Alexandro Malaspina to his brother Azzo Giacinto [1]

[*Acapulco, the end of March or April 1791*] [2]

The south winds that blow constantly in this part of the sea allowed us to work with greater speed and accuracy on the coast between Lima and Guayaquil. For the trigonometric measurements conducted on water, we preferred to use the base of Le Luc [3] rather than those we had used on the coast of Patagonia, which were inferred from the respective elevations of the mainmasts of the two corvettes, and, although we had to sacrifice almost all the hours of the night, so long just after the equinox, we were able after 15 days to enter the River Guayaquil, and here to resume our measurements. We observed an eclipse of the moon and deduced our longitude from many other measurements and observations of the moon. Beyond that, having succeeded in viewing the majestic Chimborazo for two extremely clear days, we were able through the differences of latitude to combine our results with those for the Quito meridian, from which it emerged that the longitudes established [previously] by Spanish officers were much closer to ours than were those of the French astronomers, and, furthermore, that our measurements, taken with an excellent quadrant, 3217 1/2 [sic], were much more exact than those of the latter [4].

During this time Pineda visited this mountain [5] and its environs, and so the natural history work with which we are all occupied is making rapid progress, in relation not only to the various products of the soil, particularly trees, which grow there in great abundance, to supply wood for building, but also to snakes, fish, and aquatic birds, which in those surroundings and on the delightful beaches of the river exist in surprising number and variety.

When our hydrographic surveys also were finally completed, we were able, as early as the end of October and the first half of November, to continue along the coast, with the same good fortune as had accompanied us thus far, towards Panamá: and in this port, which faces almost directly towards Guayaquil (?), we saw in the latter, over the course of a few days, the dry weather favourable to our work give way to rains. The division into two seasons, rainy and dry, on these coasts, where it rains for almost the whole year, is truly peculiar; the true endpoint of these coasts being [the region of] Gorgona [6] and the Gulf of San Buenaventura, the division occurs generally from Baja California to Gorgona between May and November; and with certainty from Gorgona to Paita during the remaining six months; in the south from Cape Horn to Paita, and in the north from Mount St. Elias to Baja California, it occurs almost all year.

Panamá is quite correctly said to be an important region for the Monarchy. Everyone is in the King's pay. Further, they are looking to revive the ancient trade of the Perú galleons, and until now their industry and travails have gone unrecognised. The hostilities that must be endured from

the Indo-Duriens [7] are a new challenge for this region, which on the Pexagua side is also infested with the Miskitos and other non-subjugated tribes. During our stay in this port, which lasted for not less than a month, we were more than successful in our astronomical work.

We determined longitudes by reference to the satellites of Jupiter, the occultations of various stars by the moon, and readings of the latter made with the astronomical quadrant. Putting everything together assured us of the correctness of the previous measurements made using our excellent chronometers, among which the Number 10 of M. Berthoud was always by far preferable to those of Arnold. On this occasion we also had the pleasure of reconciling at this point our measurements of Guayaquil with those of the meridian of Quito and of the eclipse of the moon observed by Mr. Bouguer; and, since we were so close to the Atlantic, we were able to use a chronometer to refer to Chagres [8] various other observations, made in Portobello by M. Fevillè [9], which were exceedingly close to our own. Through this careful approach, we have now established agreement among the measurements made on both coasts of America, and have provided an essential basis for the determination of longitude in our Atlantic charts.

Here too we made marvellous progress in natural history. One by one our botanists were discomfited by the scent of the manganillo, and for two days Mr. Haenke suffered very sharp pains in his eyes [10]. The extraordinary effect of this tree's scent, which on the coasts of Guatemala did not show the same malignity, since we were able to remain in its shade for as long as we wanted, seems quite incredible; and just as incredible was the endurance of our naturalists, who without exception spent all hours of the day in the rain or sun. Having finally left the Gulf of Panama in the middle of December, we thought we could reach Acapulco and San Blas around the first of February, so that we could build a good launch for the *Atrevida*; in Guayaquil we had already built one for the *Descubierta*, with everything necessary for two or three months' navigation in any sea, and more importantly in any channels and rivers, where we might as a matter of course find ourselves.

Since we were effectively becalmed, the currents being contrary [to our intended course], and having it in mind to extend the voyage towards Costa Rica, we continued our work of description, subjecting everything to careful observation. It seemed to us, at that point, better to separate the two corvettes, and to send one immediately to Acapulco and San Blas while the other continued the hydrographic work on the coast of Guatemala; in this way, the *Descubierta* was able to arrive at Realejo on the 19th of January and to depart again on the 30th. The *Atrevida*, after visiting the island of Cocos [11], reached first Acapulco, and then towards the end of March San Blas.

On its approach to Realejo the *Descubierta* again fell victim to the calm and currents; we had to leave the coast and leave this part of our work unfinished, and although with this sacrifice we believed a thousand times that the season was lost, we finally arrived in Acapulco on March 25th.

Our original plan was in the middle of March to head straight from this coast to the latitude of 60 degrees to search for Ferrer Maldonado's passage to the Atlantic (despite the fact that we believed it apocryphal [12]), all of which would take a couple of months, and then to sail north to determine where the boundary of the permanent sea-ice was this year located; however, since we had been delayed by two months or so, and since the rendezvous with the other corvette and the completion of our required tasks would take until the end of April, we inclined rather to making a brief detour to the Sandwich Islands and afterwards a description of our coasts from the vicinity of Nootka as far as San Blas; however, we received at this time the King's orders to search for the aforementioned passage, because in Paris M. Buache had recently written and presented to the Academy of Sciences a memorial on the existence of this passage [13].

At this time in Acapulco the officers Espinosa and Cevallos rejoined us, with a fixed pendulum comparable to the one with which previously, in France, there were made 45 [measurements] of latitude and on various shores of the sea an experiment related to the uniformity of weights and measures in all civilized [nations]. We have already begun our experiment here, and shall continue to pursue it in the different parallels of one or the other hemisphere which it remains for us to visit [14].

Since for the time being we were ending here our work in the civilised colonies, where we had free rein to overwinter within 30 or 40 leagues, yet on the other hand had not run the risk of failing to complete as much of the work on the charts as was entrusted to us, and given that on the coasts of Guatemala and Costa Rica we had not been able, owing to the calm and contrary winds, to work with the desired accuracy, it seemed to me best to leave Messrs. Pineda and Née and a natural history artist in Mexico, so that they could continue to pursue botany, lithology, and mineralogy, drawing curious and useful comparisons between this land and South America, and the naval officers Galiano, Pineda and Olavide were at the same time charged with continuing the geographical work in this region, extending our [determinations of] longitudes to the Atlantic at Vera Cruz, and arranging to finish our charts of this coast, in case some chance occurrence, happy or otherwise, should prevent our return to this port next October. This separation seemed to me necessary, in as much as Galiano would be able with ease to settle a not inconsiderable number of matters advantageous to astronomical navigation, which his talent and constant application have suggested to him in the last two years.

You can imagine how in this way we should be grateful for the successful conclusion to one of the main objects proposed to us for in terms of both geography and navigation, especially that of Spain; it will certainly be of considerable use for us, even if we cannot even guess when we shall return to Europe.

There reigns such unity and friendship among all of us that the length of years does not trouble us, nor do we believe that misfortunes might befall us of a kind that, although too frequent among the mariners who have preceded us, were produced by taking excessive risks with the timing of the voyage, which therefore bore less fruit than Europe had hoped for.

It would be excellent if you were to receive our next letters from Hudson's Bay [15], but I think this thought is no more than a dream. I shall await your replies here in October, promising to reward you with a longer narration of what will have happened in the next phase of our exploration. Bustamante, Valdés, Galiano, Viana, Espinosa and Pineda send you their salutations.

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[1] Original now lost; copy in APSF; PICANYOL, pp. 55-58; Manfredi 1999, pp. 252-258. **[Editing Criteria]**

[2] Through an error, perhaps of the copyist, the letter says "Lima, 20. settembre 1790"; this misreading has not been adopted by Picanyol.

[3] Malaspina had obtained the treatise *Recherches sur la modification de l'atmosphère* by this scientist; see M. D. Higueras Rodríguez, *Catálogo crítico*, cit., vol. III, p. 109.

[4] Evidently Malaspina is referring to the measurements taken by Jorge Juan and Antonio de Ulloa, who took part in the astronomical expedition of the Frenchmen La Condamine, Godin and Bouguer; see Ch. M. de la Condamine, *Journal de voyage fait pour ordre du roi, a l'équateur, servant d'introduction historique a la mesure des trois premiers degres du méridiens. Par ...*, Paris, 1751.

[5] Malaspina means the volcano Chimborazo, which is 6310 metres high.

[6] An island in the Pacific, off the coast of present-day Colombia.

[7] Malaspina means the indigenous inhabitants of Darien, who had not yet been subjugated.

[8] A port situated at the mouth of the river of the same name, which flows into the Caribbean Sea.

[9] Malaspina very probably means Louis Feuillée (1660-1732), traveller and mathematician who visited various parts of Central and South America; see L. Feuillé, *Journal des observations physiques, mathématiques et botaniques faites par l'ordre du Roi sur les côtes orientales de l'Amérique meridionale et dans les Indes occidentales depuis l'année 1707 jusque en 1712. Introduction aux tables des mouvements du soleil. Tables des mouvements du soleil. Histoire des plantes médicinales qui sont le plus en usage aux royaumes de l'Amérique méridionale, du Pérou et du Chily*, Paris, Griffart, 1714; and also his *Journal des observations physiques, mathámatiques et botaniques faites par l'ordre du Roi sur les côtes orientales de l'Amérique meridionale et aux Indes occidentales, et dans un autre voyage fait per le méme ordre à la Nouvelle Espagne et aux ísles de l'Amérique. Tables des déclinaisons du soleil por tous les degrez et minutes de l'écliptique. Histoire des plantes médicinales qui sont le plus en usage aux royaumes du Pérou et du Chily*, Paris, Mariette, 1725.

[10] The tree which Malaspina calls *manganillo* (also known as the *manzanillo*) is none other than the *Hippomane Mancinella*, of the family Euphorbiaceae (Linnaeus). Mention is made in various travel accounts of the poisonous exhalations of this tree; however – it should be noted – modern scientific descriptions, while agreeing on the poisonous nature of its fruit, omit any mention of the emanation of deadly vapours (*Nouveau Dictionnaire de Sciencies*, Paris, Perrier, 1924, p. 1833; cited in E. Bona, *Alessandro Malaspina. Sue navigazioni ed esplorazioni*, Rome, Istituto Grafico Tiberino, 1935, p. 113). If this is correct, we are faced here with a curious phenomenon of collective hallucination. [On the other hand, contact with the sap of the tree is known to cause blistering of the skin and damage to the eyes. – *Trans*.]

[11] An island situated off what is today Colombia.

[12] Cf. the letter to Rangoni of September 15, 1790: Malaspina had by now changed his opinion.

[13] Here (as elsewhere) Malaspina is silent on the fact that he himself was responsible for the position taken by Buache, who would never have read this memorial to the Academie des Sciences if José de Mendoza y Ríos had not given him a copy of the report by Ferrer Maldonado found in the Archivo de Indias; see I. Luzzana Caraci & D. Manfredi, "Alessandro Malaspina e la questione dello Stretto di Maldonado," Atti del Convegno "Alessandro Malaspina e la cultura del suo tempo," *Memorie della Accademia Lunigianese di Scienze Giovanni Capellini*, La Spezia, LIX (1991), pp. 147-156; D. Manfredi "An unknown episode behind the search for the North-West passage of the Malaspina expedition?," in R. Inglis (ed.), *Spain and the North Pacific Coast. Essays in recognition for the Bicentennial of the Malaspina Expedition, 1791-1792*, Vancouver, Vancouver Maritime Museum, 1992, pp. 119-124; also D. Manfredi, "Fabio Ala Ponzone, oficial de la Expedición Malaspina, a la Costa Noroeste de America (1791)," *Derroteros de la Mar del Sur*, III (1995), pp.83-96.

[14] The experiment with the pendulum was used to determine the shape of the earth, since the length of the oscillation is greater where the distance from the center of the earth is greater (that is – we now know – near the equator).

[15] This would happen – Malaspina implies – if the passage of Ferrer Maldonado were to exist. Perhaps, at this stage, Malaspina again believed, or at least hoped, that the passage did exist!

Text courtesy of the Centro di Studi Malaspiniani, Mulazzo, Italy; notes by Dario Manfredi, except where otherwise indicated; translation by John Black.

Italian Original