwegian territory. But Peary had arrived first. So Sverdrup decided to shift his mapping and territorial interests to Ellesmere Island, which he claimed for Norway but the Norwegian government didn't support this idea.

Between 1898 and 1900 the Danish Carlsberg Foundation Expedition set out to identify and examine the then completely unexplored stretch of coast between the 66° North and Scoresby Sund at about 70° North. The expedition consisted of two teams, each surveying a different part of the coast. The team responsible for the coast south of Scoresby Sund was led by Georg Carl Amdrup (1866–1947) of the Royal Danish Navy and polar explorer Einar Mikkelsen (1880–1971). They conducted their survey from rowboats as far south as Tasiilaq. The second team led by J. P. Koch (1870–1928) surveyed the region north of Scoresby Sund. Both teams

Fig. 8 Gustav Holm, 'Den sydlige del af Grönlands Östkyst af G Holm og V. Garde', 1886. Holm's map of the east coast, although he surveyed only as far north as Tasiilaq (65° 36' North). Copenhagen: Royal Library Map Collection, Shelf Mark DK003900

Fig. 9 J. P. Koch, 'Grönlands Östkyst fra 69° 20' til 72° 20' opmaalt af J. P. Koch 1900'. 73 x 36 cm. The map was produced from the surveys conducted on the Danish Carlsberg Foundation Expedition between 1898 and 1900. Copenhagen: Royal Library Map Collection, Shelf Mark DK003907

produced a large number of high quality and detailed maps **(Fig. 9)**.

In 1899 a Swedish expedition led by Alfred Gabriel Nathorst (1850-1921) explored the northeast coast, surveying areas never before seen by Europeans. He then led a second expedition with a brief to explore and map this uncharted area and to find the Swedish balloonist S. A. Andrée and his companions who had disappeared in 1897 during an attempt to reach the North Pole in a hydrogen balloon. No survivors were found. However, Nathorst discovered and mapped the Antarctic Sound (73° 6' N), a fjord branch connecting Kaiser Franz Joseph Fjord to the north with the head of King Oscar Fjord to the south.

By the 1890s Norwegian sailors were prominent in the area. Living in the region closest to Greenland's northeast coast, they avidly hunted and fished these northern waters. The Danes on the other hand did not exploit the area's resources and instead hired Norwegian ships and their experienced sailors to support a large Danish expedition (1906–08) that would finally fully map Greenland's coastline from Danmarkshavn (76° 46' N) to the most northernmost part of Greenland visited by Peary in 1898. The 'Denmark Expedition', led by Ludvig Mylius-Erichsen (1872–1907) planned to sail as far north as possible, establish a base there and then travel by dogsled further north along the coast. In addition the expedition intended to revisit and update Peary's findings and investigate his claim that there was an east–west channel (Peary Channel) separating northernmost Greenland from the mainland further south. As a result Peary's claim was shown to be wrong.

The mapping of East Greenland's coast was piecemeal, thwarted time and time again by ice. The 'Denmark Expedition', though overshadowed by the deaths of Mylius-Erichsen and others, did achieve a significant step forward in the mapping of a hostile geography. However, the endeavour to map the entire coastline would take several more decades and some delaying twists and turns in history before a cartographic conclusion could be reached.

Notes

1 Coastal areas that are ice-free during winter can be found throughout the Arctic region. These areas are called by their Russian name *polynya*s, and are found on the east and west coasts of Greenland. They are formed in the same places every winter and occur either when warm water flow into an area inside the ice in winter, or as the result of wind removing the newly formed ice. https://trap.gl/en/natur-og-landskab/havet-og-fjordene/

2 'Instrukser vedrørende Gustav Holms rejser i Grønland1880–81 og 1883–84, samt jortkitser oog andet materiale', Copenhagen: The Royal Library Manuscript depatment, folio NKS 2071

The Inuit maps carved from driftwood are in the National Museum in Nuuk.

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COLLECTING MAPS FIRST STEPS PART II

The printed map – repository of clues

Mike Sweeting

As a rule of thumb, innovation in post-medieval mapmaking can be directly linked to the growth of both Renaissance thought and Protestant Christianity. Under the Spanish and Portuguese empires the production of, and access to, maps were strictly controlled. Both saw it as being in their interests to keep the number of maps and charts to the minimum – and in the right hands. This did not encourage interest in developing new methods of reproducing maps, quite the opposite. Conversely, Protestants, who had laboured for decades to supply Bibles in vernacular languages were amongst the earliest adopters of the new technology. Using printing, they were able get more Bibles into the hands of believers faster. They rapidly realised that people preferred those Bibles that had maps and illustrations. Those with coloured maps sold even better. Spiritual hunger and marketing went hand in hand!

From woodcuts to lithograph stones

Prior to the arrival of copper-plate engraving most maps and illustrations were reverse cut into hardwood blocks **(Fig. 1)**. The advantage of wood was the ease of cutting; the shortcoming its lack of durability. Why was durability an issue? Because that 'plate' of wood would be pressed down hard time after time onto paper which rested in a printing-press bed. Soon cracks would show, and at the very least signs of wear would transfer from the plate to the paper. Hence a wooden plate would need frequent replacement (refurbishment being usually impractical). The woodcut printed Bible, with a large number of pages on necessarily thinner paper suddenly became a mass market item, creating a huge stimulus towards finding a new technology. In parallel, scientific writers were having difficulties reproducing ever more complex diagrams and schema.

That new technology, mainly associated with the seventeenth century, but not exclusively so, was the introduction of copper as the engraving medium. It was soft enough to make engraving easier, took detail far better, could be refurbished easily, and even re-used (either by smoothing out or melting down). Plates that could produce only a few hundred copies now could last for several thousand. Wear would still be registered, as the number of 'pulls' took their toll, since the hard printing-press bed remained the same.

The next technical leap forward was the use of steel plates rather than copper. Hardened tools were required and an engraver needed greater precision, because errors were now much harder to remedy. Starting again was often the only option. However, the trade-off was greater room for detail, since the medium allowed for finer line engraving, and it became significant as a means of map production as the late eighteenth century neared its end. The move from Renaissance to Enlightenment was now acting not only as a medium for the exchange of ideas, but as the experimental precursor to the Industrial Revolution.

The next main innovation was lithography **(Fig. 2)**. The key to which is its basis in the development of a means of repelling ink on a flat surface except where you wish it to adhere. A press was still used, and numerous types of hard surface, mainly stone, (*lithos* being the Greek for that word). The image on the stone was directly transferred to paper. Since lithography was brought into the practical world in only 1796, it is associated almost entirely with the subsequent century.

Consequences when considering authenticity of a map

The different methods briefly described above have consequences when we consider a map's authenticity. It must be remembered, though, that just because a new method has been embraced, it does not mean that an older one is discarded. If the plate and the press continued their existence, then a piece of paper could be printed on to produce an image that might look no different from the same image printed two hundred years beforehand.

However, the production method does serve as a starting point for dating a map. No 'original'

Fig. 1 Woodcut. Sebastian Münster, 'Tabula nouarum insularum, quas diuersis respectibus Occidentales & Indianas uocant' in *Cosmographiae Universalis*, 1559. Library of Congress. Call no. G3290 1559M8

Fig. 2 Lithograph. 'Map of Cleveland and its Environs. Survey and Published by Ahaz Merchant. October 1835'. Beinecke Rare Book & Manuscript Library. Call no. 804 C599 1835

lithograph, certainly none available to you or me, can date from before 1796. On the other hand, a copper- or steel-engraved map image could eventually resurface a hundred years later as a lithograph. The rarity and different 'look' of the method of production means that most woodcut maps a new collector will encounter are from the sixteenth century. Producing woodcut maps did not immediately stop, but after the introduction of copper as a medium, woodcutting of maps was unlikely to be attempted – unless as a deliberately 'retro' form or due to lack of money for production, wood being far cheaper than copper.

Paper for maps

The many changes in earlier technologies affect what you see today. The method dictated the medium, making paper and the quality of that paper important. Paper is a major topic (and a significant collecting interest) in its own right; but generally, the older the paper the thicker it is. Partly this is because early paper was made from linen rags, and our forebearers had not mastered the processing of those rags into something smooth. 'Laid' paper is what was almost always used for an earlier map; such paper has layers of processed rag pulp laid criss-cross over each other. If you hold up a seventeenth-century map by Joan Blaeu (1596–1673) or John Speed (1552–1629) to the light, you are likely to see those criss-crossed fibres. If you hold the same piece of paper at an angle, you will also see that it has depth too. The slight bumpiness that your finger feels as it is runs lightly across the paper is because of the 'ridge and furrow' of the laid strips, the 'weave' of the paper.

The primitive and robust wooden printing plate needed a paper that was equally robust. Of course, quality of the weave of the paper, its thickness, and its visual attractiveness were all associated with the cost of manufacture. Initially thick also meant durable. Thick paper is easier to manipulate, a significant issue when each sheet had to be handled many times in the manufacturing process. Getting it wrong was expensive, rendering the paper useless. Ironically, this would hasten the start of the paper revolution when it was discovered that re-used pulped paper gave a smoother result. Smoothness of finish was not necessarily a goal in itself and certainly not in the copper-plate age. The plate needed to 'bite' into the paper to provide a clear imprint. An impression without that bite looks vague and washed out. When we see such impressions today, they are usually signs of a worn plate, but sometimes it is the result of later, poorer quality paper that is too smooth for the press.

Another kind of paper would develop after about 500 years of 'laid' paper – 'wove' paper. James Whatman (1702–59), developed a paper mould with woven brass wires which produced a smoother paper. Its surface was particularly good for drawings and watercolours. The first book published with wove paper was John Baskerville's 1757 *Virgil*. Paper remained handmade until the 1809 invention of the paper-making machine. Consequently, woven paper for maps is mainly associated with the nineteenth century. The American Bookbinder's Museum defines the visual effect of wove paper as having 'something of a cloth-like appearance when viewed by transmitted light'.[1]

Paper and printing for dating

As can be already seen, both the print method and the paper used contribute to your own process of authentication and dating. Do not expect to find earlier maps on entirely smooth modern paper – unless they are reproductions. Do not expect extensive use of thin paper in early maps, although you will have to be careful since some map production houses did try thinner, cheaper paper. Do expect creamier, ridged paper to be used for seventeenth-century maps. You are likely to find that many earlier maps have paper that is ragged around the edges at the side the page is turned. This is because the paper was often made larger than you would expect and folded back on itself to produce four rather than two leaves. This meant that to separate a page the first reader/viewer would often need to cut through manually with a knife. The resulting ragged edge is called 'deckling'. The deckling will be less precise with earlier offerings, because of the kinds of knives and scissors used for the first couple of hundred years of the printed book or atlas. Note that even after paper guillotines were invented in the 1830s, these were not made to particularly exacting tolerances. Paper would of course be pre-cut using such a guillotine, but a large, finished stack might not look particularly uniform, just showing a sharp edge rather than a ragged one.

If the paper is 'foxed' (brown or yellow stains resulting from mould, chemical reactions or oxidation), it is a good sign that the paper was probably made in the eighteenth-century. Older made paper tends to fend off the foxing process. Badly foxed maps from the eighteenth century were often discarded in the nineteenth century as not fit for purpose, making certain maps quite rare and therefore

valuable. Maps kept in Ireland suffered particularly badly in this way. The presence of foxing usually reduces the value of a map if it is inside the printed area, less so if hidden by a mount, not at all if just on the edge of the unprinted part of the paper. If untreated, or the map's environment is not improved, foxing can spread. There is therefore a matrix of cost – foxed but rare retaining value far better than foxed but common.

Armed with the kind of information above, the paper now serves both as a tool for authentication and, to a degree, for dating.

Watermarks

Watermarks, first recorded in Italy in the thirteenth century, are also a means of dating and authentication. They are created by pressing a wire shape into the wet paper pulp prior to drying, resulting in a thinner, more translucent area visible when held up to light.[2] The motif often identifies the paper maker and mill where it was produced; may establish the grade of paper, and/or show that the appropriate tax had been paid. Watermarks for the key map-making centuries have been researched, enabling many earlier and higher status maps to be given at least a date range by means of their presence in the paper. There is one big problem with watermarks as a sign of authenticity. Paper can be stored for a very long time and used only when required. It is therefore quite possible to find an eighteenth-century map on seventeenth-century paper. Paper could be traded between printers or sold on. Any party involved could store it, even for a century. Also, a particular papermaker or papermaking group did not have to contract their services to the same map publisher for their whole existence. Watermarks can therefore only be *part* of the authentication and investigation 'detective kit'.

Contextual matters

The society the map was produced by, and the language it is printed in, can be helpful in assisting a buyer to determine whether what they have before them is what they want to buy. That past society's culture has affected the design, the priorities for what is depicted, and the way depictions were presented. So, in one simple but vital instance, French mapmakers made a huge point of their association with Royalty – until 1789 and their Revolution. After a hiatus, the authority of the Republic itself and then that of Napoleon as Emperor become noticeable. Similarly, the coat of arms of the Stuart Royal Family disappeared from English, Welsh and Scottish maps printed during the Cromwellian period.

As another example, it is important to connect mentally Christopher Saxton's (1540–1610) survey of England & Wales for Queen Elizabeth I with the threat of Spanish invasion. Elizabeth and her spymaster William Cecil Lord Burghley needed to have a good grasp of both coastal issues and what are called 'inside lines', places easier for a defender to support than for an attacker to reinforce. The survey began in 1574, anticipating an earlier abortive version of the Spanish Armada of 1588. The proofs became Lord Burghley's personal atlas **(Fig. 3)**.[3] Even without the unique annotations in Burghley's own handwriting, each map is an exercise in what was wanted (and by definition also excluded). Church towers, for example, were significant to both Saxton as a surveyor and Burghley as an officer of State improving on the medieval beacon-warning system. That beacon system was the direct reason that Sir Francis Drake was able to put to sea rapidly enough to make the initial interception of the Armada.

The commissioner of the map is another factor to consider. Not all map production has been commercially driven. France had the *Dépôt general de la Marine* (established in 1792), England the *Hydrographic Office* (established in 1795); both primarily served the State. Both countries moved towards a state-sponsored military mapping organisation, which is why Britain's is called the *Ordnance Survey*; 'ordnance' being the sum of the means by which a country wages war. It will be immediately obvious that the lack of commercial necessity would reduce the interest in, for instance, decoration **(Fig. 4)**. Thus military, naval and State maps became increasingly utilitarian, and less artistic or deliberately eye-catching.

Finding your way?

The presence of roads on maps and the accuracy of their depiction give initial assistance towards dating. In earlier centuries, the positioning of ports and coastline on maps was usually far more accurate and predate, any equivalent road information. Nations with a coastline usually fared better in their depiction since the coastline had been a known quantity for many centuries. The viewer will note that the earliest map offerings give far better coverage of ports and towns close to the sea; and only bother with inland places germane to specific exports or the

Fig. 3 Christopher Saxton, proof map of Wales, 1580.
https://commons.wikimedia.org/wiki/File:Saxton%E2%80%99s_Proof_Map_of_Wales.jpg

Fig. 4 Detail from the Ordnance Survey First series showing the area around the Rivers Stour and Orwell where they merge to form the estuary that leads into the North Sea. From 'Part the First of The General Survey of England and Wales, Containing the whole of Essex, And a portion of adjoining counties. Done by the Surveyors of His Majesty's Ordnance, under the Direction of Lt Col Mudge, of The Royal Artillery, FRS'. Courtesy Peter Walker, Old Essex Maps, https://oldessex.co.uk

needs of the map-making country. Inland areas, whether Ethiopia or central Russia, usually suffered until full surveys were possible.

A road may be shown on a very early map. It will not be depicted accurately until that same area has been surveyed. That becomes a 'mark point' in map dating, and therefore authentication. However, do note that a country with an oppressive regime would continue to discourage general movement within its borders, through internal passports etc. Meanwhile, the same urge to trade that had thrust Holland into the forefront of map creation would lead to the first national road maps being developed. In mercantilist England John Ogilby showed measured distances on the strip maps in his 1676 *Britannia*. This proved so popular that other mapmakers added roads, often plagarised, to their maps, frequntly retrofitting them on their own existing plates.

It was Ogilby who defined the statute mile as 1,760 yards and set up the one inch to one mile convention. This need for more 'granular' information about travel also led to the demise of the county or regional map. The coverage supplied by most such maps was now too small-scale for the ambitious businessman, and too large for the landowner, farmer and tax collector. Such factors led to the multi-leaf, large-scale plans on the one hand, and to estate maps on the other as the eighteenth century progressed. Both types were eventually largely curtailed by the founding of National mapping, the British exemplar being the Ordnance Survey Act of 1841. Private and royal estates would continue to employ local or regional surveys, nonetheless.

Copying and infringement

Plagiarism was rife in the map world no less than the book and the wider world. Copycat map producers essentially were able to deliver offerings without incurring any of the developmental costs of the originator. Hence, their map was usually cheaper. However, the similarities would be so great that any sense of a differentiated offering would be lost. Initiating mapmakers and publishers sought to resolve this dilemma by varying the visuals surrounding the main mapped area. This takes us to naming and understanding the function of each of these 'outside the map' elements. Their size and sophistication are also a good indicator of a date, when taken alongside the style of script and all the other aspects already discussed.

The cartouche

'Cartouche' is French for 'cartridge'. A cartridge is made of rolled paper. The sense is that of the English word 'scroll'. It is the cartouche that carries the main information concerning the map, and almost always contains the map's title and a reference to the geographical area or nation covered.[4] (Although it is not unheard of for the mapped area to be titled again somewhere else on the same printed page). It may refer to the geographer, surveyor, mapmaker, publisher, or engraver, but there is no consistency on this. Typically, it will be designed to catch the eye and to impress. In certain periods of history it is very large, and seemingly more important in the author's eyes than the actual mapping.

There are several keys to understanding cartouches and their effect on the matters under discussion. The first is to grasp the craft discipline that inspired each style. Cartouches are not usually significant in manuscript maps. The royal or company cartographer did not have the time for embellishment. The issues were whether the treasure ships would get home, whether taxation was sufficient, whereabouts garrisons should be located. The exception is with presentation maps where the political statement was widened to include the decoration. The cartouche only became significant with the invention of printing when the labour of a single engraving resulted in hundreds of printings. Since wood was the initial medium used for the plates, we note that the craft of fretwork is what is drawn upon for the style of the cartouche **(Fig. 5)**. There is a tendency in this wood phase to delivering an angular outcome, with limited curves due to the limitations on the tools used and the craftsman's skill. The core of the cartouche was often therefore rectangular, with lozenge shapes being the next most common.

The move to copper plates allowed a more flowing and 'freehand' style to develop. This ushered in the age of the oval. The intricacies of coats of arms, elaborate drapery, decorative urns, figures and flowers became much easier to depict. As a general rule, seventeenth-century offerings tend towards narratives – people at work or play, wearing the dress of the locale, performing strange rites, etc. became common depictions, surrounding or supporting the cartouche. The spirit of Humanism was being made manifest, and the elation of the discoveries of the Renaissance was channelled into the two subsequent centuries. The eighteenth century tended to the 'regal', stressing power, authority, control. As feudalism creaked

towards its end, social polity became either pre-modern, or monarchies more absolute. France, the Holy Roman Empire and Russia asserted the latter in their cultural displays, while first the Netherlands and then Britain embraced a new Protestant and mercantile age highlighting individual faith, wealth, and conscience.

The concept of the mapmaker's art as a type of theatre was evident. Some cartouches or other map displays are therefore in the form of the proscenium of a Greek theatre, with curtains drawn to show a 'scene'; with other dramatic elements also starting to appear, such as examples of the four kinds of Greek theatrical mask. That is why John Speed's masterwork was called *The Theatre of the Empire of Great Britaine* (1611/12). The Shakespearean idea of the world as a stage, with humanity as actors undergirded this.

Sometimes the inclination was more towards Roman culture and is therefore 'martial' in execution. For instance, the depiction of a victory trophy, a formulaic pile of arms and armour, which echoes the displays in Roman temples. The victor's wreath is another borrowing by map engravers from the Latins. The concept is the victory of science over ignorance, place over no place, geography over hearsay. Sometimes monsters rise to support the cartouche. The animal world is shown as also being in attendance to the glories of the mapmaker's scientific advances.[5]

The decorative arts, particularly sculpture, provided inspiration for cartouches. You will find a great deal of drapery on Vincenzo Coronelli (1650–1718) maps, for instance. Images from sculpture and art were more likely to dominate the visual aspects of Italian maps. Nations with aspirations to Empire unsurprisingly would tend to the Roman and the militant styles. Northern Europe opted for animals more often than Southern. You will mainly find domestic animals on Italian maps but wild beasts on British and Scandinavian ones.

The cartouche therefore always provides clues as to how the source nation, the engraver and the geographer saw things – giving clues to a map's provenance.

Coats of arms

Coats of arms served several different functions **(Fig. 6)**. They are often there to establish or reinforce the mapmaker's credibility but permission for their use was not always sought. Sometimes it seems they are used to fill up space.

Here I must distinguish between an emblazoned shield (the original 'Coat of Arms') and what we often see on a map, which is something quite different, the 'Armorial Achievement', the shield surrounded by other elements. In the case of several ancient royal houses, their arms developed over time and can be a valuable guide to a map's date. In the case of Britain, armorials – lion and unicorn – are always present, but twelve different shield variants were displayed from 1554 to 1704. Even with this seemingly orderly set of

Fig. 5 Lucas Janszoon Waghenaer, elaborate cartouche containing the chart's title and maker's name, 1583.

Fig. 6 Theodoris Danckerts, 'Novissima et Accuratissima Totius Angliæ, Scotiæ et Hiberniæ', 1716. Detail of the coat of arms representing the three nations. David Rumsey Historical Map Collection. Image no. 12499212.jp2

clues regarding date, care still needs to be exercised. Sometimes out-of-date arms were displayed on a map to create a link with the past. Here we are helped if we can work out in what kind of atlas or other work the map first found context. A historical atlas would be particularly prone to anachronism. A school atlas would be replaced as slowly as possible. A state document would be revised as quickly as possible. The authors of a road book might care little for royal arms but be very concerned indeed to ensure that the arms of any subscriber in the book were correctly represented. The rule of thumb is that if a map seller/producer thought there could be bad 'comeback' they got things right. Otherwise, they could be annoyingly cavalier about accuracy.

It is therefore also possible to come across a map with all representational aspects the same, other than the arms or armorials. As Royal Houses changed, as new sponsors replaced old ones, the original copper plate could be smoothed out and re-engraved with fresh shields or achievements. That way, maps like those of John Speed could be reprinted from a first edition in 1612 right up to the Brown and Dicey edition of 1770. Likewise, the final edition of Christopher Saxton's 1579 work was published *c.* 1749, by Thomas Jefferys (1719–71). A commercial life of almost two hundred years!

Other 'scrollwork'

I have chosen the word 'scrollwork' as a catch-all for mileage tables, messages from the mapmaker about the map, related history, or expression of personal opinion. In the eighteenth century, there was so much new geographic knowledge that it started to overflow onto any blank space left on the surface of the map sheet. Once that informational barrier was broken the blank spaces became commentary locations as well. Hence Herman Moll (1654–1732) had somewhere to engrave his complaints about competitors. Here Emanuel Bowen (1694–1767) and Thomas Kitchin's (1718–84) beautiful *Large English Atlas or, a New Set of Maps* of 1763 could provide numerous educational

comments about specific localities. Here Speed's map depicting the invasions of England and Ireland (*c.* 1676) could comment on great battles.

Mileage tables became significant first in countries where the peasant classes were decaying, and movement was enabled. War facilitates movement in a particularly significant way. Thomas Jenner and Jacob van Langeren rushed out their *Direction for the English Traveller* in 1643 to assist English Civil War armies for just such a reason.

On a Robert Morden (d. 1713) map and on continental maps by Gerardus Mercator (1512–94) you will note a second or even third scale of different type **(Fig. 7)**. Was it an English, French, country or long mile? A different scale, in say chains, might be used, with a Roman mile as an alternative – and so on.[6] The traveller of the time could not expect the locals to use the same distance measurements. Morden annoyed everyone by always having three types of mile on his county maps which he called 'Great', 'Middle' and 'Small' miles! None was based on the statute mile.[7]

Compass roses

The compass rose is one of the lesser clues assisting us in both dating and understanding an antique map. The original usage was on sea charts as 'wind roses' showing the four cardinal directions. Over time the quadrated circle was further divided into the thirty-two navigational wind gradations. Opportunities for decoration were substantial and they soon found their way onto maps. The rose could be used to bring visual balance to a map too. Willem Blaeu's map of Peru (1630) does this very noticeably **(Fig. 8)**. About half the map is sea. This could have been seen as a defect to the decoration-conscious buyer, but Blaeu solved it by placing a compass rose in the middle of the sea, along with four artistically distributed ships, a whale – and the line of the Tropic of Capricorn. Rhumb lines emanate from the rose quite promiscuously, more on the right where there is room, less on the constrained left. One rhumb keeps going when it hits land; all the rest disappear immediately. The current *Britannica* definition of a rhumb line is a 'curve cutting the meridians of a sphere at a constant non-right angle. Thus, it may be seen as the path of a ship sailing always oblique to the meridian and directed always to the same point of the compass'. In actuality they were mainly decorative, reflecting their common descent from sea charts.

The use of both rose and rhumb was to fix a map in space, so that the cardinal directions are known, nothing more. They eventually became residual and disappeared – the wind rose because it was often notional, while the 'North at top' convention was not yet universally recognised. In the case of rhumb lines the need for them in navigation was usually zero. Inshore mariners used line of sight. Ocean mariners

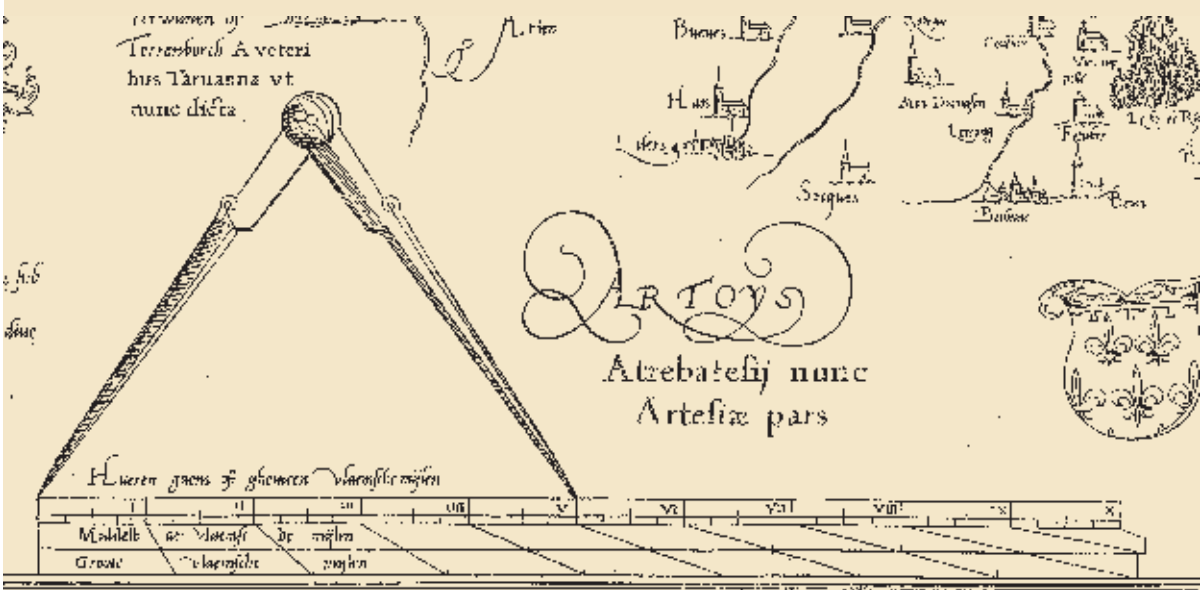


Fig. 7 Scale bar on a Mercator map. It is expressed in 'Hours walking or common Flemish miles', and includes two scales: medium and big Flemish miles. https://en.wikipedia.org/wiki/Mile#/media/File:Mercator_scale.png

Fig. 8 Willem Blaeu, 'Peru' in *Atlantis Appendix,* 1662. David Rumsey Historical Map Collection, Image no 15664082.jp2

had navigational instruments, no matter how rudimentary. Both wind roses and rhumbs are best regarded as a seventeenth-century convention, often adding beauty but not utility.

Sources of antique maps

In my earliest collecting days, I thought little of where the maps I handled came from. However, it became stunningly obvious that most had been torn or cut out of books. Again, I naively assumed in my new state of awareness that this meant out of atlases. The third stage in the journey was my realisation soon after that many other types of book existed that included maps in their narrative – Bibles, history and school books, records of exploration, travel books. And finally, I came across road books that could be solely a set of distance tables with a few frills added, culminating with John Ogilby's majestic offering, the 'strip map' in his *Britannia* of 1675.

In parallel I was discovering that an atlas could be arranged around English counties, French provinces, Holy Roman *Kreise* ('circles'), country, world regions, and so on. Later atlases began to put an emphasis on being historical or topographical or geological. Classical atlases were for the study of the 'ancient' world (by which was meant solely the Greek, Roman and Egyptian cultures). I also noted that even those atlases seeking to be highly up-to-date, would also include a few examples outside that. Gerard Mercator would insert Ptolemaic maps showing a country in Roman times. Robert Morden and many others would show us the Anglo-Saxon Heptarchy (Seven Kingdoms). Michael Drayton's (1563–1631) *Poly-Olbion* (1612) showed British regions with their river divinities. Even in the nineteenth century Thomas Moule (1784–1851) added a fanciful map of England's principal hills.

Longitude and latitude

This topic is here mainly for negative reasons – to show how little they can be relied on as a measure of

a map's date or its accuracy before the late eighteenth century. My focus is on the representational rather than the mathematical aspects. Latitude was quite an easy one to get right, and the basic mathematics had been done in classical times by first Eratosthenes in 220 BC, and subsequently by Ptolemy (*c.* AD 160). While no actual Ptolemy maps survive, the Ptolemaic maps from the sixteenth-century are based on his map projections and latitude and longitude tables in his Geography.

Longitude needed to be worked out mathematically or from sighting points, obviously almost impossible to do at sea using the instruments of the time. Therefore, any sea chart showing longitude prior to John Harrison's (1693–1776) invention of the chronometer in 1773 was probably making a blind stab at things.[8] The presence of longitudinal lines is no substantial guide to either date or function of the map unless you already know a great deal about the history and provenance of the specific map before you.

Dominant nations and societal thrusts

Lastly it is worth getting a clear picture of the development of mapping by nation or region.

Prior to the introduction of printing, maps were usually drawn by hand on vellum or calf in the West, where Mediterranean producers dominated.

In the early sixteenth century Germanic and Italian woodcut printed maps are most notable. Names like Hartmann Schedel (1440–1514), Sebastian Münster (1489–1552), Giacomo Gastaldi (1500–66) and Girolamo Ruscelli (1518–66) ring out. The Gutenberg mechanical printing press and translations of the Bible into European languages drove the former, and the Renaissance the latter. The democratising influence of Protestantism combined with the technology that produced capitalism were major factors in the proliferation of maps in Northern Europe. Quite simply, more maps could be produced at better prices to be sold to more people for more applications. As this matrix became significant other country became central to the story of mapping. Thus the 'centre of gravity' started to move to the Low Countries as copper plates replaced woodblock printing at the end of the sixteenth century. Longer lasting plates and better presses meant more copies and a further drop in price.

However, a 'fiscal drag' was created by the efforts of the Spanish and Portuguese empires to limit information from their domains, particularly in the New World. Their sea captains had only state-issued handmade portolan charts that were taken back at the end of the voyage, and, access by others to new information was curtailed. Men like Mercator were perceived as both a convenience and a nuisance. His early apprenticeship under Gemma Frisius (1508–55) was no threat, since globe making still came firmly under the category of small-scale production for high status clients.

However, Mercator's taste for the clarity of italic script rather than the Gothic, his interest in engraving and the means of production, and his enquiring nature attracted the attention of the Inquisition, the Habsburg Netherlands being a Spanish possession. Without evidence, he was placed on a list of 52 Lutheran sympathisers and imprisoned. Most were tortured; two men were burnt at the stake; another was beheaded, and two women were entombed alive. Fortunately, Mercator's usefulness as a globe and instrument maker to the Royal House saved him for posterity. He, unsurprisingly, moved to German Duisburg with its atmosphere of greater tolerance.

The narrow line that Mercator and colleagues had to walk shifted the centre of gravity to the Protestant Netherlands. The posthumous publication of his map works as a single book in 1594 was initially met with poor sales. Its shortcomings were not in execution but content. Spain was entirely omitted; little was shown outside Europe, a sharp reflection of his political difficulties. As the political and religious tensions grew, war was soon on the horizon. Added to the pull north and east that went alongside that struggle for political freedom and individual conscience was the eruption of wealth into Amsterdam, derived from the dangerous circumvention of Catholic interests in the New World. The founding of the Dutch East India Company in 1602 caused a sharp acceleration in each of these issues and in the production of marvellous up-to-date copper-plate maps.

The Eighty Years War (1568–48) led to independence for the northern half of the Spanish Netherlands and sealed Dutch ascendancy in the map world. The same improvement factors began to work on English mapmaking too, caused by the demand for maps in the British Civil Wars from 1642-52. War is sadly a major cause of rapid innovation! The winning side has always had the more able mapmakers in a conflict. In the Civil Wars the Royal cause used old county maps, while Parliament got updated distances between towns, provided by Puritan publisher Thomas Jenner.

War also drove the imminent flowering of French mapmaking as the Sun King stretched out his hand

across nations. French and English mapmaking would henceforth leapfrog each other for a century at least in both scientific innovation and style, although feeding off each other as well. This competition, reflecting imperial rivalry, dominated the eighteenth century.

The invention of steel engraving led to British dominance, coinciding with the early nineteenth century and Allied victory in the Napoleonic Wars. The steel-engraving method was invented, however, by an American physicist called Jacob Perkins in 1792 and came in to use in 1819. The first practical use was in England, for printing banknotes. By the 1820s the commercial advantages of steel plates were starting to be felt. Paper went through the same transmogrification. Pigot & Co.'s 1830 *British Atlas* was the first to be engraved entirely upon steel plates. Royal Navy Admiralty charts, however, held out against steel and lithography since copper allowed far greater ease in updating the plates. The matrix of national wealth, national need, societal interest, scientific and industrial development each contributed to an abundance of maps, and usually to a reduction in cost and increase in availability.

A final development in the availability of maps was social – the growth of democracy and of national independence movements. Democratic nations were always very interested in how 'their' projects were doing, hence a huge jump in newspaper maps to coincide with both the Crimean and American Civil Wars. Lord Byron's romantic death made Greek independence interesting to a wider world. Garibaldi was a worldwide household name. Information that once was jealously guarded by elites, taking decades to trickle down to the masses, was now available to all within days.

Conclusion

Today's 'pay prices' usually reflect the above developments. Very early maps are rarely for sale and are typically held only by institutions or the richest collectors, a direct reflection of their origination as tools of the powerful. Time and attrition have left us with few copies of the early woodcut printed maps, but more of those printed on copper. The world remains swamped in steel-engraved media, but demand and survival are typically out of sync. Thus, rarity of survival and level of demand remain the core reasons for high value in an antique map. However, the journey and its blind alleys usually have greater appeal to the mainstream collector than purely the commercial value, whether they yearn for a map with California as an island, a woodcut copy of a Ptolemaic predecessor or the earliest steel engraving of an American State.

Notes

1 Matt Roberts & Don Etherington, *Bookbinding and the conservation of books: A Dictionary of Descriptive Terminology*, 1982, p. 284.

2 Watermarks can also be photographed when the light source, natural or articial, is behind the paper.

3 London British Library, Royal MS 18 D III (also available online).

4 Jean-Marc Besse & Nicolas Verdier 'Cartouche', in *The History of Cartography*. Vol. 4. *Cartography in the European Enlightenment*, ed. Matthew Edney and Mary Sponberg Pedley. University of Chicago Press, 2019, pp. 244–51.

5 A number of decorative examples and details can be found at https://www.davidrumsey.com/blog/2010/2/25/cartouches-decorative-map-titles (25 February 2010).

6 See https://library.mcmaster.ca/rare-map-units-measure-and-map-scales

7 The English statute mile of 5,280 miles was established during the reign of Elizabeth I by an Act of Parliament in 1593.

8 See Dava Sobell's best-selling book *Longitude: The true story of a lone genius who solved the greatest scientific problem of his time*, London, Bloomsbury, 2007 for a fuller tale.

Mike Sweeting. While studying for his PhD in Modern Poetry at Durham University, Mike would often take a break in an antiquarian bookshop close by, owned by the well-known local character John Shotton. Ten years later Mike was able to afford his first map from John's shop! A lifelong collecting interest began, starting with County Durham, expanding to British Atlases before 1800, and finally Picardy. After five years on the Executive Committee of IMCoS, Mike was elected Chairman in 2021. Email: drsweeting@aol.com

IMCoS MATTERS

DATES FOR YOUR DIARY

7 June 2025, London, IMCoS AGM
The Society's Annual General Meeting will be held on the Saturday morning before the opening of the London Map Fair. It will take place in the Lowther Room at the Royal Geographical Society in Kensington. All members are welcome to attend. Further information is available on the Society's website (www.imcos.org).

7–8 June 2025, London Map Fair
The Fair takes place at the Royal Geographical Society in Kensington (1 Kensington Gore, SW7 2AR). It opens on Saturday at 12 noon and closes at 7 pm. On Sunday it is open from 10 am – 6 pm. The Map Fair Lecture will be given by IMCoS member Nicholas Nugent. A review of his book, *Spice Ports: Mapping the origins of global trade* – appeared in Issue No 180. Admission to the Fair is free. IMCoS will be represented at the Fair. Please visit us at the stand. Information: https://www.londonmapfairs.com

11–14 September 2025, Portland, Maine
42nd International Symposium
The Osher Map Library & Smith Center for Cartographic Education at the University of Southern Maine is hosting our 42nd International Symposium. The conference title is **Reflections and New Perspectives on Mapping Maine, New England and Maritime Canada**.

A post-symposium tour is planned to include Acadia National Park and Mount Desert Island. **The full programme can be found on pages 46–50.** Information: elizabeth.bischof@maine.edu

November 2026, Tokyo & Kyoto
43rd IMCoS International Symposium
The Japan Map Society will be hosting the Symposium for which plans are well underway. There will be a pre-symposium tour to Nikko on the 8 November. Part I of the conference will take place in Tokyo on the 9th and 10th, and Part II in Kyoto on the 12th and 13th.

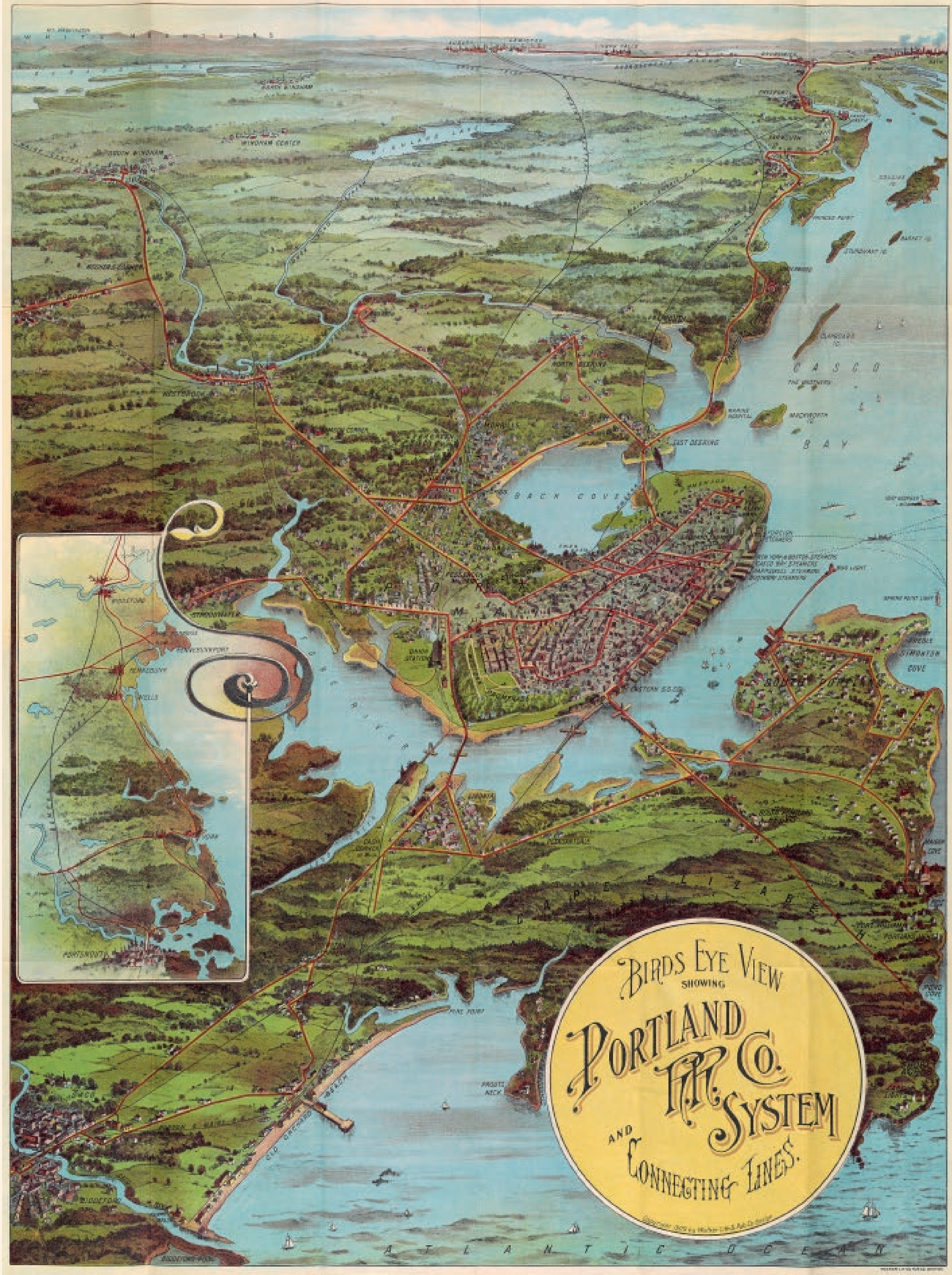
The post-symposium tour is planned for Kyushu, Japan's most southerly island.

On Friday 11 April IMCoS members visited the Royal Geographical Society where Principal Librarian, Eugene Rae, gave a tour of the Society's permanent display of maps, globes and paintings. Additionally, there was a specially curated exhibition of sheet maps and atlases in the Reading Room for the group to enjoy.
L–R: Ella Hood, Tom Guest, Caroline Batchelor, Mike Sweeting, G.R. Jones, Mark Clark, Eugene Rae (RGS Host), Ian Harvey, Alan Philipp, Cinzia Viviani, David Dare.

† Paul D. A. Harvey 1930–2025

Paul Harvey started out his career in 1957 as the Assistant Keeper in the Department of Manuscripts at the British Museum. He took up a chair as Professor of Medieval History at the University of Durham in 1978 and remained there until his retirement in 1985. Paul will be known to readers for his publications on medieval maps and many will have a copy of his study of the Hereford Mappae Mundi on their bookshelves. Perhaps less known was his interests for locally produced, pre-1914 guidebooks of Great Britain and Ireland. In 2015 Paul was awarded the IMCoS–Helen Wallis prize for his contributions to the study of map history.

Professor Paul Harvey, winner of the 2015 IMCoS–Helen Wallis prize, receiving the silver salver from Valerie Newby, IMCoS Vice-Chairperson, at the Society's annual dinner. Read Tony Campbell's award citation in Issue No 142, 2015 (pp. 10–12).


Birds Eye View
showing
Portland R.R. Co. System
and
Connecting Lines.
Casco Bay
Back Cove
Cape Elizabeth
Atlantic Ocean
Westbrook
Windham Center
Yarmouth
Freeport
North Deering
East Deering
Morrills
Marine Hospital
Mackworth Is.
The Brothers
Clapboard Is.
South Portland
Simonton Cove
Eastern S.S. Co.
Union Station
Stroudwater
Old Orchard Beach
Saco
Biddeford
Prouts Neck
Pine Point
Biddeford Pool
Kennebunkport
Kennebunk
Wells
York
Portsmouth
Biddeford

IMCoS 42nd INTERNATIONAL SYMPOSIUM, 2025

Portland, Maine, USA
11 – 14 September 2025

'REFLECTIONS AND NEW PERSPECTIVES ON MAPPING MAINE, NEW ENGLAND AND MARITIME CANADA'

The Symposium is hosted by The Osher Map Library and Smith Center for Cartographic Education (www.oshermaps.org) University of Southern Maine (USM), Portland Campus, Maine, USA (www.usm.maine.edu)

REGISTRATION IS NOW OPEN

https://conferences.usm.maine.edu/EventProConnect/Registrations/Welcome.aspx

Thursday 11 September 2025
Welcome to Portland

10 am – 1 pm OPTIONAL Tour: Casco Bay Ferry Lines Mail Boat Cruise of Casco Bay, Portland (select option to register for Ferry Boat cruise at registration)
Lunch on your own
3 pm – 5 pm Conference registration and packet pick-up, Osher Map Library, USM Portland
5 pm – 6 pm Welcome Reception, Hannaford Hall Lobby, Abromson Center, USM Portland
Appetizers and hors d'oeuvres; cash bar
6 pm – 7 pm Keynote address (Hannaford Hall) by James Eric Francis, Sr., 'Penobscot Nation Tribal Historian Cultural Geography and a Wabanaki Sense of Place'
[Keynote address is open to the public]
Dinner on your own

Walker Lith. and Publishing Co., 'Bird's Eye View showing Portland R.R. Co. System and Connecting Lines', 1909. Courtesy of the Osher Map Library and Smith Center for Cartographic Education, University of Southern Maine.

Friday 12 September 2025
Local and Regional Context

Morning Programme: McGoldrick Center, University of Southern Maine, Salons A-C
8:30 am Arrival and Coffee/Tea
9 am – 10 am Dr Matthew Edney, Osher Chair in the History of Cartography, 'Situating New England and the Maritimes Geographically and Cartographically'
10 am – 10:30 am Coffee break, *Sponsored by Leventhal Map and Education Center*
10:30 am – 11:30 am Dr Libby Bischof, Executive Director, Osher Map Library, and Professor of History, USM, 'Mapping and Charting the History of Portland, Maine'
11:30 am – 12:30 pm Dr Garrett Dash Nelson, President and Curator, Leventhal Map and Education Center, Boston Public Library, 'America 250 and Mapping the Revolutionary War: The ARGO Online Mapping Project'
12:30 pm – 1:30 pm Catered buffet lunch, McGoldrick Salons *Sponsored by the Friends of the Osher Map Library*

Afternoon Programme: Maine Historical Society (MHS), 489 Congress Street, Portland
2 pm – 5 pm Maine Historical Society (Meet at MHS at 2 pm)
Our time at Maine Historical Society will focus on their recent 'Beyond Borders: Mapping Maine and the Northeast Boundary (1625–1893)' project and will include collection tours of manuscript maps, tour of the Longfellow House (the famed 19th-century poet Henry Wadsworth Longfellow's boyhood home, and a panel discussion about mapping the Northeast Boundary and the Beyond Borders project.
5pm – 6 pm Cocktail reception at Maine Historical Society
Dinner on your own

Saturday 13 September 2025 Teaching with Maps and Maritime History

Morning Programme: Teaching with Maps, McGoldrick Center, University of Southern Maine, Salons A–C
9 am – 9:30 am Welcome/Coffee
9:30 am – 10:30 am Teaching with Maps Panel featuring K-12 (primary and secondary school) educators discussing how they incorporate historic maps into their classroom experiences.
10:30 am – 10:45 am Break
10:45 am – 11:45 am Teaching with Maps Panel featuring University Faculty from a variety of disciplines discussing creative ways of incorporating historic maps in their classrooms and assignments.
12 pm – 1 pm Map Viewing at the Osher Map Library, focusing on maps used in teaching, in alignment with the morning session panels. [*optional visit*]

Afternoon Programme: Excursion to Bath, Maine (Maine's 'City of Ships')
1 pm Charter bus leaves from front of Osher Map Library to Bath, Maine [for those not driving on their own]. Bagged lunch available for bus ride (for those interested, select option during registration)
2 pm Arrive at Maine Maritime Museum, 243 Washington Street, Bath, Maine.
2 pm – 3:30 pm Collections and exhibit tours
4 pm – 5 pm Optional Kennebec River Cruise (narrated one-hour tour) (select during registration)
5:30 pm Charter bus returns from Maine Maritime to Portland, Maine
Dinner on your own

Sunday 14 September 2025 Treasures of the collection and farewell dinner

Morning Programme: Osher Map Library and Smith Center for Cartographic Education
9 am – 10 am History and overview of the Osher Map Library and Collections with Dr Libby Bischof, Dr Matthew Edney, and Mr Louis Miller
10 am – 10:30 am Coffee break (with snacks)
10:30 am – 11:30 am Thematic lecture on OML Collections (Speaker TBD)
11:30 am – 1 pm Guided Tours of the Osher Map Library
[Vaults and storage areas, digital labs, gallery, treasures of the collection in the Reading Room]
1 pm – 1:15 pm Preview of IMCoS 43rd International Symposium 2026 to be held in Japan
1:15 pm – 6 pm Lunch on your own and afternoon free to explore Portland
6 pm/7 pm Farewell Dinner [Lobster/Clambake, Seafood dinner experience, with vegetarian options, etc. available] Location TBD

Registration fee
(including closing dinner):
$350 per person (students free)
Questions about the programme or the post-symposium trip can be directed to Dr Libby Bischof, Executive Director, Osher Map Library, elizabeth.bischof@maine.edu

Accomodation in Portland:
The part of Portland that USM and the Osher Map Library is located in is not within a short strolling distance from any hotels in Portland. Most are within a mile (a selection is listed below). Buses, taxis and Ubers are available.
Hotels within 1-1.5 miles of the Osher Map Library/USM Portland Campus:

Longfellow Hotel, 754 Congress Street https://www.longfellowhotel.com/hotel/
Holiday in Portland, By the Bay
88 Spring Street, https://www.innbythebay.com/
The Westin Portland Harborview, 157 High Street https://www.marriott.com
The Press Hotel, Autograph Collection
119 Exchange Street, https://www.marriott.com
Portland Regency Hotel and Spa
20 Milk Street, https://www.theregency.com/

J.J. Stoner, detail from 'Bird's Eye View of the City of Portland, Maine', 1876. Courtesy of the Osher Map Library and Smith Center for Cartographic Education, University of Southern Maine.

Canopy by Hilton Waterfront
9 Center Street, https://www.hilton.com
Courtyard Marriott, Portland Downtown
321 Commercial Street https://www.marriott.com

Travel Notes: We recommend that international guests fly into Boston's Logan International Airport, and either rent a car or take the Concord Coach Lines bus (stops at each airport terminal) up to Portland, Maine (2 hours North). Guests from the US and Canada may instead wish to fly into the Portland. International Jetport, which is about 10-15 minutes from downtown Portland, Maine.

Casco Bay Ferry Lines on the Portland waterfront.
Licensed under the Creative Commons Attribution-Share Alike 4.0 International license.

POST-SYMPOSIUM EXCURSION

15–17 September 2025

Bar Harbor, Acadia National Park, and Mount Desert Island
Limited to 25 Participants [in 18 hotel rooms]
Cost: $375 per person (INCLUDES: coach bus transportation, 3 lunches, all entrance fees to museums, gardens, Acadia National Park, etc.).
DOES NOT INCLUDE: Cost of 2 nights lodging in Bar Harbor.

You will be able to register and pay directly for the post-symposium tour on the Conference Registration site:
(**https://conferences.usm.maine.edu/EventProConnect/Registrations/Welcome.aspx**).
If you are interested in the post-symposium tour, please also contact Dr Libby Bischof (elizabeth.bischof@maine.edu) ASAP so she can reserve a spot for you, and add you to the post-symposium tour email list for planning purposes.

Monday 15 September

8:30 AM: Depart Portland, Maine (via coach bus, or your own personal vehicle, if preferred) and head to Bar Harbor on Mount Desert Island, about a three-hour journey. On our way we will stop at the Farnsworth Museum in Rockland, Maine, for a collections tour (among Maine's premier American Art collections), and lunch in Rockland, before getting back on the road to Bar Harbor.

PM: In the early-afternoon we will visit the Abbe Museum in Bar Harbor, Maine, a Smithsonian Affiliate which tells the stories (past and present) of Maine's Indigenous populations, with both archeological and contemporary exhibits, We will have a guided tour of their current and new exhibits, and then go check into our Inns.
Dinner is on your own in the village.

We will stay two nights in Bar Harbor. **You will need to directly book accommodations at one of two historic Inns listed below** (they are located directly next door to one another; the Coach bus will drop and pick up at both locations). Both are very close to (a brief walk) to the village of Bar Harbor. We have 8 rooms at the Mira Monte, and 10 rooms at The Primrose Inn. Both are beautiful historic properties, and a full breakfast is included. September is the most beautiful month to visit Maine, and so the high season rates are still in effect for hotels, etc.

The Mira Monte Historic Inn, located 1 block from the village of Bar Harbor:
https://miramonte.com/ [Starting at $359/night to $439/night for a suite]
You must CALL to book your room 1-207-288-4263 and you must book **EARLY**. Reserve a room under the OSHER MAP LIBRARY/LIBBY BISCHOF Block of Rooms.
The Primrose Inn, located 1 block from the village of Bar Harbor and right next door to Mira Monte: https://www.primroseinn.com/ [Starting at $449/night to $549/night for a suite]
You must CALL to book your room 1-207-288-4031 and you must book **EARLY**. Reserve a room under the INTERNATIONAL MAP COLLECTOR SOCIETY GROUP Block of Rooms.

Tuesday 16 September 2025

Full Day: This day will be dedicated to various excursions in and around Acadia National Park (dependent upon what the group wants to see, what is open that day, etc.). We will leave the Inns by 9 am to get to one of the park entrances, and do the loop road. Lunch has been arranged at a traditional local seafood restaurant for fish, lobster, etc. We will return to the Inns by 4 pm.
Dinner is on your own in the village.

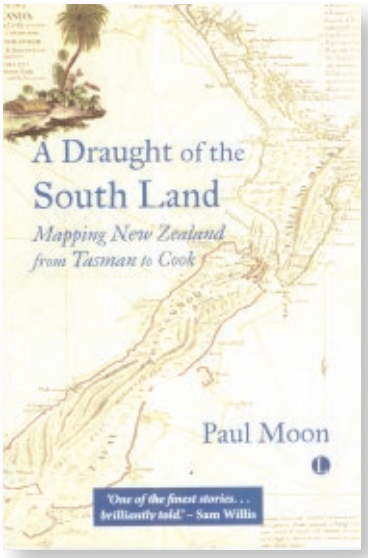
Wednesday 17 September 2025

AM: We will visit various locales in Northeast Harbor, Maine (a town on Mt Desert Island), including the Asticou and Thuya Gardens, the Great Harbor Maritime Museum, and the map collections at the Northeast Harbor Library.

PM: Late lunch together on the island before departing back to Portland, Maine by 1:45 pm. We will arrive in Portland by 5 pm (can drop off at the PWM airport and/or downtown in the Old Port/Hotel district). Accommodations/Departure plans are up to you for Wednesday evening.

BOOK REVIEWS

A Draught of the South Land: Mapping New Zealand from Tasman to Cook
by Paul Moon. Cambridge: Lutterworth Press, 2023. HB ISBN: 9780718897215 / PB ISBN: 9780718897208. HB & PB, 240, illus. HB STG £56.25. PB STG £20.25.



Three-quarters of the way into his book, historian Paul Moon notes that Captain James Cook's bark '*Endeavour* continued its cruise along the coast of the North Island, with gentle breezes, interspersed with periods of dead calm, governing its progress' (157). This description provides an apt metaphor for *A Draught of the South Land*, Moon's exploration of the commercial, political, scientific, and cartographic forces that brought the coastal geographies of a remote island nation into conversation with seventeenth- and eighteenth-century European geopolitics. Spanning approximately 150 years between 1620 and 1770, Moon's history suffers from only a few 'periods of dead calm', as his tendency to include dramatic anecdotes from various archival sources kept this reader interested and engaged throughout the volume.

A Draught of the South Land begins with a biographical sketch of Hessel Gerritsz, a venerable Dutch cartographer who became the first exclusive mapmaker for the Dutch East India Company (VOC – Verenigde Oostindische Compagnie). Moon introduces Gerritsz by describing an imagined winter scene in which the cartographer sheathes some freshly penned maps into a calfskin satchel, deposits them at VOC headquarters, hugs a heavy cloak close to his body, and braves the icy winds home. Far from a 'gentle breeze' blowing in the direction of Aotearoa New Zealand, this dramatic anecdote transports readers to Amsterdam, Europe's cartographic capital in the seventeenth-century. The remainder of Chapter 1 traces the development of European geography and cartography from Herodotus to Mercator, with the final pages explaining how Dutch printers and mapmakers typically engraved and published maps and atlases.

The next two chapters recount the political, economic, and cartographic circumstances that allowed the Dutch to construct a dominant trade empire that flourished for more than a century. In Chapter 2, Moon describes how Dutch commercial interests shrewdly navigated the European political world in the sixteenth-century culminating in VOC's foundation. A 'beguiling *ménage* of business, politics and war' (18), the VOC was an extension of the Dutch state or, as Moon observes, 'took on some of the traits of a nation' (19). Indeed, the second half of the chapter provides an informative example of colonial administration by explaining how the VOC established and governed a colonial outpost in Batavia (modern-day Jakarta, Indonesia).

Though he fails to provide information about Indigenous or non-Dutch populations in seventeenth-century Batavia, Moon summarises how the VOC's satellite office functioned as a hub for intelligence-gathering in the region. Chapter 3 introduces Abel Janszoon Tasman, a skilled Dutch navigator, who arrived in Batavia for the first time in 1633. Tasman quickly gained notoriety and promotion, and in 1642, the Governor-General and councillors of Batavia selected him to lead an expedition to uncharted areas of Oceania. It is within the context of this voyage that Moon's titular 'South Land' – Aotearoa New Zealand – enters the story for the first time.

Chapter 3's descriptions of cross-cultural exchange, communication, and conflict between Tasman's crew and local Māori hold greater significance when interpreted in reference to the concepts introduced by the opening chapters. Although Moon rightly

discusses the contemporary impacts of 'the first known, cross-cultural exchange between Māori and Europeans' (41–43), he misses an opportunity to explore the profound and lasting intercultural ramifications of this encounter. For this reader, the oversight echoes Moon's astute observation that 'Tasman's discoveries would be evaluated not for any contribution that they made to Europe's geographical or anthropological knowledge of the world, but for more mercantile motives' (45).

Moon is at his best when contextualising the activities of European imperial powers in reference to broader political and economic systems. For this reason, Chapter 4 represents one of the high points of the volume. The chapter introduces the concept of 'intelligence empires' (50) and describes how the geographical and cultural data collected by VOC explorers contributed to Dutch economic hegemony through additive and incremental discovery and knowledge exchange. Using Tasman's crude cartographical observations of 'Staete Landt' (Aotearoa New Zealand) as an example, Moon deftly summarises how navigational and geographical intelligence 'enjoyed a form of autonomy', 'took on a life of its own', 'was responsive to its environment', and 'was capable of reproduction and evolution' (51). Indeed, Chapter 4 recounts particular transfers of knowledge and historical circumstances that resulted in Joan Blaeu's decision to label Tasman's 'discovery' as 'Zeelandia Nova'. Bringing VOC activities into conversation with British imperial ambitions, the chapter also introduces the English East India Company (EIC).

Chapters 5 and 6 describe how cartographic technologies, industries, and markets developed in Dutch, English, and wider European contexts. For Moon, the achievements of cartographers like Gerritsz and Blaeu defined an era in which 'the cartographer [transitioned] from outlining the world to insinuating who shaped and controlled it' (66). Two halves of a whole, Chapters 5 and 6 emphasise Amsterdam's position as Europe's seventeenth-century cartographic capital and describe various factors (e.g., the formation of England's Royal Society; growing public literacy; a profusion of printing) that contributed to the ascendance of English cartographic activity during the first half of the eighteenth century. Such were the wider social and cultural contexts that influenced the English Royal Society's decision to organise a voyage to document the 1769 transit of Venus.

Chapter 7 describes a variety of considerations that influenced how the Royal Society prepared HMS *Endeavour* for its voyage to southern Oceania. Moon observes that 'science and Empire were unavoidably entangled in this proposed venture' (113) and that the transit of Venus served as a 'convenient pretext' allowing 'Britain to extend its presence' in Oceania (115). Similar to Chapter 4, Chapter 7's examinations of developing navigation technologies and the interplay between naval intelligence-gathering and scientific exploration allow the author's historical interpretation to shine through. By describing prominent figures (James Cook; Joseph Banks; Tupaia) and advanced technologies (a Ramsden sextant; astronomical clocks; etc.) that accompanied the *Endeavour* on its voyage, Moon convincingly demonstrates that '[n]o previous expedition to the region had anything like this level of expertise' (117).

Chapters 8 through 10 document Cook's navigational and cartographic achievements during HMS *Endeavour* 's circumnavigation of Aotearoa New Zealand between October 1769 and March 1770. Moon does well to distil 'one of the greatest voyages of discovery' (125) into 56 succinct pages, and certain key themes emerge from the author's historical observations. Firstly, Moon presents a flattering portrait of Cook, a man he variously describes as 'producing charts that became an archetype of mapmaking precision' (121), 'a studious scholar of the works of other cartographers and mapmakers' (164), and a man who harnessed 'all that was available to him in pursuit of what would become one of the greatest mapping exercises in history' (148). Supporting this characterisation, Chapter 8 offers some valuable insights into Cook's mapping methods. The chapter also explores the rhythms of life onboard the *Endeavour* and examines contributions made by various crew members.

Within Chapters 8, 9, and 10, Moon acknowledges the sophistication of Indigenous knowledge systems, particularly in reference to Tupaia, 'an expert indigenous navigator' (131) who greatly contributed to the success of Cook's voyage. By Moon's account, Banks and Cook respected Tupaia's skills and intelligence. Moon also emphasises the significance of information provided by 'an elderly Māori' (168) who was present during a 'ceremony' that occurred onboard the *Endeavour* in January 1770. Quoting from Cook's journal, Moon explains that this unnamed informant shared a great deal of geographical information with the *Endeavour*'s captain and crew. For Moon, Cook's description of this encounter 'hints

at a complex and intricate network of information exchange' between Māori knowledge-holders 'in which intelligence about the country's topography was accumulated and refined' (169). Moon concedes that 'Cook did not appear to give any thought as to how Māori acquired this knowledge' (169), but he does not devote much effort to problematising the cross-cultural engagements that occurred during *Endeavour*'s voyage.

Chapters 11 and 12 document the immediate aftermath and impacts of the voyage's cartographic and observational achievements. Specifically, Chapter 11 explains how author Dr John Hawkesworth consulted Cook's records, 'sculpting them into a more publishable form for a general readership' (185) and how '[t]he map that Cook had so expertly drawn was precisely replicated for printing by the engraver and cartographer, John Bayly' (188). According to Moon, the publication of Cook's maps and findings showed the eighteenth-century English public that 'New Zealand almost appeared to be in a state of rustic antiquity, just waiting its turn to be anointed with an infusion of British civilisation' (188). Chapter 12 reads as a brief epilogue to Moon's volume, briefly documenting the subsequent translation of Cook's charts and logs into French and Italian and describing a few exploratory voyages that visited Aotearoa New Zealand prior to 1800.

Any work ambitious enough to trace 150 years of cartographic history will likely exhibit a few shortcomings. In Moon's case, these are: 1) an underemphasis of the negative impacts of imperial/colonial exploration on Indigenous populations; and 2) a distinct valorisation of individual explorers like Tasman and Cook. From my point of view, however, Moon's impressive contextualisation of individual events and anecdotes within larger social, economic, and political networks helps counteract such weaknesses, even though his interpretive lens is clearly tilted towards Europe and away from Indigenous groups in Aotearoa and wider Oceania. The overall picture that emerges allows the reader to understand a variety of the complex forces that motivated global exploration, mercantile activity, and cartography during the seventeenth and eighteenth centuries.

Moon describes James Cook's first voyage to Aotearoa New Zealand as 'an expedition of perpetual motion' (143). *A Draught of the South Land: Mapping New Zealand from Tasman to Cook* possesses a similar sense of dynamism. Just as Hawkesworth effectively transformed Cook's 'stilted, leaden journal entries' into 'a stream of silvery prose' (184–85), Moon's volume successfully recounts the remarkable cartographic and navigational achievements of figures like Hessel Gerritsz, Joan Blaeu, Abel Tasman, and James Cook through engaging anecdotes and insightful commentary. The book is well worth reading and will appeal to historians of exploration, cartography, and cross-cultural encounter alike.

Andrew Z. Lorey, Te Uare Taoka o Hākena | Hocken Collections, Ōtākou Whakaihu Waka | University of Otago, Dunedin

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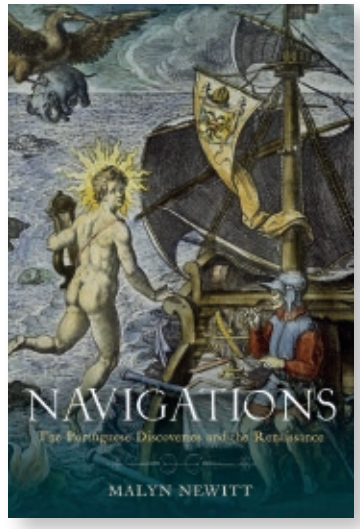
Navigations: The Portuguese Discoveries and the Renaissance *by Malyn Newitt. London, Reaktion Books, 2023. ISBN 9781789147025. HB, 368, 57 illus. STG £25.00.*



This book is a re-evaluation of the origins and progress of Portuguese maritime activities in Africa and Asia, and the formation of the Portuguese Empire. The author consciously endeavours to provide a balanced look at the implications of Portuguese explorations by highlighting the negative impacts such as inhuman acts against Indigenous people, slavery, etc. The author also argues against the story of the Age of Discovery being told as the story of heroic men, Prince Henry the Navigator (Infante Dom Henrique) being the epitome. 'History has also neglected the story of the skilled pilots who actually navigated the fleets commanded by Dias, da Gama and Cabral, and the ordinary people, usually anonymous, who provided the crews for the

ships, the soldiers who garrisoned the fortresses and the settlers who populated the islands' (12).

After a brief introduction (9-13) setting the stage, other chapters explore the 'Social and Economic History of the Portuguese Atlantic Empire' and 'The Portuguese Exploration of the West African Coast in the Second Half of the Fifteenth Century'. Chapter 2, 'The Princes of the Avis Dynasty and the Beginning of Portuguese Maritime Exploration', represents a significant contribution in the English language to the field of Portuguese maritime history, offering a fresh perspective that challenges long-held assumptions about the driving forces behind Portugal's early exploration efforts. Newitt argues that the Avis dynasty princes were key figures in spearheading Portugal's expansion, while also considering factors such as crusading zeal, trade opportunities, and the dynasty's political ambitions. By deconstructing the myth around Prince Henry, Newitt offers a more nuanced understanding of the broader historical context that shaped Portugal's exploratory endeavours.

Chapter 5 on 'Portuguese Royal Women in the Age of Discovery' seems slightly out of place. Though an important contribution to understanding Iberian politics and dynasties, in which women exerted great control and power, their effects upon the exploration voyages are never demonstrated and, at most, are implied to be indirect. Other chapters re-examine the accounts of the Portuguese explorers, beginning with those who explored the West African coast, followed by Bartolomeu Dias, Vasco da Gama, Pedro Álvares Cabral, Duarte Pacheco Pereira, and Ferdinand Magellan.

There are a few errors of fact. It is unpleasant to observe faults in the work of so deserving a scholar, but it is necessary to do so when subsequent scholars may take the statements on trust. The author states (27) that in '1320, Jordan of Severac's *Mirabilia descripta* resulted in the ruler of Ethiopia being identified with the legendary Prester John...'. It was in 1320 when Jordan Catala of Severac's adventurous travels began but it was more than a decade later before he wrote down the tale. The placement of Prester John in Ethiopia began in a report by Giovanni da Carignano, a Genoese priest and cartographer (d. 1329), while Severac was still gallivanting about. The outdated diffusionist canard is repeated that Europeans borrowed (rather than independently invented) the concept or use of the compass (connoting the mariner's magnetic compass) from the Chinese (28). The famous Catalan Atlas of 1375 is mischaracterised as a 'series of portolan charts' (39), whereas, it was originally produced as a decorative world map of six joined vellum leaves, only two of which (3rd & 4th leaves) are based upon portolan charts. Regarding the veracity of Marco Polo's 'Travels', '[i]t seems quite possible that these famous "Travels" are another concoction, like that of Mandeville' (45-6), Newitt neglects to acknowledge that Polo related details of many events to which he was an eyewitness and participant. A few pages later, this 'possibility' is actualised as Polo being 'equally fictional' to that of the travels of Sir John Mandeville (49). It is stated that Portuguese historian Duarte Leite was still writing in 1960 (86), ten years after his passing. That Magellan was born in Trás-os-Montes is asserted (134, 252), though his place of birth is unknown, other proposed locations have included Sabrosa, Vila Nova de Gaia, Nóbrega, Porto, and Ponte da Barca. Lusar do Masser (188, 213-14) is a unique spelling of Leonardo da Ca' Masser (also Leonardo Masseri and Lunardo Masser). The Amazons are identified as active characters in Vespucci's narrative (244) but there is no mention in either of Vespucci's two printed letters, *Mundus Novus* (Paris, 1503; also known as 'Medici Letter') and *Lettera di Amerigo Vespucci delle Isole nuouamente trouate in quattro suoi viaggi* (Florence, 1505; also known as 'Soderini Letter').

For this journal's readership of map collectors and cartophiles, the remainder of this review will focus upon the book's discussion of maps and charts. A sub-chapter 'Portolan Charts and Maps' (36-41) provides a general overview of the history of cartography in the 13th – 16th centuries, briefly mentioning the usual prominent figures: Catalan Atlas, Fra Mauro, Henry the Navigator, Columbus, Magellan. The 'three types of cartographical information' were 'engaged in a struggle which initially tried to resolve itself through a synthesis of all three traditions', i.e., mappaemundi, portolan charts and Ptolemy, 'but ultimately became a struggle for the survival of the fittest' (40). The 'portolan maps, evolving through empirical processes, eventually triumphed, traditional ways of representing the world still continued alongside them' (40). But, surely it was Ptolemy's geographical coordinate system of longtitudes and latitudes we continue to use today that triumphed.

The author highlights that maps produced in the tradition of the practical portolan charts used by Mediterranean seamen were first expanded in the fifteenth and early sixteenth centuries to include more of the world. This was largely as a consequence of Portuguese voyages south along the West African coast, eventually leading to 'the famous Cantino map, made

in Lisbon in 1502, which was one of the great aesthetic as well as scientific achievements of the High Renaissance' (17). Further, 'it was the knowledge of the geography of the planet, which gradually evolved during the fifteenth century and which culminated in the Cantino map of 1502 and the maps of the Reinel and Homem families, that was to be Portugal's greatest contribution to the European Renaissance' (223), though some may argue for Manueline Architecture or another artistic or scientfic achievement of the Portuguese.

The author is inclined to make assertions about maps that are questionable. For example, it is stated that German mapmakers were finding out details of the Portuguese voyages in the fifteenth century (85), yet no such details appear in the fifteenth-century maps of Glockendon, Rüst, Schedel, Schnitzer, Schönsperger, Sporer, and other German mapmakers. That it was in the thirteenth century when 'Genoese and Venetians began to make regular voyages to northern Europe and the Canary Islands' (36) is claimed but, regarding the Canary Islands, this lacks evidence and is not supported by mainstream historical research. The widely accepted historical accounts indicate that Europeans did not rediscover the Canary Islands until the early fourteenth century. After suggesting a few influences from Islamic maps and geography regarding the interior of Africa, the author assumes Islamic *navigational* maps influenced Portuguese charts such that on 'the Cantino map of 1502, in which the [Africa] continent's shape is presented with remarkable accuracy, must be due to the maps and navigational knowledge which Vasco da Gama and Cabral obtained from their Indian Ocean informants' (39). There is no reason to conclude Africa's shape and the depiction of its coasts (ex. Red Sea) on the Cantino map includes any knowledge other than that developed by the Portuguese. The methods of Portuguese navigation (compass and quadrant) and the voyages of da Gama, Cabral, Dias, da Nova and other Portuguese explorers along the coasts of Africa fully explains Africa's form and cartography on the Cantino map. 'In 1406 the makers of the portolan-style maps were unexpectedly pulled in another direction. In that year a Latin translation of Ptolemy's "Guide to Geography" was made' (39). This 'pulling' is questionable. Any influences of Ptolemaic geography or cartographic methods on portolan charts prior to the sixteenth century were infinitesimal. There was, however, an unexpected pull in the other direction: portolan charts profoundly influenced Ptolemaic geography and cartography. In fact, the author himself gives (40) such an example in the Henricus Martellus map of *c.* 1490 at Yale, calling it a 'classic hybrid map' of a Ptolemaic map being modified by portolan charts. As to the unknown origin of the portolan chart, of the several competing theories, undisclosed to the reader, the author clearly states his preference (and this reviewer's) when citing 'P.D.A. Harvey, in his study of medieval maps, suggests that portolans were initially severely practical sailing charts that were created "simply from carefully measuring, recording and collating, the direction and distance of a great many voyages"'.

The book contains maps, glossary, index, genealogies (which contain names, but no dates, plus inexplicable notational marks of asterisks, squares, and rhombuses), end notes, a bibliography (almost all secondary and tertiary sources and few primary sources from the fifteenth and sixteenth centuries). It is well-illustrated with dozens of black-and-white images and colour plates which enhance the text.

As a reassessment in English of the historiography of the Portuguese exploratory voyages, particularly at the present time with the end of global empires and colonies, this book is a significant initial step. As a book for those interested in the early maps, it could be useful for providing the Portuguese background to the voyages that led to the modern image of the world.

Gregory McIntosh, Independent scholar, Lisbon

REVIEWERS NEEDED

If you would like to review books for the *IMCoS Map Journal*, or you have come across an interesting new book on an aspect of map history which you think should be reviewed, please contact the Editor.

Email **ljiljana.editor@gmail.com**

EXHIBITION REVIEW

The First Official Map of Virginia

A visit summary by Tom Sander

IMCoS was represented in a group of twenty participants at a visit on 8 February to a very special map, maybe better said, assembly of maps, on display at the Library of Virginia, Richmond in an exhibition titled 'Mapping the Commonwealth, 1816 – 1826'.

What is the difference between a state and a commonwealth? According to www.merriam-webster.com, '[t]here are four states in the United States that call themselves commonwealths: Kentucky, Massachusetts, Pennsylvania, and Virginia. The distinction is in name alone. The commonwealths are just like any other state in their politics and laws, and there is no difference in their relationship to the nation as a whole'.

The star attraction of the exhibition was the map that took ten years to create, that saw the involvement of five state governors, that was the close supervisory work of two principal surveyors, and the detailed final product by one lead engraver.

The United States was still young when suddenly the nation was in the midst of the War of 1812. It became apparent to many local and state governments during the conflict that transportation infrastructure was deficient, and improvements were necessary if the nation was to prosper after the war. Roads had to be built, canals dug where possible, all in the name of progress to connect the country's goods from source to markets. Virginia's General Assembly in 1816 created the Board of Public Works to manage the infrastructure improvements. But to do the job properly, the state needed an accurate map on which to base the work. No official map of the entire Commonwealth yet existed.

How to do this? The government directed each county to hire surveyors to make 'an accurate chart of their respective county'. The Commonwealth hired a group of surveyors to survey Virginia's multi-county features such as main rivers, roads, mountains and gaps. As the project progressed, the government required that the counties produce two copies of each map – one to be held at the county level and one for the governor to use in compiling a full map of Virginia. In April 1819 John Wood (1775–1822), originally from Scotland, was hired to supervise the project. Admittedly, the quality

Fig. 1 'A Map of the State of Virginia Constructed in conformity to Law, from the late Surveys authorized by the Legislature and other original and Authentic Documents'. Published in 1826 by Henry S. Tanner in Philadelphia. Board of Public Works Map Collection. Library of Virginia. Local Call Number BPW 712 (1). Call Number G3880 1826.B6

Fig. 2 'Henrico County: surveyed and drawn under the direction of John Wood', 1819. Detail of the area of Richmond. Library of Virginia. Call number 755.43 1819 (1).

Fig. 3 'A Map of the State of Virginia Constructed...' Published in 1826 by Henry S. Tanner in Philadelphia. Board of Public Works Map Collection. Detail from Fig. 1 of the area of Richmond. Library of Virginia.

of county maps varied based on the skills of the local surveyors. Some maps noted more details, such as taverns. The surveying was often done in challenging terrain with early nineteenth-century surveying instruments. Wood oversaw the completion of 96 county surveys. When he died suddenly in 1822 Herman Bőÿe (1792–1830) finished the task. He was Wood's principal assistant, thus perfectly placed to bring the project to completion. To fit a manageable size Commonwealth map, the individual county surveys had to be reduced, updated with neighbouring and Commonwealth-collected data, and data from other sources, like the U.S. Topographical Corps. With all the data gathered the completed draft manuscript map measured 238 x 156 cm (94 x 62 inches).

The engraving was assigned to Henry Tanner of Philadelphia. He produced nine large copper plates, to print the nine-sheet maps. Four hundred were printed. But as they were unwieldly for general circulation, eight hundred smaller, four-sheet versions were also produced. These measured 118 x 77 cm (47 x 30 inches). A look at the included details of the area of Richmond shows the difference between the original county map **(Fig. 2)** and the final engraved product **(Fig. 3)**.

The principal resulting map was used for many years by the Commonwealth to plan state-wide infrastructure improvements. It was so detailed that it was much sought after by Federal and Confederate forces during the U.S. Civil War of the early 1860s as both sides fought for control of this battleground state between North and South.

The exhibition contained a digital reproduction on cloth of the original large nine-sheet version of the map, and the reduced four-sheet version. Included also were two of the original copper plates used for the engraving of the maps, several eighteenth-century surveying instruments, plus correspondence between the officials, surveyors and engravers of the county and Commonwealth maps. A select representation of the forty county maps held at the Library of Virginia were also on display. Others have scattered to other institutions as far away as the National Archives in Washington. That one might have been removed from the Library or a county courthouse at the end of the Civil War; a prize taken north as a treasure of war?

Thomas Sander, a long-time member of IMCoS, is Emeritus Editor of *The Portolan*, journal of the Washington Map Society, a Fellow of the Society for the History of Discoveries, and past president of both organisations. Email: sandertf@hotmail.com

CARTOGRAPHY CALENDAR

Lectures & Conferences

12 June 2025, (online)
Oxford Seminars in Cartography (TOSCA) Jean-Marc Besse will speak on ***Geography and Catholic Censorship in Europe at the end of the 16th century***. Information: https://visit.bodleian.ox.ac.uk/tosca

12 June 2025, Vienna
Conference ***International Conference on the History of Map Collecting Vienna, Central Europe and Beyond*** will be at the University of Vienna. It will be organised jointly by the Vienna Centre for the History of Collecting (Austria) and the Moravian Library in Brno (Czech Republic) and accompanied by a poster exhibition on the Bernard Paul Moll composite atlas preserved at the Moravian Library which originated in Vienna in the 18th century. Information: chodejovska@mzk.cz and Silvia Tammaro silvia.tammaro@univie.ac.at

16–20 June 2025, London
London Rare Book School 2025 programme: ***A History of Maps and Mapping***. Information: https://ies.sas.ac.uk/london-rare-books-school/2025-summer-school

18–20 June 2025, Bologna
International conference: ***Giovanni Domenico Cassini, European astronomer of the 17th century on the fourth centenary of his birth.*** The conference will include events for scholars and the general public, including the observation of the passage of the solstice in the Meridian line of San Petronio in Bologna, public lectures dedicated to the astrophysical topics addressed by Cassini, and a historical-scientific conference on the figure of Cassini. Information: cassini400@inaf.it

9–11 July 2025, Paris
The International Society for the History of the Map **(ISHMap)** will hold its annual conference at Campus Condorcet. The theme is ***Mapping the Cultural Crossroads.*** A two-day workshop for early career professionals (scholars, curators, archivists, and librarians) working in the history of cartography, will precede the Symposium. A post-conference trip is planned to Vincennes with a tour through the cartographic treasures of the Historical Archives Centre kept in the Château de Vincennes, a former fortress and royal residence dating back to 14th century is planned for 12 July. Information: https://ishmap.com

11–15 August 2025, Los Angeles
Ian Fowler (Curator of Maps, History, and Government New York Public Library) will be teaching a **California Rare Book School** course on the ***History of Cartography*** at UCLA. This course is designed to provide a general overview of the history of mapping in the western world as well as the use of cartographic resources in modern-day teaching and research. Information: https:// https://www.calrbs.org

26-29 August 2025, Birmingham
The **Royal Geographical Society** (with IBG) will hold their Annual International Conference. The conference title is ***Geographies of Creativity/creative geographies***. Information: https://https://www.rgs.org/research/annual-international-conference/programme

6 September 2025, Amsterdam
The second **Amsterdam Map Fair** will take place at the National Maritime Museum. Information: https://www.map-fair.com/amsterdam/ENG

11–14 September 2025, Portland, Maine
The 42nd **International Map Collectors' Society** annual symposium will be at the Osher Map Library and Smith Center for Cartographic Education The conference title is ***New Perspectives on Mapping New England and Maritime Canada***.
15–17 September three-day post-symposium tour of Bar Harbor and Acadia National Forest. Information: Libby Bischof elizabeth.bischof@maine.edu

8–9 October 2025, Rome
The Historical Wall Maps Research Group is holding a workshop ***Hang Them Up! New Perspectives on Historical Wall Maps Studies***, at the Società Geografica Italiana, (Palazzetto Mattei in Villa Celimontana via della Navicella, 12). The aim of the event is to bring together experts from different fields to explore the historical and comparative dimensions of wall maps, their cultural significance and impact on geographical knowledge across different periods and regions, their preservation and digitsation. Information: Arturo Gallia arturo.gallia@uniroma3.it

8–10 October 2025, Stanford
The David Rumsey Map Center will host the ***"Above and Below"*** the fifth biennial *Barry Lawrence Ruderman Conference on Cartography*. It will feature talks on cartography of anything but the earth's surface, from the ocean depths to the stars. Information: https://ruderman.sites.stanford.edu/

16–18 October 2025, Chicago
The 22nd **Nebenzahl Lectures**: ***Mapping from Mexico: New Narratives for the History of Cartography*** will examine how histories of Mexican cartography can rewrite common narratives and popular assumptions. By reframing the history of mapping from the perspective of Mexico, this series will introduce new ways to engage with maps and map history. On Friday evening and Saturday, there will also be a Map Fair in the Newberry. Information: https://www.newberry.org/calendar/22nd-nebenzahl-lecture-series

17–18 October 2025, Hobart, Tasmania
The annual conference of the Australian and New Zealand Map Society (ANZMapS) will be held at Museum of Old and New Art. Papers will be presented on the theme ***Southern Frontiers***.
Information: https://anzmaps.org/

23–25 October 2025, Denver
The 2025 **annual conference** of the **Society for the History of Discoveries** will be hosted by the Rocky Mountain Map Society and the Denver Public Library. Information: https://https://discoveryhistory.org/

25–26 October 2025, Liège, Belgium
The Brussels Map Circle next excursion will take place in Liège and focus on geological mapping.
Information: https://www.bimcc.org/

31 October – 1 November 2025, Winston-Salem, North Carolina (Hybrid) Registration is open for ***Mapping American Expansion***, a two day seminar and Map Fair at The Museum Of Early Southern Decorative Arts.

Information: https://mesda.org/program/map-seminar/

14 November 2025, Paris
The History Commission of the CFC is organising a study day on *Cartographic exhibitions*. This symposium is a continuation of the previous meetings on 'Art and Cartography' (2023) and 'Cartography and Cinema' (2024), in which cartography and its history were examined from the angle of their presence in modern and contemporary visual cultures. The aim of the day is to consider aspects of the encounter between cartography and the general public.
Information: Catherine Hofmann catherine.hofmann@bnf.fr

Exhibitions

Until August 2025, Boulder, Colorado
Topophilia invites viewers to consider their relationships to place through the works of Johanna Mueller, Rita Vali, and the Library's map collection.
Information: https://libraries.colorado.edu/2024/09/13/new-topophilia-exhibition-earth-sciences-map-library-meditation-humans-relationship

Until 28 September 2025, London
From Streets to the Stars: 500 years of maps explores a range of maps from the past 500 years, from street maps of London to maps of the constellations. It considers the role of the map in spreading geographical knowledge, demarcating national boundaries and facilitating developments in transport and medicine.
Information: https://www.kcl.ac.uk/library/collections/exhibitions

Until January 2026, Boston
The **Leventhal Map & Education Center** will mark the 250th anniversary of the start of the Revolutionary War with ***Terrains of Independence.*** It poses a central geographical question: what was it about Boston and Massachusetts in the last half of the eighteenth century that made the region such a tinderbox for Revolutionary activity?
Information: https://https://www.leventhalmap.org/tags/terrains-of-independence/

Until 26 June 2026, Cambridge Massachusetts
Sea Monsters: Wonders of Nature and Imagination is on at the Harvard Museum of Natural History. It features historical illustrations of fabled monsters and mariners' maps. Information: https://https://www.hmnh.harvard.edu/

Exhibitions Opening

5 July 2025 – 31 January 2026, Cebu, Philippines
The exhibition ***Classics of Philippine Cartography from the 16th to the 20th centuries*** showcases rare historical maps and sea charts of the Philippine archepelago drawn from the collections of PHIMCOS members and institutions in the Philippines, the Netherlands, Spain and the UK. Information: https://phimcos.org

10 October 2025 – 18 January 2026, London
The **British Library** exhibition ***Secret Maps*** focuses on the relationship between mapping and secrecy in a global context between the 9th and 21st centuries. On display will be a secret Ordnance Survey map, produced ahead of the General Strike of 1926 illustrating potential weak spots in the case of civil unrest; maps used by governments in international conflicts; a map of part of the Normandy coast produced in 1944 in the weeks leading up to D-Day.
Information: https://www.bl.uk/press/british-library-announces-2025-exhibitions/

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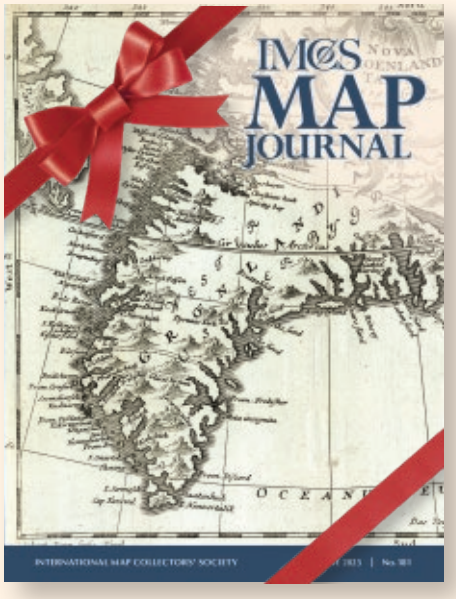

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