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## **7 Vespucci's Second Voyage and the Sea of Pearls (1499- 1500)**

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### **7.1 Omissions and Contradictions Regarding Vespucci's Second Voyage Appear in the Historical Documents**

In the preceding pages, I described some of the events of the voyage undertaken by Ojeda, de La Cosa and Vespucci, which became intertwined with the dramatic developments of Christopher Columbus' return to Haiti in August 1498. However, before returning to the main narrative, I think it is appropriate to inform the reader that variations and contradictions appear in the documentation regarding this voyage, which was Vespucci's second one. For example, the departure from Cadiz is dated to both May 16 and May 18; the number of ships in the expedition are two in the "Prima lettera familiare", three in the "Lettera a Soderini", four in Hernando Colón's *Le Historie*; the Atlantic crossing lasted, depending on the various texts and copies of such texts, 19, 20, 24 or 44 days; the flotilla's return is dated from January 1500 to October of the same year. And so on. Fortunately, in most cases, it is possible to resolve this exasperating numbers game thanks to the fact that other data concerning the routes and distances covered vary much less and to the fact that we have various sources that supplement each other.

There are three main sources for this voyage: as mentioned, the "Prima lettera familiare" and the "Lettera a Soderini" written by Amerigo, in neither of which is there any mention of Alonso de Ojeda, and the *Pesquisa*,



**Figure 7.1** The second voyage of Vespucci, de La Cosa and Ojeda lasting eight months, between May 16, 1499 and January 8, 1500: 1) Departure from Cadiz; 2) Vespucci and de La Cosa part from Ojeda and continue as far as Ilha do Fogo; 3) they sail from Ilha do Fogo on May 29, the crossing takes about twenty days; 4) on June 27 they reach *terra firma* (north of the Amazon River) and explore the interior; 5) they proceed as far as Cape S. Agostino where they invert their course; 6) they reach the island of Trinidad; 7) they rejoin Ojeda; 8) the clash at Rio Flechado, a long stay at the port of Chichiriviche; 9) on September 5 they reach Haiti where they repair their ships and, after two and a half months, set sail for Cadiz on November 22, where they arrive on January 8

i.e. the inquest into Ojeda's behaviour ordered by Christopher Columbus, in which there is no reference to either Amerigo Vespucci or Juan de La Cosa. A passage written by Hernando Colón, cited in the preceding chapter, forms a link among the main documents. Thanks to this situation, it becomes possible to present a complete account of what took place during this voyage, albeit with some approximations.

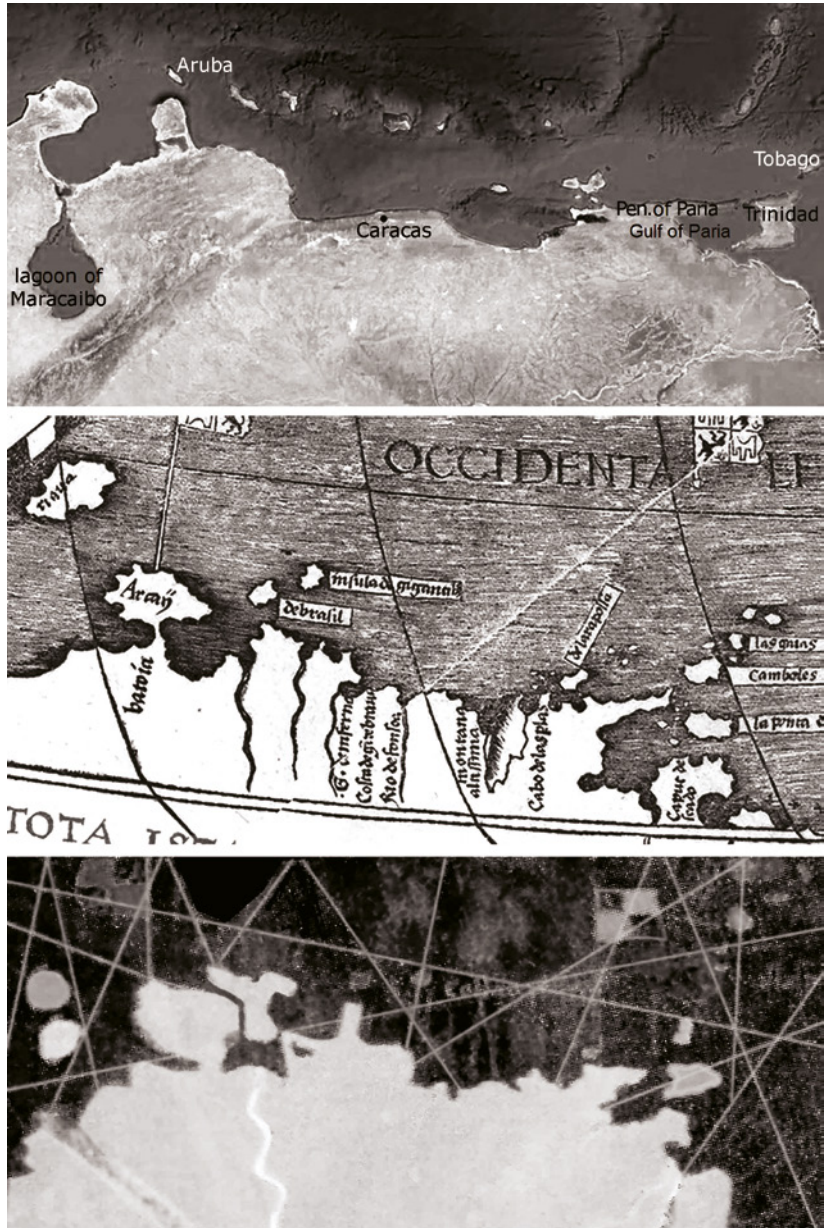
## 7.2 The Voyage of Ojeda, De La Cosa and Vespucci Develops in an Unexpected Manner

The outcome of the voyage undertaken in 1497-98 by the four merchants was rather disappointing from an economic point of view, so they dedicated themselves to other activities. Meanwhile, Bishop Fonseca, who had finally received numerous requests from people desiring to cross the ocean, and this time had the money to finance such voyages, altered his plans in an attempt to make them more suited to the needs of Spain. Therefore, he entrusted Juan de La Cosa and Amerigo Vespucci, who played a prominent role in the preceding voyage, with the task of undertaking a journey of exploration and study in those far off lands. The Bishop also included his personal favourite Alonso de Ojeda, who had captained a ship during Columbus' venture for the colonisation of Haiti. The agreed regulations (the 'capitoli') stated that the crews must keep away from the islands discovered by Columbus and perhaps established how and where the ships should regroup if they were separated during the journey, while they did not foresee the presence of a 'captain major'.

They were due to sail from Cadiz in mid-May, a period that had been propitious for the first voyage; it is not known whether they had calculated the duration of this expedition. It is known that Amerigo delegated his wife and brother-in-law to look after his affairs. Several problems occurred before the departure. While Vespucci and de la Cosa's caravels were equipped and provisioned, Ojeda's overcrowded ship was lacking equipment and supplies. Ojeda (certainly for some scheme of his own) had hired too many people to fit onto a caravel of normal dimensions. In his testimony to the *Pesquisa* (the inquest on Ojeda's improper behaviour promoted by Columbus), Juan de Velásquez provided an almost complete list of the crew, over thirty people, including three pilots, the *hidalgo* Don Fernando de Guevara and two cabin boys who had been his servants. There was no *maestre*, the chief officer who administered the ship; Ojeda had used a pretext to send him to Seville and he did not return in time: the captain wished to be rid of him.

Another witness who appears in the *Pesquisa*, the surgeon Alonso, who had temporarily replaced the abandoned *maestre*, reported that Ojeda had wanted to take possession of a caravel named *La Gorda* (the Pot-bellied), but failed in his intent. He also added that prior to departure Ojeda sent someone under the cover of night to steal a boat from the port of Santa María, north of Cadiz. In short, his behaviour did not bode well.

The three caravels finally left the port of Cadiz on the morning of May 16, 1499, following the coast of Africa as far as the shallows in front of the Moroccan city of Safi where the sailors on numerous Spanish ships were busy fishing. Given the chance, they exchanged goods with the 'Moors', in other words the Arabs and Berbers, who inhabited these coasts. Once among these ships, Ojeda asked which was the best caravel. One from Huelva was



**Figure 7.2** A stretch of the northern coast of South America. Above: satellite image in inverted colours.

Centre: the image according to Amerigo taken from the Waldseemüller Map, in which the Guajira Peninsula (on the far left of the image) appears as an island and is situated on the western limit of his navigation, the Equator is drawn at  $9-10^\circ$  too far north, but this is Waldseemüller's error. Below: the image according to Juan de La Cosa; in it the Paraganá Peninsula is too large, so that it is confused with the island of Aruba; the western limit is the same as that of Amerigo and the Guajira Peninsula is drawn twice as an island separated from the mainland; the lagoon of Maracaibo is also missing on this map as it is on that by Waldseemüller. It is legitimate to conclude that both Vespucci and de La Cosa did not sail any further west than the Guajira Peninsula. (Graphic: G. Carpentiero; the retouches on the island of Paraganá are by P. Omodeo). Provenance: Details from Waldseemüller's map (Library of Congress, Washington DC, USA) and Juan de La Cosa's world map. © Wikimedia Commons

pointed out to him, and the *hidalgo* took possession of it. He arrogantly transferred its crew to another ship that was returning to Andalusia, while the two owners refused to leave their ship and because of this found themselves dragged into someone else's adventure: it seems one of them died, perhaps during a conflict with Indios.

Ojeda gave command of this caravel to Don Fernando de Guevara and completed the fitting out of the ship for the ocean crossing by stealing sails, ropes, timber and other equipment from the fishing vessels that had not got out of his way in time. He sold gunpowder to the Arabs (which was forbidden) and cloth that was on board the stolen caravel. Then, he headed to the nearby Canary Islands in order to get supplies, intending to steal what he could, and did so starting at Lanzarote, where he sacked the wealthy home of Doña Inés Peraza, which was empty at the time.

At this point, Vespucci and de La Cosa, who had witnessed these acts of piracy but were not involved, decided to abandon their piratical companion and turned towards the Cape Verde Islands situated further south, following a different route.

Vespucci writes in his report on this voyage, not mentioning Ojeda, "[w]e began our journey at the Cape Verde Islands, *passing in sight of the island of Gran Canaria*; and we navigated until we reached an island called the Island of Fire".<sup>1</sup> Ilha do Fogo, one of the southernmost of the Cape Verde archipelago, got its name from the active volcano there. After stopping for two days to take on the last supplies, the caravels of Vespucci and de La Cosa set sail to face the ocean. They were joined by a *caravelletta* of 45 tons, which it is known was fast and easy to manoeuvre: the crew had chosen to chance this venture relying on their experience.

The crossing, with favourable winds, was fast, taking more or less twenty days, and on June 27, 1499, when they reached the 'Equinoctial line', i.e. the Equator, the sailors saw a great land mass. Amerigo describes their landing: "We anchored our ships and lowered our boats and going in them to land [...] we found it full of large trees, and flooded by great rivers and we attempted in many parts to land there".<sup>2</sup>

The riverbanks and even the seashore were lined by a deep mangrove forest so dense that birds could not fly through it, only over it, and the sailors could not land and reach the inland populations, whose presence was revealed by thin plumes of smoke that rose high into the air. They had reached the mouth of the Amazon River, which had yet to receive a name from Europeans.

Hence, they set sail on an east-south-east heading, staying within sight of land, and reached the point where the coastline turned south. The ships did not manage to round the cape as the sea currents were against them, even though the sails were filled by a good wind. Vespucci wrote that the current was even stronger than that in the Straits of Messina and Gibraltar.<sup>3</sup> They inverted their course, abandoning the attempt to find the opening towards the Spice Islands in Asia. Therefore, Vespucci and de La Cosa resumed carefully mapping the coast, giving names to promontories and bays and even to the mouths of rivers large and small, names mainly chosen according to the

1 "Lettera a Soderini". *Codice Vaglianti*, folio 110vb; italics added.

2 "Lettera a Soderini". *Codice Vaglianti*, folio 111ra.

3 "Prima lettera familiare". *Codice Vaglianti*, folio 42rb.

saint who appeared on the calendar for that day. Amerigo noted with amazement that around midday men's shadows disappeared (a phenomenon which was to give rise to legends) and took to studying the southern night sky with its myriad of bright stars, among which the Southern Cross was particularly brilliant. The sight reminded Amerigo of Dante's verses in the first canto of *Purgatorio* (23-27) written two hundred years before, which he cites:<sup>4</sup>

... and I saw four stars  
 never seen before but by the first people.  
 The sky seemed to rejoice in their flames.  
 O widowed region of the north,  
 Since thou art denied that sight!<sup>5</sup>

### 7.3 Nearly a Game of Dexterity

When the caravels veered to follow the northern coast of the island Trinidad, the sailors spotted a long canoe crowded with people that was heading towards the Bocas del Dragón, the entrance to a gulf situated west of the island. The men in the canoe saw the caravel and stopped, their oars raised, to watch it in great wonder.

The Spaniards decided to intercept it: the small fast-sailing caravel that had joined the other two was positioned windward and with a rapid manoeuvre came alongside the canoe and then passed it. However, in order to avoid a collision, it had to veer, thus finding itself leeward. Seizing their advantage, the men in the canoe rowed hard to escape. In the meantime, the other two ships had let down their boats, which took part in the chase. After two hours of effort, the *carovelletta* again flanked the canoe, whose rowers, closely pressed between the ship and the boats, jumped into the water and scattered swimming ashore, a distance of six miles. The sailors only managed to capture two of them, dragging them on board one of the boats. Other sailors took control of the canoe in which four boys remained. They had recently been castrated and their penises had been removed. Using gestures, they explained that the Camballi (Cannibals) had done this in order to fatten them up and then eat them.

The two captured Camballi were not ill-treated, one of them was given some trinkets so that once back on land he could inform his tribe that the new arrivals were friendly and would return their great canoe. The latter was a prodigious piece of native artisanship: able to carry seventy men, it was dug out of an enormous tree trunk and was 42 metres long, double the length of a caravel, and 1.30 metres wide. The tree it was made from must have been a giant over 60 metres tall; the Camballi were proud of their boat.

The next day, the men of the tribe - unarmed - came to reclaim their canoe. They hauled it to a safe place, but then all disappeared and there was no chance to treat with them. The sailors noted that they wore gold in their ears.

Many questions arose around the long Camballi canoe, as well as around the great canoe of the Mayan merchant described by Hernando Colón: how

<sup>4</sup> "Prima lettera familiare". *Codice Vaglianti*, folio 42vb.

<sup>5</sup> Dante, *Comedy*, transl. by Uberto Limentani.

could the natives of the New World cut down colossal trees with a diameter at the base of more than two meters with the stone tools they had available? How did they manage to dug out the canoe correctly giving each part the right thickness? Which trees were chosen to prepare similar boats? And so on.

It is little known that in the Chinese province of Sichuan, in the great imperial canal, traditional regattas took place between boats of a structure and size comparable to the canoes we are talking about. These are the Dragon Boats derived from the enormous trunks of Metasequoias that grow in that province. The study of the way in which the Dragon Boats are built will give us an answer to the questions mentioned, but at the same time it raises the big question: how is it possible that, in ancient times on two different continents separated by the Pacific Ocean, techniques very similar, involving the orderly and precise work of a hundred men headed by a boat architect, have developed?

Finally, the fleet entered the bay, which Columbus, during his third voyage, had named the Gulf of Paria; here the sailors encountered other tribes with other customs who gave the strangers a friendly welcome and bartered 150 pearls for a small bell, both sides being convinced they had struck a great bargain. The fleet stayed seventeen days in this place, which remained engraved in Amerigo's heart. He wrote that during this stay the natives offered them good white and red wine prepared from fermented fruit. The stay was not just a holiday: the sailors from one boat travelled up the river that flowed into that gulf, sighting a mountain chain and many large animals including beasts similar to African lions and leopards.

Vespucci and de La Cosa continued along the coast of what is now Venezuela, running from east to west at the latitude 11° North. Off the northern part of the coast they encountered a scattered line of islands: the Leeward Islands. The first of them had been named Isla de Margarita by Columbus the year before and was rich in trees, palms, villages and pearl-bearing oysters. The natives dived to fish for oysters and collected the pearls, which reached the size of a hazelnut; they kept them like children collect marbles, and sometimes wore them when they managed to perforate them. To do this, they perhaps used long thin flint or obsidian flakes (raw materials not present on these islands), although the holes they made were ugly and untidy.

The natives explained to Vespucci that the pearls developed inside the oyster, that they grew and became round and when mature detached themselves and passed into the animal's flesh: that is what Amerigo understood.<sup>6</sup> Even the half pearls still attached to the shell were of some value, since they could be detached with a thin blade and then sewn onto clothes. In his letter, Amerigo lamented the fact that these half pearls soon deteriorated.

<sup>6</sup> In actual fact, in most cases, pearls are the result of a defence mechanism against microscopic parasites that are neutralised by the deposition of numerous, very thin, alternating layers of calcite and aragonite. If the parasite is between the oyster's mantle and the shell, the pearl grows inside the shell and remains there.

#### 7.4 **Vicente Yáñez Pinzón Crosses the Ocean with Four Caravels and Describes the Mouths of the Amazon and the Sweet Sea**

After the expedition of Juan de La Cosa and Amerigo Vespucci, in the last months of 1499 three other expeditions sailed from Andalusia across the Ocean starting from the Cape Verde Islands, with destination to the West Indies. A crossing was carried out by Cristóbal Guerra with a single caravel, which then, apparently, when he arrived at the Caribbean Sea, was accompanied by that of Alonso Niño who had reached the Pearl Islands, joining Juan de La Cosa and Vespucci. The second expedition was that of Diego de Lepe, departed from Palos with two caravels.

Finally, Vicente Yáñez Pinzón sailed in early December of that year. He had organised a flotilla of four caravels among which *Niña* stood out, having just returned from the first two voyages of Christopher Columbus. Vicente Yáñez was travelling at his own expense because Queen Isabella had largely compensated the Pinzón family for the death of Martín Alonso. The crew consisted of about eighty people, almost all from Palos. The fleet could set sail only at the beginning of December of that year, delayed by bureaucratic problems concerning the weapons to be loaded.<sup>7</sup> The preliminary agreement provided that the fleet would not touch the islands and lands discovered by Columbus and avoid the lands due to Portugal, as well as the payment of one fifth of the gain to the crown of Castile, if there was one.

The crossing began from the island of Santiago in the archipelago of Cape Verde, on January 8, 1500. Shortly after cutting the Equator, the fleet was hit by a violent storm, which fortunately did not cause much damage. They landed at the mouth of a large river, perhaps Rio Parnaiba, where they first met the natives who showed themselves hostile. They were very tall, notes Vicente Yáñez, as are the Germans and the Slavs, and had very large feet.

They sailed on and met another hostile tribe with which the Spaniards came to blows because of a piece of wood bent at the elbow and covered with gold, which had fallen to the ground. The natives had the worst but the fight cost the Spaniards eight deaths and fifteen wounded.

They proceeded further and reached a cape which was given the name of Cabo Santa María de la Consolación, cape of Saint Augustine for the fleet of Juan de La Cosa and Vespucci, who had been blocked there by the strong sea currents.

They took possession of those lands on behalf of the sovereigns of Spain. It is not known if and how much they continued to follow the coast towards midday, but it is known that the flotilla reversed course towards north when they entered the Sweet Sea.

In the Portolan Chart called *King-Hamy* of 1502 and in that of Kustmann II of same date, the Sweet Sea at the Equator is depicted as a wide interruption of the continental mass, but Vicente Yáñez helped by those who travelled with him made it clear that the fresh water dominates the marine one and comes from the many mouths of a large river which they named Rio Maraíón.

The fleet continued to the Sea of Pearls, in the south-eastern part of the Caribbean Sea, and then reached the Greater Antilles, places well known to the commander, where it was hit by a terrible hurricane that unfortu-

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<sup>7</sup> Manzano Manzano, *Los Pinzones y el descubrimiento de América*, vol. 1, ch. 2 (VI), 291.



nately sank two caravels. The two surviving ships returned to Palos in September 1500.

Once again Queen Isabela rescued Vicente Yáñez and appointed him knight; later she gave him the post of governor of Puerto Rico.

### 7.5 Guerra and Niño Return to Cadiz with Many Pearls, Ojeda Arrives Soon Afterwards

The *caravelleta* that had joined Vespucci's ships belonged to Cristóbal Guerra and Per Alonso Niño and had a rather large crew of thirty-three men. It separated from the other ships shortly after its exploits at the 'Bocas del Dragón'. The crew dedicated themselves to bartering pearls with the Indios along the north-eastern coast of present-day Venezuela, establishing friendly relations with the natives and reaching as far as Isla de Margarita and the Guajira Peninsula.

Guerra and Niño's ship crossed the ocean in sixty-one days and reached Cadiz on April 6, 1500. It carried "the largest amount of riches that had arrived from the New World up until that moment".<sup>8</sup> A few days later, Ojeda's ships arrived.

### 7.6 Exploration Along the Southern Coast of the Caribbean Sea

The evidence given at the inquest demanded by Columbus into Ojeda's behaviour indicates that the caravels on which Ojeda and Don Guevara travelled following the robberies committed on the Canary Islands also reached Trinidad and the Gulf of Paria. The men hired by Ojeda soon began to act cruelly, "killing, stealing and fighting the inhabitants of the place: they killed many who were peaceful and tranquil, as the Admiral had left them".<sup>9</sup> Using brutal and hasty methods, the *hidalgo* took whatever he considered to be of value, killing whoever rebelled, while many of his men molested the local women. The two caravels continued along the coast, which turned from east westward, also visiting the islands along it. Ojeda also captured some locals with the aim of selling them as slaves, and he took on the best of them as reinforcements for his own small army. He travelled westward to the Gulf of Urabá, beneath the mountainous slopes of the Darién, where the Panama Isthmus is grafted into South America. Juan de La Cosa on that occasion did not go so far west, as shown by his map of 1500.

The injured and angry natives knew how to organise themselves in order to prevent the brutal foreigners from landing, and many began to poison their arrowheads. Vespucci and de La Cosa's sailors became aware of this when, having left the Isla de Margarita, they began to map the coast: the increasingly angry natives prevented them from landing.

And, navigating along the coast every day we discovered an endless number of people who spoke different languages. When we had navigated for 400 leagues, we began to find people who did not want our friendship,

<sup>8</sup> See HARRISSE, *The Discovery of North America*, 676-8.

<sup>9</sup> *Pesquisa*, testimony given by Juan de Velásquez, 30.

but waited for us with their weapons, which are bows and arrows. When we went towards the shore with our boats, they prevented us from landing so that we were forced to fight them and once the battle ended they were in a bad way because they were [naked] and we killed many of them.<sup>10</sup>

On an unspecified stretch of coast, perhaps near the port of Caracas, Vespucci and de La Cosa met up with Ojeda and Don Guevara. They all travelled westward and on reaching Golfo Triste, the expedition faced the toughest fight of this voyage. Amerigo described it thus,

On a certain day we saw numerous people, all armed to prevent us from landing. Twenty-six well-armed men got ready and we covered the boats because they were firing many arrows that wounded some of us before we landed. We fought them with great effort; indeed, they were very audacious, not knowing what a weapon the sword was and how it cut. A large multitude charged us and so many arrows flew that we did not know how to protect ourselves, and we lost hope of winning and turned our backs to jump back in the boats. While we retreated and fled, one of our Portuguese sailors, aged 55, who was defending the boats [a son of whom was in the fray] having seen us in great danger, jumped out of the boat shouting loudly: 'men face your enemy, as God will give you victory'; he knelt, said a prayer and threw himself into the counter-attack, and all of us with him.

In the end, the natives were beaten: "we killed 150 of them and burnt 180 of their houses".<sup>11</sup> About twenty Spaniards were wounded and one of them, pierced by an arrow in the chest, died.

The Amerigo who wrote this is very different from the one who, after the surprise attack by the Camballi from the stilt-house village wrote, "we did not want to burn their houses, as we would have been full of remorse".

They left the site of the conflict, which is indicated on the 1523 map by Juan Vespuccio, Amerigo's nephew, with the name of 'Rio delle frecce' and 'Case arse', and took refuge in the nearby bay of Chichiriviche, where they stayed for 20 days to mend their wounds and rest. It was on this occasion that Vespucci measured the longitude. After this long break, they set sail again heading west, still hoping to reach the fabulous lands of Asia described by Marco Polo. They reached the mushroom-shaped Paraguaná Peninsula; its shape makes it easily recognisable on all the maps drawn in the early 16th century showing the Caribbean Sea. It may be presumed that this peninsula marks the westernmost point mapped by de La Cosa and Amerigo Vespucci, as they placed the flag of Castile and León near to it, an indication that this was the limit of the lands discovered "by order of the king of Castile".

To the east of the Paraguaná Peninsula lay the Island of Giants, today Curaçao, where Vespucci had an extraordinary surprise,<sup>12</sup>

<sup>10</sup> "Prima lettera familiare". *Codice Vaglianti*, folio 44vb.

<sup>11</sup> "Prima lettera familiare". *Codice Vaglianti*, folios 44vb and 45ra. This episode does not appear in the "Lettera a Soderini". However, Hernando Colón mentions it in *Le Historie*, vol. 2, ch. LXXXIV, 66.

<sup>12</sup> He describes it in the "Prima lettera familiare" and the "Lettera a Soderini". I follow the latter version in folios 113va and 114va.

in a valley we saw five of their huts that seemed to be uninhabited and we went to them. We found only five women – two old ladies and three girls so tall that we looked at them with amazement; when they saw us, they were too afraid to run away: the two old women invited us in their own words to enter the hut and brought out many things to eat. They were taller than a large man could be tall, like Francesco degli Albizzi of Florence, but better proportioned. We thought to take the three girls and bring them to Castile as a thing of wonder. While we were deciding how to go about this, thirty-six men entered by the door of the hut; they were even taller than their women and also well-made and handsome to behold. They alarmed us so that we wished to be on our ships and not among such people. They carried very large bows and arrows and great clubs and talked among themselves in such tones that it seemed they wanted to harm us. In the light of this danger, we consulted each other as to whether we should attack them first inside the hut, or outside, some said to wait and see what they did. We agreed to leave the hut and go back to the ships as if nothing had happened. This we did and we headed towards the ships. They followed behind us at about a stone's throw away, talking amongst themselves, I believe they were just as afraid of us as we were of them, because when we stopped to rest they did the same without coming any closer. Finally, we reached the beach where the boats were waiting for us and we got in. As soon as we were some distance from the shore, they rushed into the water and shot many arrows at us, but we no longer feared them, we fired two bombard shots, more to frighten than to harm them, and they all fled into the woods.

In the “Lettera a Soderini”, the account of the meeting with the giants, which seems truthful and which physical anthropology suggests is plausible,<sup>13</sup> is followed by the account of another encounter. Vespucci wrote,

They were brutish in appearance and gesture, and all had their cheeks so full of some green herb, which they continued to chew like animals, so that they could hardly speak. Each had two small dried gourds around their neck; one was full of the herb they had in their mouths and the other with white flour that looked like powdered chalk. From time to time, they took a stick, which they wet with their mouth, and put it into the gourd with the flour and then put it inside both cheeks, flouring the herb already in there, and this they did often. Such a thing amazed us, we did not understand its secret, or why they did it.

This may have been coca leaves which, when mixed with ash that helps to extract its active principle, reduces tiredness and the desire to drink.<sup>14</sup>

<sup>13</sup> We must remember that in this period Europeans were shorter than they are today, being 160 cm tall on average, or less.

<sup>14</sup> “Lettera a Soderini”. *Codice Vaglianti*, folios 112vb and 113ra. Other scholars and I view this strange habit as an invention based on the chewing of betel leaves practiced in India, Indonesia and some parts of Africa. However, it has close parallels with what Hernando Colón wrote about a tribe in what is now Panama, and thus is authentic. See *Le Historie*, vol. 2, ch. XCVI, 116.

## 7.7 Vespucci Makes the First Measurement of Longitude

Amerigo was well-versed in the *Geography* written by the early astronomer and geographer Claudius Ptolemy of Alexandria, and he carried a copy with him. In this work, a method is suggested for measuring longitude based on the lunar eclipses that are visible at the same moment from faraway places but at different local times. Once the chronological difference is calculated, it is possible to work out both the distance in degrees between the meridians that pass through those places and the distance in miles between them.

Ptolemy's method had a limit: lunar eclipses are rare events, occurring perhaps twice a year and are only visible along a relatively narrow strip of the Earth's surface. This limit constitutes a serious problem because navigators and travellers often need to know the longitude of a place, and it is indispensable for the cartographer's work.

In order to overcome this limitation, it was necessary to fully understand the problem and then devise a practical solution. Therefore, Amerigo went back over all his studies:

As for longitude, I declare that I encountered the greatest difficulty in finding it and laboured greatly to discover for certain how far I had travelled in terms of longitude, so that in the end I found it best to spend sleepless nights observing the positions of one or other planet and *maxime* of the Moon with the other planets, because the Moon travels faster than any other planet; [then] with the *Almanach* by Johannes Regiomontanus, calculated for the meridian of the city of Ferrara, comparing it with the calculations from the Alfonsine Tables. And after many nights of this experience, on the night of August 23, 1499, there was a conjunction of the Moon and Mars, which according to the *Almanach* must have occurred at midnight, or half an hour earlier. I found that when the Moon rose on our horizon, which occurred an hour and a half after the Sun set, it passed the planet [Mars] to the east: I say that the Moon was further east than Mars [by] one degree [and] a few minutes more and at midnight was on the horizon [of Mars] by 5 and a half degrees, a little more or [a little less] [...].<sup>15</sup>

In this discourse, broken up by tedious repetitions and elisions, Amerigo means that after long and laboured reflection he decided to follow, night after night, the intricate route of the Moon and planets between the fixed stars until he came across an event (the conjunction of the Moon and Mars) noted, together with the local time and reference meridian, in the *Almanach for the prediction of astronomical events* (the so-called *Ephemerides*).<sup>16</sup>

Amerigo's measurement of longitude taken on the Venezuelan coast was imprecise because, when on August 23, 1499 he observed the time of the 'conjunction' of the Moon and Mars, he only had the previous calculation made by Regiomontanus to use as a comparison, which related to the time of

<sup>15</sup> Formisano, *Amerigo Vespucci, Lettere di viaggio*, 6-7. Described also in "Prima lettera familiare". *Codice Vaglianti*, folio 43r.

<sup>16</sup> As far as I know, Eugenio Oberti (*Amerigo Vespucci: Alla scoperta del continente sudamericano*, 4) was the first to recognise Amerigo's priority in using the conjunction of planets to calculate longitude. To date, it cannot be excluded that Amerigo was preceded by Arab authors, but he nevertheless appears sincere when he describes the way in which he has come to expand the Ptolemaic method.

observation at the meridian of Ferrara transposed to the meridian of Cadiz. However, although approximate the result was good enough to show that this land, based on the Treaty of Tordesillas, belonged to Spain, and furthermore made it possible to establish that Cape of Saint Augustine, where he had arrived a month earlier and which was situated many leagues further east, belonged to Portugal.

In this circumstance, Amerigo introduced another important piece of information: the circumference of the Earth, which according to Ptolemy and Alfraganus was 24,000 miles or 6,000 leagues (38,000 km).<sup>17</sup> This measurement, which is repeated in the *Ridolfi Fragment*, is much greater than that accepted by cartographers of the time and large enough to insert a space between Asia and Europe in which the New World could be positioned, together with the vast ocean that Magellan would name the Pacific twenty years later.

Amerigo said little or nothing about this, but the sailors who witnessed these observations had vaguely understood what he was doing. Juan de La Cosa, who worked closely with Amerigo, and the two Portuguese sailors who were part of the expedition knew very well that he was measuring the longitude; it was information that was very useful to de La Cosa for his own work, even though the novelty of the Florentine's method did not interest him.

## 7.8 The Cartography Relating to the Second Voyage of Amerigo Vespucci

Queen Isabella had urged Christopher Columbus to prepare a map of the lands he visited for her, but he did not satisfy her wishes. It is a singular fact which to date has no explanation. For this reason, Juan de La Cosa was engaged for the Admiral's second voyage, with the precise commission of mapping those faraway lands (see § 3.9). In 1500, de La Cosa prepared a very interesting map for the Queen drawn and painted on a large cowhide.<sup>18</sup>

At first sight, what stands out on this map is the different ways in which its parts are drawn. The right-hand part is precisely drawn in a light hand, even too light, while the inscriptions are often hesitant and erroneous, a defect perhaps due to the type of education received, as well as the Basque people's proverbial lack of knowledge of the Spanish language. In contrast, the left-hand part representing the New World - we will call it that for the moment - is drawn with a heavy hand and dark colours. It could be said that the author, having prepared a very good image of part of the Old World, had drawn out a first sketch of the New World to be recopied later. On a second look, one notes that the line of the Equator is drawn correctly, while the Tropic of Cancer runs about ten degrees too far south, an unsurprising error given the relationship between de La Cosa and Christopher Columbus who had introduced the error to avoid arguments with Portugal. The *raya* is drawn about sixteen degrees too far east so that no part of the discovered lands belongs to Portugal. This anomaly perhaps occurred because when Vicente Yáñez Pinzón reached the eastern limit of South America in

<sup>17</sup> "Prima lettera familiare". *Codice Vaglianti*, folio 43va. It should be remembered that a mile equivalent to 1.4 km was also in use at this time.

<sup>18</sup> Comellas, *El mapa de Juan de La Cosa*.

1500 he took possession of it for the Spanish sovereigns and de La Cosa deduced that this part of the continent was situated within the agreed limits.

However, the key question about this map is the following: does the continental mass that appears on the left represent part of Asia, in agreement with Columbus, or the New World as Vespucci began to imagine after his second voyage?<sup>19</sup>

The answer is this: for de La Cosa, in agreement with the Admiral, it was Asia, as the image is constructed in such a way that Asia is divided in two without leaving space for a new ocean. Therefore, it is not correct to speak of the New World in regard to this map, but rather the 'West Indies', as was the case in Spain throughout the 18th century. Navarrete<sup>20</sup> credits Alonso de Ojeda with the merit of having explored the same stretch of the coast of present-day Venezuela, including the vast Maracaibo lagoon and the coast of present-day Colombia as far as the deep Gulf of Urabá, which is overlooked by the sheer faces of the Darién mountain range. There is no reason to doubt this information, also because these places were often visited by the *hidalgo*, while it is certain that they were never visited by Amerigo.

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**19** See § 9.3 herein and "Prima lettera familiare". *Codice Vaglianti*, folio 47ra.

**20** *Colección de los viajes y descubrimientos*, vol. 3, Prologue.