

Origin of the Western Australian land boundary

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ABSTRACT

The internal political boundaries of Australia, according to common belief, were derived from the *Treaty of Tordesillas* in 1494, which divided the New World between Spain and Portugal along a western meridian in the Atlantic. Later, when the lucrative Spice Islands in the Moluccas of Indonesia were discovered by the Portuguese sailing east in 1512 and the Spanish Magellan expedition sailing west in 1521, the *Treaty of Zaragoza* in 1529 attempted to clarify the anti-meridian of the eastern hemisphere to designate who could rightly claim possession. Because the Moluccas are close to the anti-meridian it was inevitable that both Spain and Portugal would vigorously defend their rights to occupation under the terms of the treaty such that to this day the anti-meridian has never been fully agreed upon. Within the Australian context, and supposedly based on the *Treaty of Tordesillas*, the three anti-meridians of 135°E, 129°E and 141°E in that order have been used to designate Australia's internal political boundaries, but uncertainty remains on the origin of each. Historical maps and documents from the 16th and 17th centuries clarify the credibility of the various anti-meridians and show that the only valid contender is the Portuguese anti-meridian of 135°E. This line was used by Tasman in 1644 to divide the Australian continent between Hollandia Nova and Terra Australis, and later by Governor Darling in 1785 to designate the boundary between New Holland and New South Wales. The derivation of the Western Australian border at 129°E appears to have been a convenient choice to protect New South Wales settlements at Port Essington and Melville Island, west of the 135°E Portuguese anti-meridian, rather than to any speculative alternative Portuguese anti-meridian derived from the *Treaty of Tordesillas*.

Keywords: Western Australia, Tordesillas, Zaragoza, Spice Islands, Moluccas, Meridians

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INTRODUCTION

In his classic work 'The Fatal Shore' Robert Hughes (2003, p. 575) has a short footnote on the eastern boundary of the newly declared colony of Western Australia: 'The common boundary was the meridian of 129°E—not that this represented any "natural" boundary, but simply because it was the convenient fossil of the "Pope's Line", fixed in the fifteenth century by the "*Treaty of Tordesillas*", which divided the world into Spanish and Portuguese hemispheres'. King (1988) and Marchant (2011) described the origins of the Western Australian boundary and alluded to the treaty as did Carney (2013) in his comprehensive presentation, from a legal perspective, on Australia's land boundaries made to the High Court of Australia. As Carney (2013, p. 2) stated 'a significant determinate of a nation's boundary is of course, international law', and 'In this respect, many may be surprised by the fact that the first land boundary created by the British on this continent in 1786 can be traced to a treaty between Portugal and Spain in 1494'. In this context, the meridian refers to the *Treaty of Tordesillas* and the anti-meridian to the *Treaty of Zaragoza*, which effectively split the globe into two supposedly equal hemispheres.

THE TREATY OF TORDESILLAS

After Columbus discovered America in 1492 exploration and colonialization of the New World expanded rapidly driven by Spain and Portugal, the two great maritime powers at that time, both catholic and with allegiance to the pope. After a *Papal Bull* in 1493 was rejected by Portugal, Pope Alexander VI signed the *Treaty of Tordesillas* in Spain in 1494. The treaty established a line of demarcation in the westernmost Atlantic (Fig. 1) 370 leagues west of the Cape Verde Islands. Exactly where in the islands was not specified with Spain gaining most of the Americas, except for the Brazilian bulge of South America, and Portugal claiming lands discovered to the east. However, because the line was not defined by degrees of longitude, nor did the line encircle the globe, different interpretations regarding its practical implementation arose. The exact position of the line of demarcation, the Papal Line, was inexact because of the limits of navigation particularly in respect to longitude, its disputed provenance within the Cape Verde Islands, and different interpretations of the length of a league.

MAGELLAN

In the years immediately after the signing of the *Treaty of Tordesillas* the attention of Portugal and Spain became



Figure 1. The Tordesillas meridian – The *Papal Line*. Antonio de Herrera (1621), courtesy the Library of Congress.

fixed on the fabled Spice Islands in the Moluccas, specifically the two tiny volcanic islands of Ternate and Tidore (Fig. 2). Portugal first reached the Moluccas in 1512 by sailing eastward from Malacca whereas the Magellan expedition funded by the King of Spain discovered the first westward route across the Pacific in 1521, landing first in the Philippines where Magellan, a Portuguese, was killed and the remainder of his crew eventually reached Tidore. Magellan had sailed westwards through the Straits of Magellan and across the Pacific with the expectation he could claim the Spice Islands for the King of Spain. Prior to his voyage he had calculated the earth's circumference to be 34,882 km (Mazon 2020) but found it be approximately 40,000 km (the actual distance around the equator is 40,007.863 km) creating a wide, previously unknown gap covering both Australia and the Moluccas. Before his voyage he had estimated that the Moluccas would lie east of a meridian between what became New Zealand and Australia but afterwards moved the meridian a distance equivalent to 5,253 km westward crossing Borneo to match the 40,000 km circumference he calculated. Both his meridians supported his justification of the Moluccas (and the Philippines) as being under the jurisdiction of Spain.

THE TREATY OF ZARAGOZA

After Juan Sebastián Elcano's return to Spain in 1522

with information from the first round-the-world trip, the cartographer Nuño García Torreño made a map of South Asia on which he drew the equator and the anti-meridian of the *Treaty of Tordesillas*: the "*Línea divisionis castellanorum et portugalliensium*". This was the first time the anti-meridian of Tordesillas had been drawn (Sanchez M 2009). The anti-meridian crossed Sumatra and the Indochina peninsula, reflecting the Spanish position that Portuguese rights only reached as far as Malacca.

Given the dispute between Spain and Portugal over the jurisdiction of the Moluccas, the *Treaty of Zaragoza* was endorsed by Pope Clement VII in 1529 dividing the world into two hemispheres with the anti-meridian being designated as 297 leagues east of the Moluccas. A degree longitude was later agreed to be equivalent to 17.5 leagues placing the anti-meridian 17° east of those islands. We now know that both Ternate and Tidore are near 127°E, which would have placed the anti-meridian at 144°E implying that the two hemispheres, were not equal, which was not the intent of the treaty. Spain strongly argued their rights to the Moluccas during the several years of treaty negotiation but ultimately with the signing of the treaty the king of Spain agreed to cede his rights to the Spice Islands to Portugal for 350,000 ducats (1,260 kg) of gold (Sánchez G 1993, p. 306). It was not until the *Treaty of Madrid* in 1750 that Spain agreed the Moluccas were within Portugal's jurisdiction. After the treaty, numerous calculations were made based on

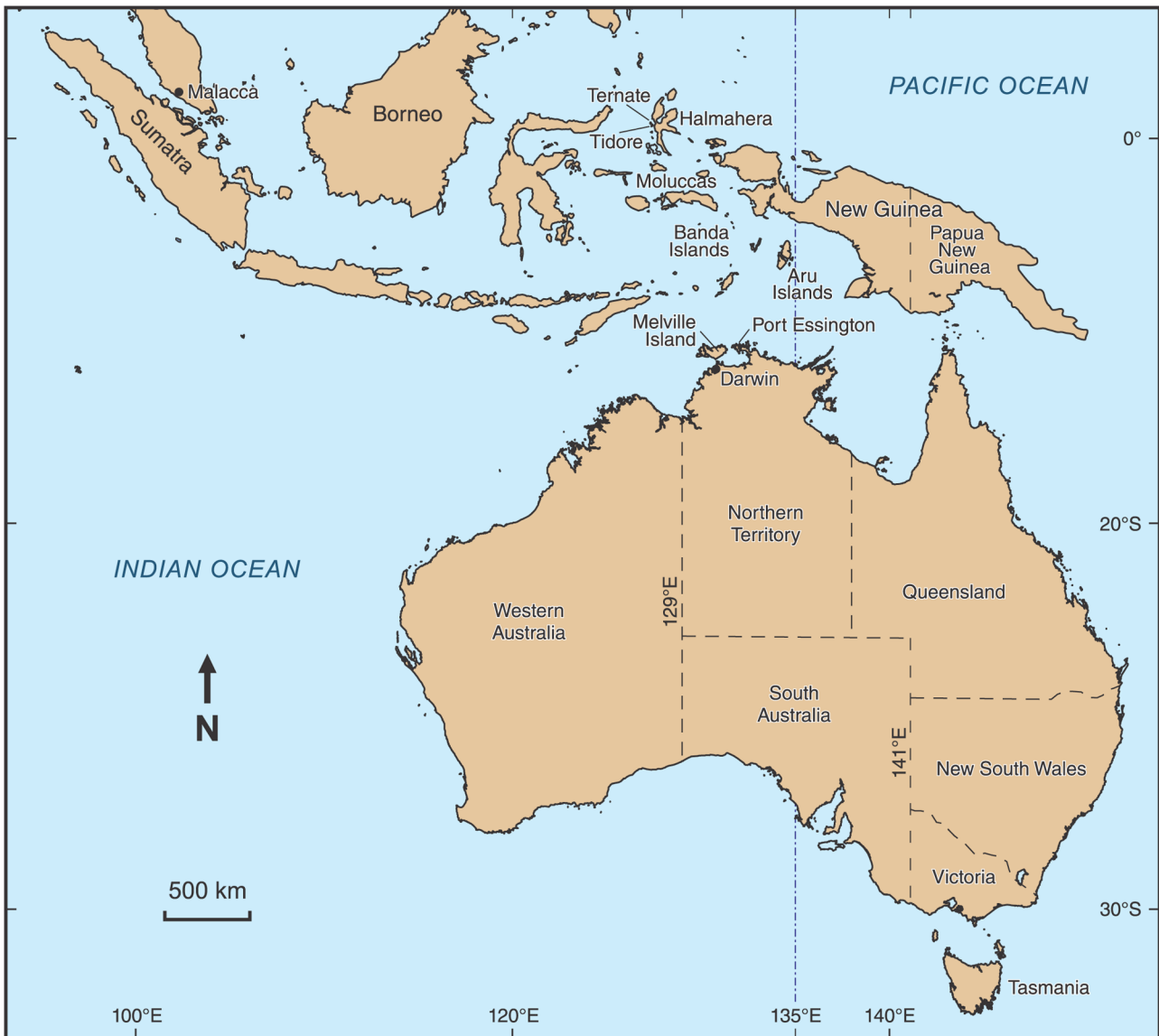


Figure 2. The internal political boundaries of Australia and localities mentioned in the text.

equal hemispheres with the Tordesillas line as the origin. According to Gammage (1981, p. 524), and quoted by Carney (2013), Portugal calculated the Tordesillas Line effectively as 51°W , the anti-meridian of which is 129°E . Perhaps because Spain had calculated the Tordesillas Line as 45°W , the anti-meridian of which is 135°E , this may be where the mistaken 129°E Portuguese anti-meridian and a 135°E Spanish anti-meridian originated. However, this would not have given Spain any claim to the Moluccas and no justification for Gammage's statement can be found. It merely confirms the inaccuracies in determining longitudes in the early 16th century. As longitudes were not normally represented on the early maps reference to locations such as Malacca and the Moluccas is considered a much more reliable indicator of where each party thought the anti-meridian should be but strongly influenced on where they wanted it to be, justifiably so by Portugal.

LONGITUDES

All longitudes now describing the meridian and anti-meridian are based on the Greenwich meridian, which was adopted by England in 1721. Although informally accepted by many countries it was not until 1884 that this meridian was ratified internationally, but more than a dozen countries still do not recognise it. The Spanish had used a meridian centred on the Canary Islands at $15^{\circ}41'\text{W}$, whereas from 1509 Portugal fixed zero longitude in the Madeira Islands at $16^{\circ}96'\text{W}$. Both of these meridians were in the Atlantic, as are the Cape Verde Islands, which were the reference origin for the *Treaty of Tordesillas*, with the meridian defined in leagues from those islands. In terms of the Cape Verde Islands, at the Badajoz-Elvas Conferencia in 1524 the Portuguese wanted to put the easternmost island 'Isla de la Sal' as the source, but at the second meeting in 1682, after the Moluccas had already

been lost, they took the opposite position to try to access more of America, in particular Sacramento–Uruguay. In this meeting the Spaniards nominated the central island of San Nicolás (24°18'W), which was then agreed as the demarcation line (Rumeu de Armas 1992). The discrepancy between the westernmost and easternmost islands is 2°13' of longitude, which is several degrees less than apparently used to define the 45°W and 51°W papal lines previously claimed.

THE ANTI-MERIDIANS

Estimates of the longitude of the Tordesillas meridian in the years following the signing of the two treaties ranged between 42°25' and 47°37'W with 46°37'W (Rumeu di Armas 1992, p. 219) being agreed at the *Treaty of Madrid* in 1750, by which time the Moluccas were of no further interest to either party. The agreement was more to finally settle Spain's right to the Philippines and no anti-meridian was nominated. Had this been agreed to earlier, and had the intent of the treaty had been to create two equal hemispheres, it would have corresponded to an anti-meridian of 133°30'E thereby placing the Moluccas firmly within Portugal's jurisdiction, which is not too different from the 135°E anti-meridian adopted in the early 16th century. In 1524 at the Badajoz-Elvas conference,

Juan Vespucci, a cartographic expert, produced a map showing a proposed anti-meridian passing through Malacca. Inside his book *Descripcion d[el] las Indias Occidentales* Antonio de Herrera y Tordesillas (1601) included a map called *Descripcion de las Indias del Poniente* made by Juan López de Velasco around 1575 (Fig. 3), which repeats the Spanish official position of the anti-meridian passing through Malacca. No longitudes were shown on this map, but such an anti-meridian would have given Spain rightful claim to the Philippines and the Moluccas. Spain would never have accepted any anti-meridian farther to the east and there is no reference or map to indicate they ever did so. Suggesting that the Spanish anti-meridian was 135°E is not credible and a 121°E anti-meridian is even less so, as it would have implied unequal hemispheres.

Lopo Homem, the cartographer who defended Portugal in the Junta de Badajoz-Elvas in 1524, which was the prelude to the *Treaty of Zaragoza*, prepared a map (dated 1554), now in the Museo Galileo in Florence, implying a Portuguese anti-meridian of 135°E. The 1571 map by Vaz Dourado (Fig. 4) repeats this showing the Portuguese and Castille flags on either side of the anti-meridian passing directly east of the island of Aru (134°28'E). Annotations on this map are proof of Portuguese early interest in New Guinea. All Portuguese maps from that

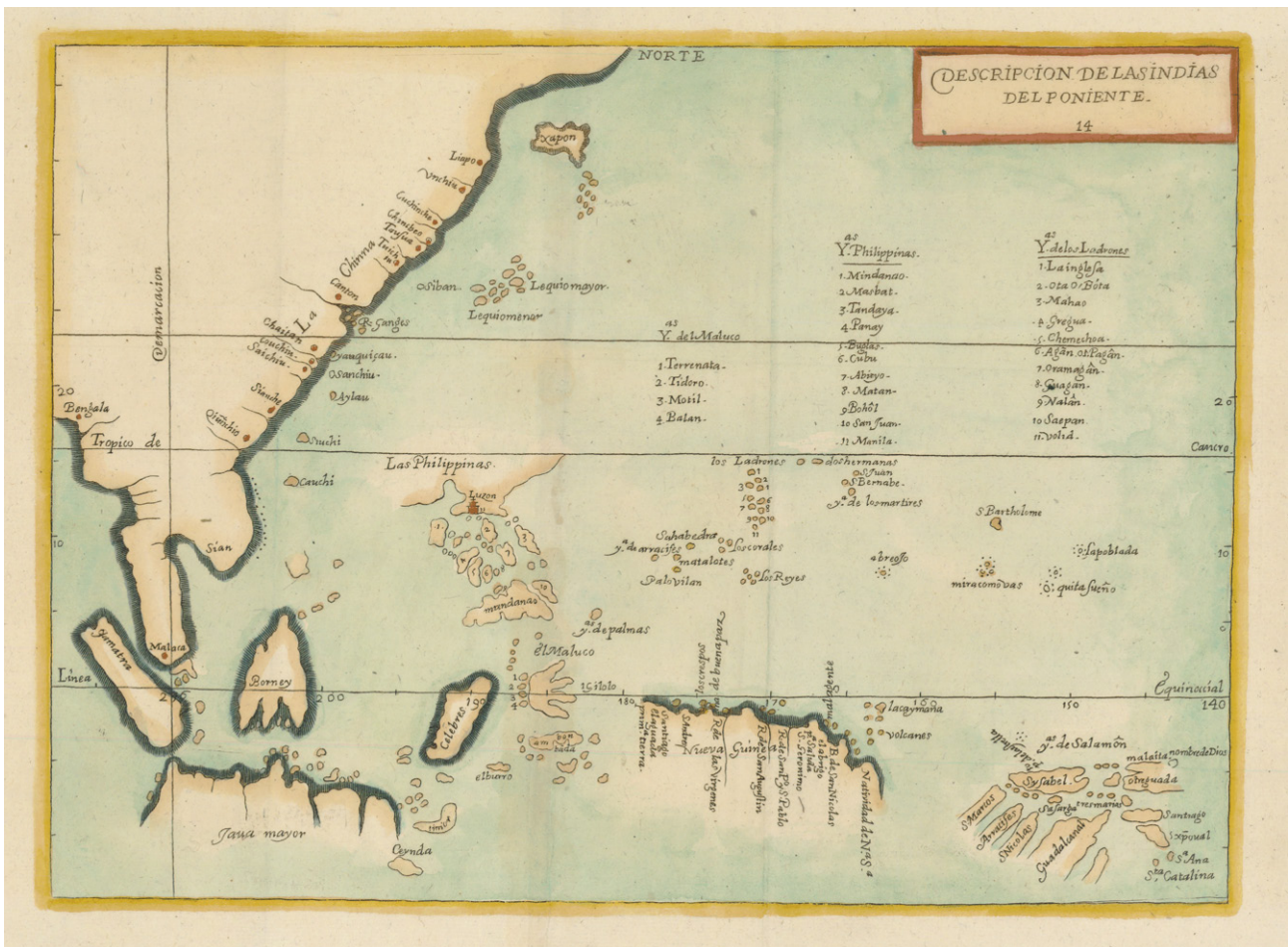


Figure 3. The Spanish anti-meridian passing through Malacca—a present day longitude of 121°E. López de Velasco (1575, in de Herrera 1601). Held by Princeton University Library, NJ, USA.

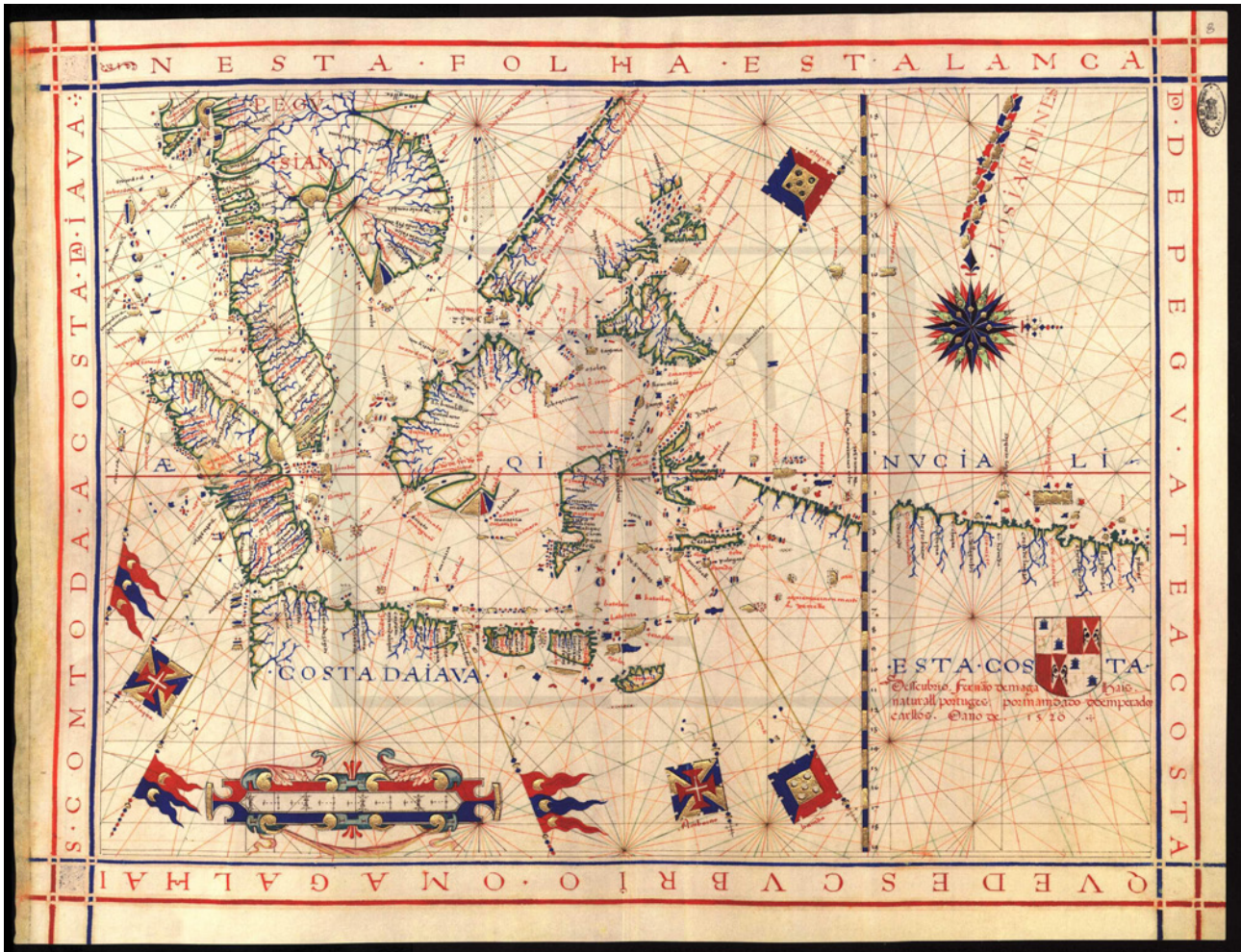


Figure 4. The Portuguese Anti-Meridian at 135°E by Vaz Dourado (1571). Held by Torre do Tombo, National Archive, Lisbon.

period display the same anti-meridian of 135°E, so there can be no doubt of its authenticity as the Portuguese anti-meridian. The 1630 map by Teixeira Albernaz (Fig. 5) shows both the Tordesillas and Zaragoza meridians at 45°W and 135°E, and demonstrates the limited knowledge of the Southern Hemisphere and the northern coast of Australia at that time.

RELEVANCE TO AUSTRALIA

The Dutchman, Abel Tasman was the first to explore and chart the northern coast of Australia as shown on the Tasman map of 1644, now in the Mitchell Library, Sydney. He subdivided Australia along a 135°E meridian naming the western half of the new continent as *Hollandia Nova* and left the eastern half as *Terra Australis* within the dominion of Spain. This avoided any additional conflict with Spain, against whom Holland was fighting for independence, while at the same time assuming control of the East Indies from the Portuguese. Maps by Teixeira Albernaz in 1649, reproduced by the Frenchman Thevenaux (1663), by the Englishman Bowen (1744) and Anon (1786), adopted the 135°E meridian from the Tasman map. The Bowen map (Fig. 6) appears to explain why the English selected 135°E in 1786 as the western

boundary of New South Wales, thereby leaving the western half of the continent as *New Holland*. Governor Darling's commission of 16 July 1825 moved the boundary of the colony with *New Holland* westwards to 129°E. The British, Dutch and French, who were actively exploring the coast of Australia in the late 18th to early 19th century, had never accepted the *Treaties of Tordesillas or Zaragoza*. As the interior of Australia was largely unexplored there were no geographical features that could be adopted and, as explained by Carney (2013), it was convenient to accept the status quo determined by Tasman as an international line of demarcation (135°E) without delving into the basis for its designation. Despite an exhaustive review of historical maps, no reference has been found to a 129°E meridian as deriving from the *Treaties of Tordesillas or Zaragoza*. The selection of this meridian most likely was to accommodate the new settlements at Port Essington and Melville Island, rather than any adherence to the invoked Portuguese anti-meridian, and remained in place when the Governor of New South Wales declared Western Australia as a colony to replace *New Holland*.

The derivation of the 141°E meridian by the Netherlands when dividing *New Guinea* between their interests on the west from those of England and Germany on



Figure 5. Teixeira Albarnaz's (1630) map showing the meridian (45°W) and anti-meridian (135°E). Held by Library of Congress, Washington D.C., USA.



Figure 6. The English map used by the Colonial Authorities to define the 135°E anti-meridian (Bowen 1744). Held by National Library of Australia.

the east in 1828 and later by Indonesia in 1974 is loosely attributed to the *Treaty of Tordesillas* and is even more obscure (van de Veur 1966, p. 10). It does fall within the potential range of anti-meridians, which had been variously promoted, but no historical maps or documents have been uncovered to support it. Australia initially adopted 141°E to define all the eastern states and Northern Territory boundaries a few years after the subdivision of New Guinea commenced in 1834. This was adjusted to 138°E in 1862 for the Queensland border with the Northern Territory (Fig. 2). The history of the changing boundaries discussed herein is summarized in Table 1.

CONCLUSIONS

The common understanding in Australian literature is that the internal political boundaries of the continent are based on a '*Papal Line*' originating from the 1494 *Treaty of Tordesillas* and subsequently the 1529 *Treaty of Zaragoza* to resolve the dispute between Spain and Portugal over their respective claims over the Spice Islands (the Moluccas). The initial subdivision between New Holland and Terra Australis by Tasman in 1644 was along the 135°E anti-meridian, which has incorrectly been termed the Spanish anti-meridian, whereas the subsequent inland boundary of Western Australia proclaimed in

Table 1. Timeline for the definition of Western Australia's eastern boundary.

Year	Comment
1492	Columbus discovers America triggering the age of colonialism driven by Spain and Portugal.
1493	Papal line proposed by Pope Alexander VI 100 leagues west of Cape Verde Islands in the Atlantic to divide the western world between Spain and Portugal.
1494	Treaty of Tordesillas agreed between Spain and Portugal signed by Pope Alexander VI. The line of demarcation is designated as 370 leagues west of Cape Verde Islands in the Atlantic.
1512	Portuguese expedition sails eastward from Malacca to Ternate, Moluccas.
1521	Spanish expedition under Magellan sails westward across the Pacific to Tidore.
1524	The world map made by Juan Vespucci in 1524 places the anti-meridian at 135°E (for the first time) thereby putting Moluccas within Spain's domain.
1529	Treaty of Zaragoza signed by Pope Clement VII sets the anti-meridian at 297.5 leagues east of the Spice Islands. Portugal pays 350,000 ducats of gold to Spain to secure possession of the Spice Islands.
1529 onward	Estimates of the eastern anti-meridian range between 121°E and 147°E based either on leagues, as intended, or on an equal division of the globe between Spain and Portugal along the Tordesillas line.
1575	Spain proposes an anti-meridian passing through Malacca, for which the modern equivalent longitude is 121°E.
1605	The Dutch East India Company take possession of the Moluccas.
1611	Calculation of Portuguese anti-meridian by Joao Bautista Lavanha indicates that Gilolo (Halmahera) is the most eastern island within the Portuguese zone. Approximate derived longitude is 129°E.
1644	Abel Tasman designates the 135°E meridian as the boundary between Hollandia Nova and Terra Australis.
1660	Dutch East Indies Company recognises the Sultan of Tidore's sovereignty over New Guinea.
1663	Map by the Frenchman Thevenot shows 135°E as the anti-meridian.
1713	Spain cedes New Guinea to Netherlands under the Treaty of Utrecht.
1730	First design of Harrisons marine chronometer allows the first accurate measurement of longitude. The Moluccas are accurately defined as spanning 127°E (Ternate) to 129°E (Halmahera and Banda Islands).
1747	Emmanuel Bowen shows 135°E as the anti-meridian, probably based on the Thevenot map of 1663. This was the first time it was recognised by the English.
1750	The Zaragoza anti-meridian is annulled by Spain and Portugal under the Treaty of Madrid.
1786	The Governor of NSW designates 135°E as the western boundary of NSW with New Holland, the meridian proposed by Tasman more than a 100 years earlier.
1825	The Governor of NSW claims possession of north coast of Australia between 129°E and 135°E establishing settlements at Port Essington and Melville Island.
1826	Establishment of a military base at King George Sound (Albany) by Governor Darling.
1828	Dutch expedition to New Guinea results in formal annexation eastwards to the 141°E meridian, recognising the Sultan of Tidore and informally the Treaty of Tordesillas. Ratified in 1848.
May 1829	Captain Fremantle reaches the Swan River and takes formal possession of whole west coast of New Holland.
June 1829	Captain James Stirling sails up the Swan River on the <i>Parmelia</i> on 1 June 1829 to take formal possession of Western Australia by proclamation on 18 June 1829.
1832	The governor of NSW proclaims Western Australia as a colony using the 129°E meridian as the common boundary.
1834–1861	South Australia and Northern Territory eastern boundaries, and Victoria, Queensland and NSW's western boundaries designated as the 141°E meridian.
1862	Queensland boundary with NSW shifted westwards from 141°E to 138°E.

1831 is the 129°E meridian, also incorrectly referred to as the Portuguese anti-meridian. A further meridian of 141°E was the common boundary between the eastern states and Northern Territory later moved westwards by Queensland.

An exhaustive review of historical maps and documents finds that the relationship of the 135°E anti-meridian to the papal line is justified as a Portuguese rather than Spanish anti-meridian although it no longer forms a political boundary. The Spanish used Malacca as the origin of their anti-meridian, but this position was never widely promoted. This meridian was used to reinforce Spain's jurisdiction over the Philippines and has never been considered in the Australian political context. The Spanish had no reason to accept an anti-meridian of 135°E and never did so as it would have placed the Moluccas firmly within the Portuguese sphere of influence. The Portuguese at one time suggested the west coast of the island of Halmahera in the Moluccas constituted the easternmost extent of their influence. As this is close to 129°E it may have been the source of speculation that this was the Portuguese anti-meridian, but if so it was a short-lived diversion and detracted from their early interest in New Guinea to the east. No Portuguese maps, of which there are several, depict a 129°E meridian but instead exclusively and consistently show 135°E. There should be little question that the first political boundary in Australia was the 135°E Portuguese anti-meridian, although the English, French or Dutch never accepted the two treaties. The anti-meridian was a convenient line of demarcation given there was no exploration of the western half of the continent and hence no knowledge of geographical features that could have been used. Setting the eastern boundary of Western Australia at 129°E was likely related to protecting the settlements of Port Essington and Melville Island by shifting the boundary of New South Wales westwards because it was convenient to set a meridian parallel to 135°E. The inference that 129°E was in some way related to 135°E gives a tenuous connection to the *Treaty of Zaragoza*, but it was not an anti-meridian that Spain or Portugal ever promoted.

REFERENCES

- ANON 1786. A General Chart of New Holland including New South Wales & Botany Bay with The Adjacent Countries and New Discovered Lands, published in An Historical Narrative of the Discovery of New Holland and New South Wales, Fielding and Stockdale, London, UK.
- BOWEN E 1744. A Complete Map of the Southern Continent. Survey'd by Capt. Abel Tasman & Depicted by Order of the East India Company in Holland in the Stadt House at Amsterdam. Page 325 in J Harris, editor, *Navigantium atque itinerantium bibliotheca. or, A complete collection of voyages and travels*. Printed by Royal Order of George the Second for Citizens and Booksellers of London.
- CARNEY G 2013. The Story behind the Land Borders of the Australian States - A Legal and Historical Overview, Public Lecture Series, High Court of Australia, 10 April 2013 (unpublished).
- CEREZO MARTÍNEZ R 1994. El Meridiano y el Antimeridiano de Tordesillas en la Geografía, la Náutica y la Cartografía. *Revista De Indias* 54 (202), 509–542.
- DE HERRERA Y TORDESILLAS A 1601. *Descripción de las Indias Occidentales*, Madrid, (ed. 1751), Princeton University Library, NJ, USA. <https://catalog.princeton.edu/catalog/9953536023506421>
- GAMMAGE B 1981. Early Boundaries of New South Wales, *Historical Studies* 19 (77), 524–531.
- HUGHES R 2003. *The Fatal Shore*, Vintage Publishing, London UK. ISBN 0 099 45915 9
- KING R J 1998. Terra Australis, New Holland and New South Wales: The Treaty of Tordesillas and Australia, *The Globe* 47, 35–55.
- LOPO H 1554. Unamed world map, Planisphere, <https://catalogue.museogalileo.it/gallery/PlanisphereInv946.html> Galileo Museum, Florence, Italy.
- MARCHANT L R 2000. The Political Division of Australia 1479–1829: The historical development of the Western Australian border, *Cartography*, 29 (2), 1–22.
- MAZÓN SERRANO T 2020. *Elcano, Viaje a la historia*, Ed. Encuentro. Madrid.
- RUMEU DE ARMAS A 1992. El Tratado de Tordesillas. Rivalidad hispano-lusa por el dominio de océanos y continentes. Editorial Mapfre (Colecciones Mapfre 1492. Colección América 92), Madrid.
- SÁNCHEZ GONZALEZ D M 1993. Aspectos jurídicos de la negociación de las Molucas, BFD: *Boletín de la Facultad de Derecho de la UNED* 3, 293–310.
- SÁNCHEZ MARTÍNEZ A 2009. De la cartografía oficial' a la 'cartografía jurídica, la querrela de las Molucas reconsiderada, 1479–1529. *Mundos Nuevos, Debates*, doi: 10.4000/nuevomundo.56899
- TEXEIRA ALBERNAZ J 1630. *Taboas geraes de toda a navegação divididas e emendadas por Dom Jeronimo de Attayde. Com todos os portos principaes das conquistas de Portugal. Delineadas por João Teixeira. Cosmographo de Sua Majestade. Anno 1630*, Library of Congress, Washington D.C., USA. <https://www.loc.gov/resource/g3200m.gct00052/?sp=4&st=image&r=-0.241,0,1.482,0.596,0>
- THEVENOT M 1663. *Chart, Hollandia Nova—Terre Australe*, published in *Relation de divers voyages curieux qui n'ont point est publiés ou qui ont est traduits d'Hacluyt, de Purchas et d'autres voyageurs anglois, hollandois, portugues, allemands, espagnols et de quelques persans, arabes et autres auteurs orientales 1663–1696*, Paris.
- TOUS MELIÁ J 2001. La isla de El Hierro y el meridiano origen. *Estudios Canarios, Anuario del Instituto de Estudios Canarios* 46, 249–288.
- VAN DER VEUR P W 1966. *Search for New Guinea's Boundaries, From Torres Strait to the Pacific*, Australian National University Press, Canberra, 176 pp.
- VAZ DOURADO 1571. <https://hdl.huntington.org/digital/collection/p15150coll7/id/46319> Huntington Library, San Marino, California, USA.
- VESPUCCI J 1524. *Totius orbis descriptio tam veterum quam recentium geographorum traditionibus observata novum* [map] Liechtenstein Map Collection held by Houghton Library, Harvard University, Cambridge, USA <https://curiosity.lib.harvard.edu/scanned-maps/catalog/44-990088492040203941> .