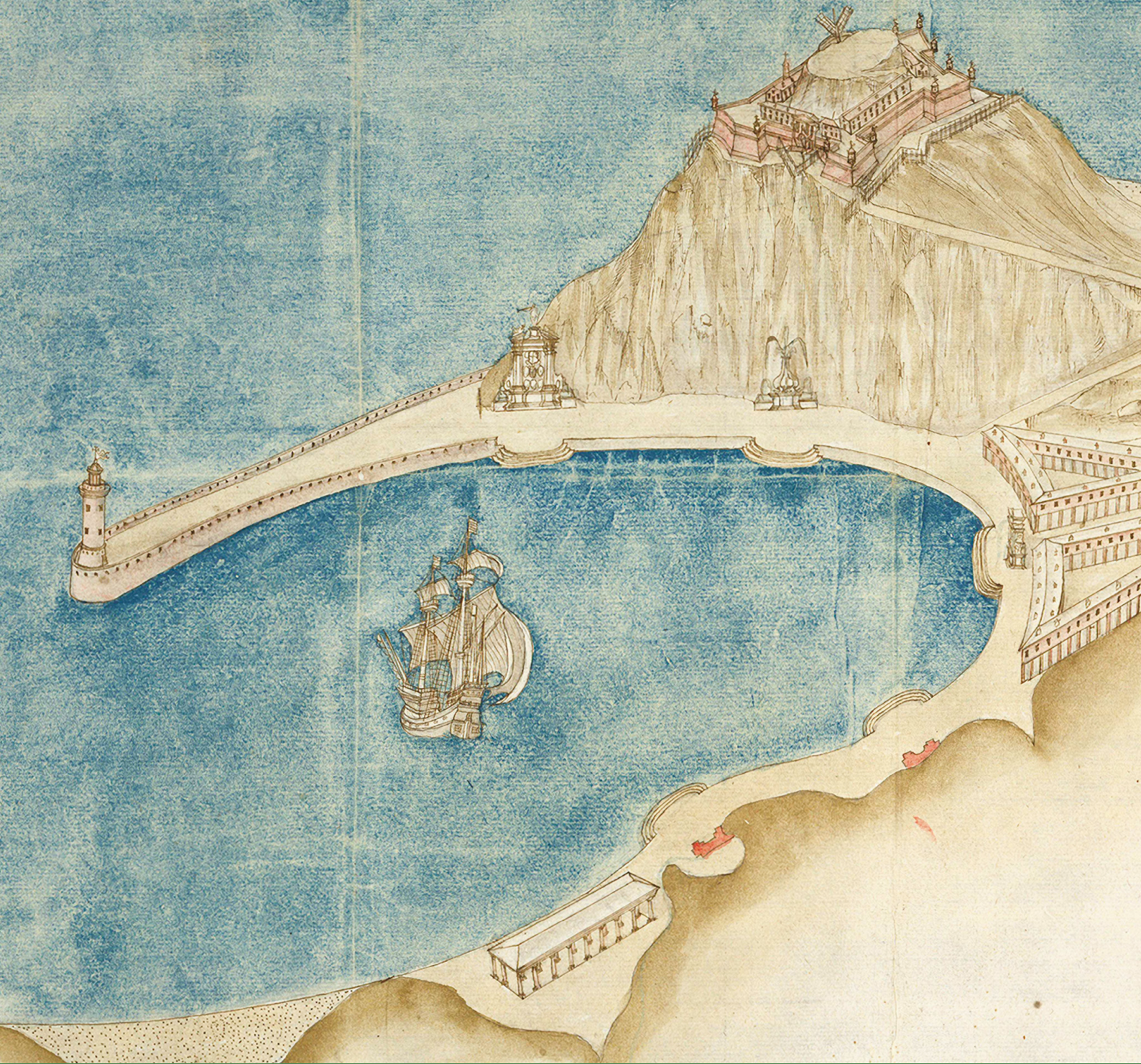


JUANELO TURRIANO LECTURES ON THE HISTORY OF ENGINEERING



Draughtsman Engineers Serving the Spanish Monarchy in the Sixteenth to Eighteenth Centuries

Alicia Cámara Muñoz (ed.)

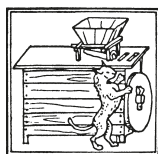


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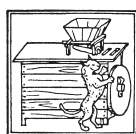
El dibujante ingeniero al servicio de la monarquía hispánica. Siglos XVI-XVIII (DIMH)

[draughtsman engineers serving the Spanish monarchy in the sixteenth to eighteenth centuries]

Funded by the Spanish Ministry of the Economy and Competitiveness

Head researcher, Alicia Cámara Muñoz

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FOREWORD

From the time of the Renaissance when *engineers* began to be spoken of until the specialization of the branches of engineering which took place in the 18th century, history has told us a lot about the uses these professionals made of drawing. Some fragments of this history are related in these pages, which are the result of a research project that seemed to be necessary because drawing was involved in all the studies carried out on the history of engineering in the Modern Age. Research had to turn its spotlight on these images, which is why we assembled an interdisciplinary team to develop the project *El dibujante ingeniero al servicio de la monarquía hispánica. Siglos XVI-XVIII* [draughtsman engineers serving the Spanish monarchy in the sixteenth to eighteenth centuries] (HAR2012-31117), financed by the Ministry of Economy and Competitiveness. This book is the result of the project.

The collection *Juanelo Turriano Lectures on the history of engineering* is the ideal vehicle for publishing the results of this research, previously in the original language and now in English.

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Preface

ALICIA CÁMARA

In 1590 a Flemish youth was discovered measuring the walls of La Coruña. We don't know what happened to him afterwards, but he was probably discovered as a result of the control that the *corregidor* [local, administrative and judicial official in the city designated by the king] had to exercise to ensure that no one should draw the city walls, especially in threatened cities like La Coruña which had been attacked by the English the year before. Measurements and drawings guaranteed the exactitude of the information on city walls and frontiers, whether one's own or those of the enemy. Drawing skills were not always imperative when the need was urgent, and we imagine that the drawings of the Flemish youth who was measuring the walls were not very good, but they would have given invaluable information to the English enemy. In the opposite case, among the papers of García de Loaysa conserved in the National Library of Spain, there is a clumsy but expressive drawing of the Tower of London, which accompanied a map of the European scene through which the Spanish armada was going to move against England. The world of spying could permit the lack of perfection in the representations, but the king's engineers had to make exact drawings, with no concessions to invention with the exception of adornments and cartouches, and if they were not good draughtsmen they had to have recourse to capable painters. Thus for example, when Giovan Antonio Nobile was designated Chief Engineer of the kingdom of Sicily in 1572, he had to look in all the places which were going to be fortified for painters who were masters of colour and drawing, to make the plans of the projected fortifications and the territory in which they were to be built. The uses of images can be approached from so many different scientific disciplines and this one of the exercise of power over territories is just one more, but we believe that it is determinant to evaluate the important role of engineers' drawings in the government of states throughout the Modern Age.

The engineers drew, but these drawings had to be seen, analyzed, debated and decisions on the execution of the projects had to be made; and this was the job of the king and his counsellors. We know that drawing and the science of fortification were part of the education of princes and noblemen, and even emperors, as Francisco de Holanda reminds us when talking of Charles V and Maximilian. In *De rege et regis institutione*, the work dedicated by Juan de Mariana to the education of Phillip III, the prince was recommended to learn geometry and arithmetic, among other reasons to «construir edificios y fortificar de acuerdo con la ciencia de los castillos y baluartes» [construct buildings and fortify according to the science of castles and bastions]. And the fact is that territories and fortifications, explained and represented in maps, with chorography and drawings, only existed if there was an image with which to recognize and travel through the dominions. For example, Sancho de Londoño wrote in 1568 that to understand a battle field it was necessary to have a painting of the province, the roads, and everything that could affect an army at war. It was also necessary in times of peace, and thus, in 1574 the state of Milan was so important for the Spanish monarchy as it was «paso y puerta de Italia» [the pass and door to Italy], that it became necessary to have a «carta, y descripción» [chart and description] with all the forts, passes, mountains, valleys, rivers, streams, and any other circumstances which would permit a thorough knowledge of those territories. This also applied to the cities at war, and at the beginning of the 18th century it was specified that a general had to have the drawn plan of the city he was going to besiege, but also the surrounding terrain with its hills, valleys, rivers, woods, swamps and roads by which help could come.

In the progressive professionalisation of the engineers' drawings, the description coexisted with the plan, and in this process the difference with the military, often claimed to be the true sages of fortification, was more and more evident. Cristobal de Rojas in his treatise echoed what was happening when underlining that these «soldados viejos» [old soldiers] knew so much about fortification «porque lo tratan al vivo, y lo demás es pintado» [because they deal with it directly, and the rest is painted]. This «painted» element introduced a radical change not only in military history but also in engineering, architecture and the history of science, and was accompanied by the development of scientific instruments to measure the world. This «painted» element is what we are speaking of here, leaving for another occasion the three dimensional models which were created, of which we conserve very few, and which have to be traced in archived documentation. The description of the frontiers, of necessity secret, was one of the responsibilities of the engineers, and their drawings constitute an important heritage for understanding the territories as they were then and their transformation, which is why one part of this book is devoted to these frontiers.

The permeability between architecture and engineering throughout the three centuries studied, has led us to devote another section to the study of a professional differentiation which many testimonies refute. As an example, at the end of the 16th century the count of Portalegre, governor of Portugal, speaking about the military engineer Leonardo Turriano related him, naturally without having to explain it, with drawing and architecture, when writing that he had to find out what the engineer was complaining about him for if «architectos y dibujantes me gobiernan» [architects and draughtsmen control me]. This Leonardo Turriano, who was present like a modern day Pliny at the

eruption of a volcano in order to describe it, and said of himself that «no soy solamente historiador, ni exclusivamente geógrafo, ni tampoco simple arquitecto militar» [I am not only a historian, nor exclusively a geographer, nor a simple military architect], developed all this knowledge as the king's engineer, which reinforces the questioning of these professional frontiers constructed *a posteriori* by historiography. Finally, in the line of this argument, when Juan Agustín Ceán Bermúdez, an erudite expert who would mark the guidelines in the construction of the history of Spanish art, in the prologue to his *Diccionario de los más ilustres profesores de las Bellas Artes en España*, explained that he had opted not to include architects in his work, he reasoned as follows: «¿cómo me atrevería yo á excluir de ella los arquitectos militares, los hidráulicos, los de puentes y calzadas, y otros semejantes, ni tampoco á incluir á los meros maestros de obras, aparejadores y albañiles?» [How would I dare to exclude from it the military, hydrological, bridge and road engineers, and other similar professionals, nor to include the mere master builders, master craftsmen and masons?]. With time Spanish historiography gradually included these master builders or master craftsmen in the history of architecture, but it did not do so in the same way with the military, hydrological, bridges and road engineers, at times stripped of their engineering profession when they entered into the history of architecture. Going back to Ceán, if this was being considered in 1800, we could ask ourselves what he would have written nowadays, when the history of war, geography and science seems to complicate even more the professional definition of the architect engineers to whom he refers.

Among the research activities which we carried out from 2013 to 2015 are seminars and courses to which were invited researchers who were not involved in the R+D project, and who have been invited to participate in this book. Thanks to all the authors the final result is that we have made progress in the consideration of how engineers' drawings explain questions which affect the history of architecture, of the city or of the territory, as well as the history of a profession which was greatly transformed over these centuries, using drawing for many different ends. Other topics presented include how the experience of the French monarchy introduces a point of comparison with the Spanish monarchy, the relation of these drawings with the history of science, the development of the representation systems used and scientific instruments, the role of the academies, or the use of these drawings in dealing with the fortified heritage. Stories of power, the education of the prince, the secret character of these images, war, engineering, science and the codification of knowledge, resound in its pages. Finally, the possibility offered for access via the Internet to the digitization of data on the drawings conserved in the archives, has meant that this project has been a pioneer in the field of the Digital Humanities, with the creation of a web application which incorporates the data and the semantic structure, which may favour progress in the investigation of engineers' drawings.

The interdisciplinary character of the project, in the frame work of which this book was created, reflects the changes which have for some time now been occurring in the study of images. This break with a specialization which we have inherited, leads us to trust that these pages will serve as a starting point for future research.

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Keeping Secrets and Mapping Frontiers: Government and Image in the Spanish Monarchy¹

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Translation: MARGARET CLARK

ABSTRACT

This chapter addresses the relationships between frontier, drawing and secrecy in Spain's Habsburg monarchy in the sixteenth and seventeenth centuries. Those relationships were the outcome of the criteria legitimising expansion as well as of the fluctuating priorities around defence by land or by sea and hence around the role of bastioned fortification. Such structures crystallised the construction of military, legal and symbolic frontiers until that conceit was forsaken in twentieth century thinking, historiography and imagery. The political dimension of space which, as Braudel noted, was the primary challenge facing an expansion-minded monarchy, can only be reconstructed from a global perspective. To broach the frontier in the Habsburg court and kingdoms is to broach power as a dialectical interplay of interests, resources and values. Thus viewed, the frontier is a ductile, fluid conceit which, in its stark contrast to the stony immobility of fortifications, questions the applicability of anachronistic notions such as «strategy» and identifies the need to revisit today's criteria around sovereignty and «propaganda». Power must be viewed in keeping with the values of a political society radically different from our own in every respect, beginning with ceremonial imagery that ultimately affected the portrayal of frontiers and fortifications. Set against courtly rhetoric, the secrecy that shrouded military engineers' drawings bears witness both to a technique for exercising power in competition with others and to a new approach to reality.

KEYWORDS

Frontier, drawing, secrecy, fortifications, Spanish monarchy, image, court, engineers, House of Habsburg, Pyrenees.

«I SHALL PASS FORTS AND CROSS FRONTIERS»

In his «Spiritual Cantic», which he began to write in 1578, St John of the Cross attests to the awareness of territorial bounds that characterised his age, alternately evoking nature's and humanity's works: *Along sea and strand shall I go / No flowers shall I pluck / nor beasts shall I fear / and I shall pass forts and cross frontiers*. The energy in the verbs «go», «pass» and «cross» links the spatial symbolism of «mountains and strands» to the «forts and frontiers» in the same verse. The soul seeks a reality that exists beyond body and matter, although as in any initiation voyage, crossing a boundary involves moving into the mystery-riven unknown. The poet explains that he calls the «devils» «forts, because they strive to stand in the way of the spiritual road». And he says that the soul will «cross the frontiers», which he defines as «the natural resistance and rebellion of the flesh against the spirit...»³. This perspective of a broader horizon superseded an earlier analogy in which the soul dwelt in a castle. That image had been modernised by Erasmus who contended that the devil «undermining [...] stealeth on us unaware» and Pedro Mexia who compared «the weave and structure of the human body» to a «transposition or likeness of the world wide» in which «man's head [is] superior to the rest [...] like a fortress in a city»⁴. The association of secrecy, drawing or design and fortress represented power in a new dimension that could not be ignored even in spiritual literature.

The metaphor of the soldier in spiritual battle (adopted by St Ignatius and other authors based on Prudentius's *Psychomachia*) would be used, for instance, by Portuguese writer Francisco de Holanda to convert fortress designing into a religious mission⁵. St Teresa of Avila placed the soul's habitat in a more conventional «interior castle» (with diamond walls clad with palatial magnificence according to widespread allegorical tradition⁶). John of the Cross's fort and frontier enlarged on the metaphors commonly found in books of chivalry⁷ (which nonetheless contained descriptions of military engineering, as in Antonio de Torquemada's *Olivante de Laura* published in 1564⁸) and earlier conventions such as Benedictine monk Gonzalo de Arredondo's 1528 «impregnable castle» (*Castillo inexpugnable*⁹). St John's nude contemporary images depicted the immediacy of the political and architectural realities prevailing in the reign of Philip II, the builder king intent upon enclosing spaces in a world whose destiny he believed had been commended to him by the Creator. In keeping with that vision, shared by most of his subjects, warfare was versified, among others by Captain Francisco de Aldana. Before dying in battle alongside King Sebastian of Portugal in remote North African Alcazarquivir, he wrote a poem dedicated to the Spanish monarch that described an overarching theory for the defence of the peninsular frontiers. Under his premise, the six factors that would afford resistance against any armed warrior included soldiers and their experienced minds, a strong fortress city with moat and traverse, and a protected site where nature itself would do battle¹⁰. A monarchy which, like the Christian's soul, was under siege erected new fortresses to defend its innermost and outermost frontiers. The Earth thus incarnated was assigned a providential mission, although the constant felling of natural and human barriers rendered domination as unstable as a river that routinely overflows its banks.

St John of the Cross's mystical challenge to conquer space was sympathetic with the scientific experimentation conducted by cartographers and draughtsmen seeped in em-

blematic culture¹¹. They both sublimated the chivalrous zeal expressed in the maxim composed by Milanese humanist and physician Luigi Marliano for young Charles I on the occasion of a meeting of the Order of the Golden Fleece at Brussels in 1516. His *Plus oultre* was soon erroneously Latinised as *Plus ultra* and translated into German as *Noch weiter*¹². In a second reading, that maxim was identified with the expansion of the monarchy during the emperor's reign and with the image of the globe that had already been adopted as one of the imperial symbols¹³. A medal struck after the annexation of Portugal in 1580 depicted an unbridled horse galloping across a globe with carefully embossed meridians under the legend, *Non sufficit orbis*, meant to symbolise the attainment of such ambitious goals. That portrayal of motion represented the union of space and time which, as Braudel¹⁴ explained, was addressed to greater effect by the Spanish monarchy than by its contenders. Endless motion seemed to embody what Drake's buccaneers called the King of Spain's and his nation's «insatiable ambition», when in 1586 they found that provocative image in the Governor of Santo Domingo's palace¹⁵. One of Drake's men copied it in a drawing that also reproduced the Prudent King's first device: *Nec spe nec metv*, whose moral meaning, «neither out of hope nor out of fear» could be interpreted as a reference to the defensive needs generated by enlargement policies. Nonetheless, that meaning paled in comparison to the excess inherent in the image stolen by the English privateers. The drawing, in which the emblem was overlaid on the Spanish coat of arms in a map of the capital of La Española during the English attack, was intended as political denunciation. While this was a celebratory symbol, other drawings drafted during Drake's same expedition depicted the sturdy coastal defence system erected in the Spanish Indies. In contrast to the dynamic impetus of the equestrian emblem, the staid immobility of the fortresses spied upon represented a compendium of military art and hence the foremost incarnation of spatial measurement, which was inseparable from the depiction of space on paper, canvas or other media.

Before geometry was certitude and politics dogma, when spatial measurement was a challenge and power rested on transcendental truth, merely imagining the bounds of a territory, even to deny them, was an avowal of strength and organisation. That was why maps were drawn in conjunction with the designs for fortresses. In theory and in practice (with the uncertainties and contradictions inherent in depiction), strongholds were sited in valleys, on mountain tops, along rivers and in meadows, to custody more precise although vulnerable boundaries, just as the body protected the soul against its enemies in St John's mystical vision. The political persona in traditional society, scornfully termed the *ancien régime* in arrogant bourgeois parlance, was always on the alert, intensifying



FIG. 1 NON SVFFICIT ORBIS. Philip II medal, ca 1580. Numismatic Portuguese Museum, Lisbon.



FIG. 2 Engraving by Baptista Boazio in 1588 depicting Drake's assault on Santo Domingo and the NEC SPE NEC METU emblem, taken from a drawing made by one of Drake's men in 1586. National Maritime Museum, Greenwich, London.

his guard to defend positions constantly challenged by other political entities across a border conceived, drawn and built on land that gradually became landscape¹⁶.

The symbiosis between territorial bounds and construction was so tight that, once command over the world had been consummated, the border continued to be associated with the image of a castle or fortress: a literary device used to express the isolation of contemporary humanity, deprived of the system of values that raised strongholds on land and in the soul. That would explain the desolation of the *deserto dei tartari* so obsessively scrutinised by Dino Buzzati's officer in 1940 from a useless fortress, on «un tratto di frontiera morta [...] che non da pensiero...»¹⁷. Buzzati's fortress was preceded 5 years earlier by Kafka's posthumous castle, «whose insecure, irregular, broken battlements bit into the blue sky and seemed to have been designed by a careless or cowardly child»; an existential labyrinth, a confusing, Medievalised construction still seeped in religious symbolism, where the surveyor discovered the futility of his trade in a world where all sense of mensuration had been lost¹⁸. Kafka's vision, in turn, was countered by the humanistic metaphor in another posthumous and unfinished work, Saint-Exupéry's *Citadelle* published in 1948 and likewise set in the solitude of the desert. Here, however, solitary space was invoked in opposition to the spiritual home found by building, alluding to certainties identified for centuries with the Augustinian City of God but since lost¹⁹.

The failure of modern fortifications in the world wars and the mass destruction of cities, dragged out due to the drastic shifting of boundaries in Europe, also prompted new philosophical reflection. In 1951 Heidegger attempted in his *Being and Time* to determine the relationship between being and space through the idea of habitation, delimited by the Greek conceits *péras* and *órismos*, to define the two sides of the border as the end and beginning of reality, inferring that there is a within and a without that likewise need to be measured²⁰. The European convulsions that induced such musings made the border a historiographic object, from Lucien Febvre with his pioneering works on Franco Condado and the Rhine²¹ to Carl Schmitt with his study on the power of the land and the sea in the trail blazed in empire building. Borders were thus conceived as a *nomos*, understood to be a jurisdictional, political and moral limit defined by mensuration, which by that time had hypertrophied under the thrust of technology and faded from thought²².

Whilst the twentieth century interest in territorial limits was driven by intensified nationalism in the wake of the historical geography of the *Annales* and the new German science of geopolitics²³, as we enter a new century an apparently contrary situation has inspired renewed enthusiasm for the history of boundaries and the social variations on that theme²⁴. The crisis of the European nation-state justifies the pursuit of evidence of the inconsistency of national realities formerly regarded as inalterable, given the presumed porosity of borders and confines. Some historians, with self-attributed divine powers (especially in certain regions of Spain) aim to create history by denial, betrayal or concealment, while real history, wedded to geography, towers over the horizon in the inescapable silhouette of mountain ranges.

The Pyrenees constitute a paradigmatic example. The object of fluctuating interest underlain by national realities delimited by natural boundaries²⁵, in the twentieth century these mountains were attributed a number of political-literary interpretations that aimed to quell romantic fantasies²⁶, still evoked as late as 1959, in a metaphysical vein, by images such as René Magritte's *Le Chateau des Pyrenees*. A plastic rendition of the platitude «castles in Spain/castles in the air», this painting also elicits the fortress as an abstract idea (using a construction with a suspicious likeness to the Medieval pastiche at Carcassonne) associated with a symbolic boundary that, like modern humans' certainties, fades while challenging the most robust features of land and sea. Its ironic flight, in open contradiction to architecture's mythical *firmitas*²⁷, is reminiscent of the city in Aristophanes's *The Birds*, Calderón's *Castillo de Lindabridis*, Swift's Laputa or the delirious utopian Flying City imagined in 1928 by Gueorgui Krutikov, apotheosis of communist deracination.

The diversity of readings and messages of what appears to herald the continental literary rift found in Saramago's *The stone raft* overlays the complexity of Pyrenees space, defended in so-called *modern* times with the most advanced military and cartographic resources in the labyrinthine geology of mountain passes and in fortified foothills, from Salsas to Jaca, Pamplona and Fuenterrabía. The designs drafted by Tiburzio Spannochi for Philip II reflected the need for drawings to build boundaries²⁸. Even as late as 1700, after the attempt to suppress the political strife that arose around the change from the Habsburg to the Bourbon dynasty, the formulation of which is attributed to Ambassador Castellodosrius or Louis XIV himself, the Pyrenees border regained its status as the first line of defence. Decades prior to the construction of the



FIG. 3 RENÉ MAGRITTE. *Le château des Pyrénées*, 1959: Israel Museum, Jerusalem.

huge San Fernando fort at Figueras, that status was reflected in a play entitled *Las Amazonas de España*, written in 1720 by José de Cañizares to be staged in Philip V's court with music by Giacomo Faco. The women warriors (associated with borders since classical Greek times) encountered by Hannibal when he crossed the Pyrenees (according to Plutarch) symbolised support for Isabel de Farnesio's political ambitions, while invoking the military significance of a mountainous frontier. That vision was associated with engineering design in the form of a compass and a sphere depicted amongst the books in the Amazon Queen's cabinet as an attribute of majesty identified with geometry- and construction-mediated defence of peninsular space²⁹.

The sphere alluded to an ancient symbol of sovereignty modernised by universality³⁰, a new conceit spawned by cartographic progress and mirrored in the polit-

ical cosmology portrayed in several series of royal tapestries³¹. The compass, in turn, along with the angle square and other objects, was identified with both architecture³² and the symbolic fundamentals of the *res publica* as a whole. As Alberti noted, architecture served as an example of the capacity to spiritualise nature through rules whose rationale hinged on time³³. That, together with space, was the primary challenge in the pursuit of eternity in pre-modern constructions, fortifications in particular³⁴. The angle square and the compass also embodied a view of Mensuration³⁵ reinforced by allegorical tradition that linked the philosophy of architecture to space in general³⁶. In 1599 the marriage of scientific knowledge and military action was pictured on the cover of a book entitled *Milicia y descripción de las Indias* authored by Captain Bernardo de Vargas Machuca, in which the author was shown holding a compass in his right hand, poised on a globe, while grasping a sword with his left, all under the caption «With a compass and a sword / more and more and more and more»³⁷. Shortly before, one of the impresas deployed for Philip II's funeral rites in Naples Cathedral consisted in a compass drawing a circle under the caption CIRCUIT IMMOTVS. The idea that inspired the geometric symbol was that «se bene il Re era stato il più della sua vita, fermo con la presenza nella

Spagna; haveva egli nondimeno coll'alto et generoso pensiero aggirato tutto il mondo; et con l'invitta potenza circondato con l'Impero suo un compiuto giro della Terra»³⁸. Mobility and stillness (with their corollaries, expansion and defence) thereby merged in an image of political perfection.

Lines drawn on paper represented divisions between kingdoms when, in the absence of a natural boundary such as the Pyrenees, history defined limits along plains with rivers as the only seams. That was what set the stage for fortifications and consequently for their depiction. That was the case of the Portuguese boundary, the least natural of all and nonetheless one of the most persistent, despite the 1580 annexation that drove new expansive ambitions symbolised by the emblematic runaway horse. Very soon, drawings were made of cities on the dividing line to determine the condition of their Medieval walls and the need for modernisation. A book by Duarte de Armas provides invaluable witness to how the frontier was conceived in 1511. When secession began with the Portuguese revolt under the Duke of Braganza, the 1642 copy of that book described the defensive continuity of a front that would be the site of further attempts in the decades that followed³⁹. The exchange of experience among engineers and architects on both sides of this artificial boundary were attested to by the works of Francisco de Holanda⁴⁰, which culminated in the constructions authored by Filippo Terzi and other major actors in the 1580 conquest of Lusitania⁴¹.

Other more subtle and remote frontiers lay hidden in cities transformed in the sixteenth century by demographic and architectural growth. When Philip II commissioned Anton Van der Wyngaerde make a record of his Spanish kingdoms in images, the draughtsman's gaze lingered in the cities. Like the writers who, true to Pausanias, were creating a new chorographic tradition, Wyngaerde left an accurate description of Spain's major urban settings, borrowing from the drawing techniques inherited from his Flemish masters. The artist took to the countryside to find the ideal perspectives, extracted the grandeur of the horizon in hills and coasts and precisely portrayed cities enclosed in walls generally more effective as fiscal and symbolic bounds than as defensive structures. The exception was to be found in coastal cities like Barcelona, where new sections of wall reinforced with bastions had been built⁴².

The evolution of the use of drawings and chronicles in shaping the land into a political body, epitomised by the border, drew from a diverse perception of information and image⁴³. Due to the survival of the broader meaning of the Medieval frontier, with its widespread historical and literary reverberations in Spanish society⁴⁴, the modern frontier, like the early bastioned fortifications along it, was a transitional construct. The idea of the frontier (never fully consummated) above and beyond local patronage-based relations was consolidated across a complex jurisdictional, military and diplomatic web⁴⁵ reminiscent of Imperial Roman *limes*, marked by the Spanish crown's ceaseless construction and mensuration⁴⁶. Confines and enclaves of Medieval origin co-existed with this new geometrised space as a result of the reformulation of the territorial basis of power⁴⁷. Even that geometrisation, however, was fruit of political struggle in- and outside the monarchy that led to different strategies that were both time- (further to fluctuations in the crown's resources, which determined the alternation between expansion and defence in successive reigns) and space-dependent. In that battle the expansive pressure brought to bear



FIG. 4 DIEGO DE SAAVEDRA FAJARDO. *Idea de un príncipe político cristiano representada en cien empresas*. Milán, 1642. «I am assailed and defended», Impresa 83.

by certain provincial elites was countered by the prudent defensive restraint of other forces both at court and in the territories⁴⁸.

In a similar vein, the monarchy's priorities shifted from the Mediterranean⁴⁹ to the Atlantic, whilst its Ottoman enemy, forfeiting the logistic advantage afforded by its alliance with France since 1526, diverted its power away from that interior sea to expand eastward to Asian geographies. In spite of its considerable advances in engineering, the Spanish monarchy never undertook projects comparable to the large Ottoman canals, focusing rather on defence in static enclosures. The Turks and the Spaniards nonetheless shared a continental view of power that led them to see naval routes as a prolongation of their inland counterparts. The former were regarded as no less vital for communication between their domains, over and above the need to choose between ship and fortress construction which was tantamount to opting between dynamic defence at sea and static defence on land. In 1640 Saavedra Fajardo summarised the need to reconcile the two mechanisms in his «impresa» 83, which depicted Medieval tower in a modern fortress surrounded by the sea under the caption «I am assailed and defended»⁵⁰.

The monarchy's universality also rested on the claim to the right of exclusive navigation, which spread past the initial hegemonic ambitions over the western Mediterranean (the «Spanish Sea» in Ottoman texts) to include a Spanish Ocean in the Atlantic and even a *Hispanis Mare Pacificum*. The former was based on controversial papal concessions (ironically called «Adam's will», a phrase traditionally attributed to Francis I of France⁵¹), while the latter was found on maps drawn as late as the second half of the seventeenth century. Reality, however, gradually outpaced names. The growing dependence of naval art on technology⁵² and military architecture conditioned the mobilisation of economic, technical and human resources. That intensified the contradiction between expansion and defence, mirrored by the evolution of fortifications: from the earliest bastion-based structures built by the Catholic Monarchs, through their fuller definition under the Emperor⁵³ and expansion and theoretical development under Philip II⁵⁴ to their trouble-fraught conservation in the seventeenth

century⁵⁵. This process led to the consolidation of the perception of the territories as fortresses defended by the walls of their mountains and coasts in conjunction with the bastions around their cities⁵⁶. The monarchy as a whole could be compared to a huge fortress with its borders as its outer walls.

Urban centres such as Milan were defined, in turn, as fortress cities where continental roads converged, guaranteeing the mobility of armies between southern and northern Europe⁵⁷. At the same time, projects for bastioned cities continued to be planned to protect maritime frontiers and ensure the existence of a network of ports vital to the major coastal routes. Hence the Spanish garrisons at Toscana⁵⁸ and in northern Africa or enclaves such as *Felipeia* in Brazil, founded at the end of Philip II's reign⁵⁹. Galleys and galleons fitted with increasingly effective artillery⁶⁰ formed the backbone of a naval machinery that, in its struggle against distance, unsuccessfully proposed the use of propellers in addition to human and wind power to dispense with sails⁶¹. These vessels could be regarded as floating fortresses and the fleets as mobile cities⁶². In his memorandum on the creation of a huge royal library addressed to the king at the beginning of Philip II's reign, Juan Páez de Castro alluded to the utility of «having armed and provisioned and mobile cities able to carry your fundamentals wherever deemed suitable»⁶³. Vessels and fortresses were the answer to geopolitical needs based on the defence of maritime corridors (depending on the coasts and the winds, such as the one that connected Barcelona to Genoa, Naples and Palermo in the Mediterranean⁶⁴, the Indies Route in the Atlantic and its prolongation in the Pacific with the Manila galleon⁶⁵) or land routes (such as the famous Spanish Road between northern Italy and the Netherlands⁶⁶) to guarantee inter-territorial communication. The layout and evolution of these corridors, the crown's military and economic arteries, determined the monarchy's general plan of action and hence the production of drawings and designs, such as for fortresses in the Strait of Magellan intended to control navigation between the Atlantic and Pacific Oceans⁶⁷.

Unsurprisingly, from the Age of Discovery the sea was used as a metaphor for the court, archives or books (the custodians of the secrets of power), while cartographers and engineers rendered ever more accurate outlines of those discoveries in all manner of drawings, beginning with maps. To capture a view of land and sea on a few inches of paper, suggest the presence of light, air and water with brush and pen, run one's gaze across coastlines spattered with spots of colour and small glittering pennants, study the wind rose as if it were a compass trapped in an angle of a piece of world, so close and yet so far away... such were the miracles of cartography explored at least from the times of Ptolemaic Alexandria. But neither the Greek and Roman *ecumene* nor the narrower spatial horizon embraced in the Middle Ages had ever, as far as we know, reached the virtuosity and conceptual wealth of the maps drawn in the so-called *modern age*⁶⁸. Treasure holds of constantly renovated knowledge able to crush authoritarian premises with the methodical application of empirical analysis; works of art that conveyed the aesthetic thrust of late Gothic; the gradual assertion of classical motifs and ultimately the prevalence of the most refined mannerist language culminating in the descriptive apotheosis identified with Baroque style; maps with their drawings of fortresses and frontiers... all encompassed a world rife with natural and political barriers

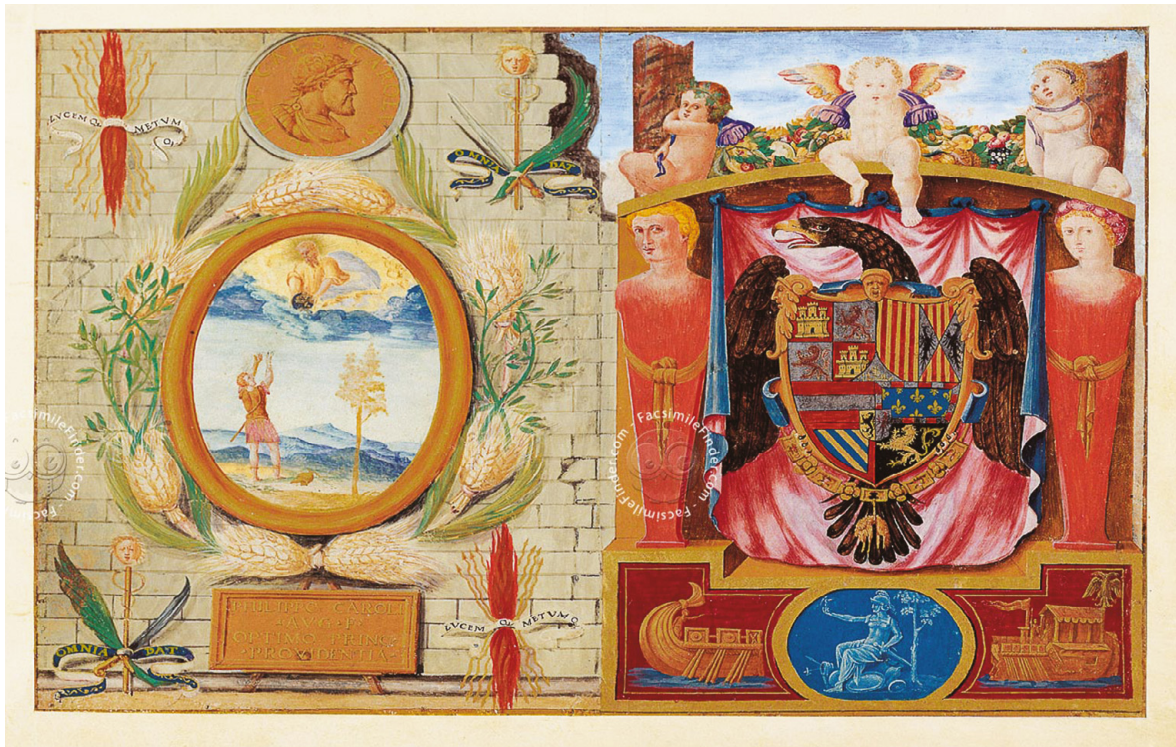


FIG. 5 Cover of BATTISTA AGNESE's *Atlas*, containing the single-headed imperial eagle, Spain's coat of arms and a portrait of Philip II in Roman attire receiving the world from God the Father. 1544. John Carter Brown Library, Brown University.

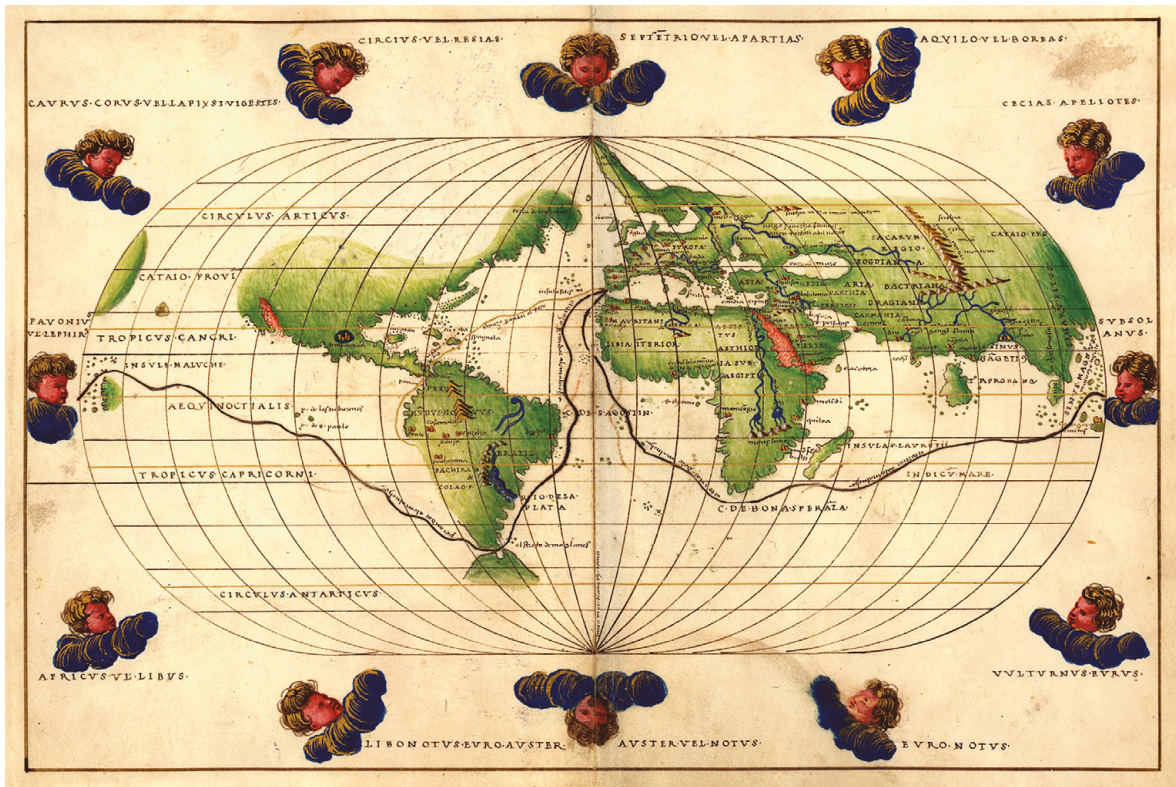


FIG. 6 BATTISTA AGNESE's *Atlas*. World map with Magellan's route. 1544. John Carter Brown Library, Brown University.

that would be felled by the thirst for knowledge. Sovereigns and a few members of the political elite lent growing attention to these images, regarded as an essential tool of governmental culture⁶⁹.

In 1543 Charles V gave his heir one of the first atlases, a small portable copy, authored by Genovese cartographer Battista Agnese. The cover of that work, widely regarded as a visual supplement to the Emperor's instructions on the art of governance intended for his son⁷⁰, contained an allegorical manifesto of the expansive objectives symbolised by the maps inside. Neptune was portrayed piloting a trireme, an allusion to the maritime empire on which the monarchy's power should rest, while the future Caesar, Philip, arms raised, received the globe held out to him by Providence. The maps showed Philip the latitude and direction of the winds, as well as the areas where expansion was a priority, along with a world map charting Magellan's and El Cano's itinerary in their voyage around the world⁷¹. This lesson in political geography was a lodestar for his education⁷², for it reflected the changes that were expanding the monarchy's borders. Not unjustifiably, another atlas by the same cartographer depicted a man (doubling for the author) dressed in ancient garb and using a compass to measure the world handed him by Atlas, a recurrent embodiment of power and an iconographic precedent to Vargas Machuca's self-image.

Maps, inseparable from borders, shifted with them. The dream of an empire where the sun never set was evoked at least from 1535 in the *impresa* coined by Sicilian scientist

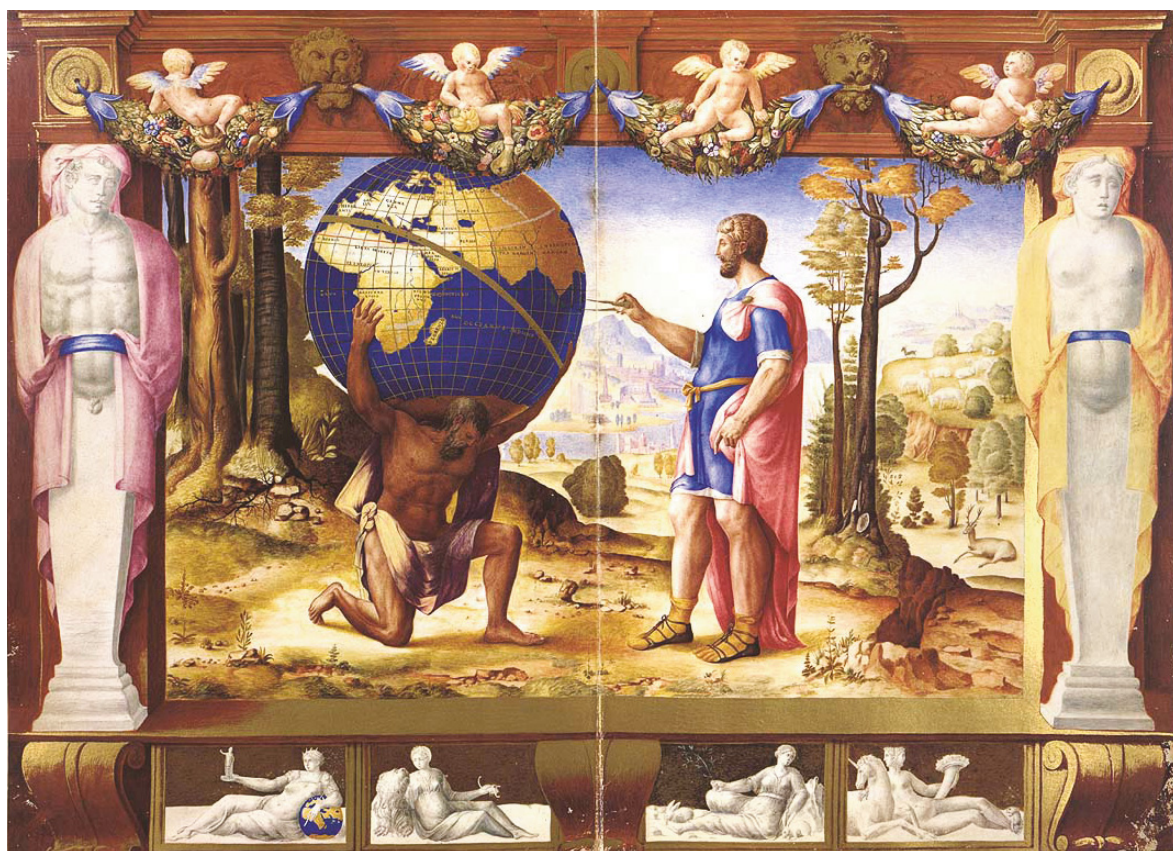


FIG. 7 BATTISTA AGNESE's *Atlas*. Depicting Atlas and a male figure measuring with a compass, 1546. Russian National Library, St Petersburg.



FIG. 8 Cover of BERNARDO DE VARGAS MACHUCA'S *Milicia y descripción de las Indias*. Madrid, 1599, Pedro Madrigal.

and humanist Francesco Maurolico for Charles V's entry into Messina. It would be expanded to include a lunar metaphor as a premonition of the fate to which it was destined by its excesses in a map authored by Michael Florent van Langren. This Flemish astronomer came to Madrid in 1631 to defend his studies on the length of the sea based on the phases of the moon in response to the demands for accuracy made by a monarchy obliged to maintain its naval capacity. He christened the selenic topography designed years earlier by Galileo, turning it to the greater glory of the Planet King, Philip IV⁷³. More earthly concerns moved the king, in 1634, to commission a huge atlas of his domains from royal cosmographer Pedro de Texeira. Similarly, his prime minister Luis de Haro had another atlas drawn by Italian painter Leonardo Ferrari, which focused on the two most troubled regions afflicted by open revolt, Italy and Portugal⁷⁴. Between these two cartographic endeavours, the monarchy was forced to exchange its hegemonic am-

bitions for defensive goals. Defence priorities shifted inward, as shown in the drawings and descriptions of fortifications along the Portuguese border, which concurred with the last military offensives to recover that territory in the sixteen sixties⁷⁵.

«RUN YOUR EYES»

In 1595 Tiburzio Spannochi undertook to describe the Sicilian city-fortresses in a text dedicated to the future Philip III, calling on him «to run Your eyes over it at [Your] leisure, as a work meant for His Magesty and Y.H. only, for it addresses matters whose conveyance is not apt for many nor fit for print...». Spannochi, who stressed the importance of defending the kingdom of Sicily⁷⁶ given its location «at the farthest end and frontier of Your Magesty's and our religion's most powerful enemy», embodied the by then imperative role played by the methods for measuring and representing land areas. In 1578 he received a commission from Viceroy Marco Antonio Colonna to provide a «true and detailed description of the shores with their ports and coves and ground plans and elevations of the fortifications there and an opinion on each...». To that end, «together with the description of these ports and inlets along the shores, perspectives were drawn of each site and their towers, which as you will see are painted thereon in the

margin with a list of what would be needed to repair them, showing the guards mounted everywhere and marking the differences among them [...], the places where new towers would be required are identified, along with their shape, size and cost in proportion to those standing, which can be distinguished along the coast as yellow dots...». The aim was to make the king and his advisers aware of the actual condition of his possessions in the eyes of experts, since «for things relating to descriptions of provinces the Royal person and more importantly those designated to advise him should draw from other opinions to better resolve in such respects, for their grave and constant occupations leave them no room to see with their own eyes the large expanses of land under their rule...»⁷⁷.

Spannochi's career, like Torriani's, Calvi's and the Paleari Fratinos⁷⁸, attested to the draughtsman's role, adopted every more consciously by engineers. They were even known to resort to others when their own ability fell short of the skill needed to fulfil such a primary duty, or used their own designs to build visual universes where technique converged with the most erudite symbolism, such as in the symbolic maps of the Canary Islands drawn by Torriani⁷⁹. Drawing the borderline was tantamount to beginning to build it⁸⁰, to closing the gap between architecture and territory, to envisioning political and military bounds established in diplomatic treaties and by experts in war. The draughtsman engineer became the interpreter able to rationalise the world, whilst the frontier, the abstract line that crossed seas and mountain ranges, sprang to life in hidden archives or on the desk where the prince and his entourage (his ears, hands and eyes) envisioned the universe conveyed to them on paper. In drawings of the border, nature could be depicted as a political construct, a wall, a fortress whose design determined the very rules of war. This idea was captured by Baltasar de Ayala, the auditor of Alessandro Farnese's army in Flanders, when he wrote in his treatise on military law (an elaborate justification of the repression of revolt), that «In the constitutions of the kingdom of Spain [...] he who by order of the king were designated to head a poorly built and provisioned fortress impossible to defend, and notified the king accordingly, would not offend the crown if the fortress is taken by the enemy...»⁸¹. In its reproduction of reality, drawing was in itself an exercise in government, imposing order on the surface of the land with maps, ground plans or overviews, or stripping it down into its parts for subsequent transformation.

Given the intimidating role of fortresses, the mere announcement of their construction could trigger alarm and even rebellion, as in Sienna and Genoa, or purportedly technical debates around their layout that veiled political controversy. The disputed construction of Sant'Elmo Castle at Naples, for instance, prompted a reply from its author, Pedro Luis de Escrivá, in a manuscript that constituted the first Spanish treatise on fortifications⁸². Indeed, building or merely designing a fortress sufficed to shift borderlines to the very heart of cities, as symbolised by the drawing of a citadel included in the treatises on the subject⁸³, further to political practice as attested to by Machiavelli⁸⁴. The author of *The Prince* is not regarded as a theorist of the politics of drawing, however. That role is assigned to his contemporary and in some respects antagonist Baltasar de Castiglione, who in a famous paragraph of Book I of his *The Courtier* recommended «to know how to draw and design and have an understanding of the art of painting» for «in addition to the



FIG. 9 GALASSO ALGHISI DA CARPI. *Delle fortificationi*. Venice, 1570.

esteem in which [such skills] are held, they are immensely beneficial, especially in war, when regions, settlements, rivers, bridges, cliffs, fortresses and similar must often be sketched for, even if they could be memorised, a nearly impossible endeavour, they could not be depicted in any other way»⁸⁵. Later Francisco de Holanda, further to the neo-Platonic theory that made drawing the intellectual origin of all the other arts and even military science, would have Michelangelo claim: «drawing is enormously useful in war to depict the position of remote places, the form of mountains and ports in ranges and bays and sea ports; the form of high and low fortresses, walls and gates and their locations; roads, rivers and beaches and the lagoons and fords to be circumvented or crossed...». For all those reasons, he concluded, «what greater courtesy can be had by any brave gentleman than to reveal to the inexperienced and unaccustomed eyes of soldiers the form of the city they are to siege before the attack?»⁸⁶.

Architectural knowledge, associated with the practical application of geometry and reinforced by the growing intellectual ambition of its practitioners⁸⁷, was introduced to Spanish royal (especially from the times of Philip II⁸⁸) and noble⁸⁹ courtly culture through drawing. Arithmetic and geometry formed part of the same conceptual realm that wedded theory to the exercise of power. That ideal was invoked in treatises on fortifications such as authored by Galasso Alghisi di Carpi (the Duke of Ferrara's architect) in Venice in 1570, dedicated to Emperor Maximilian II, the Prudent King's cousin. All the platitudes of construction science were summarised on the allegorical cover of this text. Presided by the imperial effigy flanked by the four cardinal virtues, it depicted a Doric façade where architecture, arithmetic, geometry and astronomy were symbolised. At the base, the front side of a bastion was set amongst geometric shapes over an inscription that exalted the dual objectives, defence and territorial expansion, to be achieved through the virtue and art that should inform the ruler's principled mind.

Adopting the same approach (although here rejecting territorial expansion policies), Neapolitan humanist Mario Galeota wrote in his manuscript treatise entitled *Delle Fortificationi* (dedicated to Philip II in 1560) that like architects, who before drawing the perfect fortress must have a mental vision of the complementarity of its components, princes must envision their lands as the place where all areas of knowledge converge to



FIG. 10 GIORGIO VASARI. *Cosme I estudia el plan para la conquista de Siena*, ca. 1563-1565. Palazzo Vecchio, Salone dei Cinquecento, Florence.

design the defence of cities and countryside⁹⁰. Here the sovereign was depicted as the builder of his state. In another unpublished treatise on fortifications, written at around the same time as Galeota's, nobleman and engineer Pesaro Giovan Jacopo Leonardi defended a division of roles between the prince, regarded as the intellect, the captain and the eyes, and the engineer, viewed as the hand⁹¹. Perhaps the most explicit depiction of the draughtsman prince and engineer was painted by Vasari (emulating Michelangelo's ideas) on the ceiling of the ceiling over the Hall of the Five Hundred in the Florentine Palazzo Vecchio in 1563-1565. In this rendering, Cosimo I de' Medici is shown (attired as a courtier, with the coat of arms on the floor and escorted by Prudence and Strength) among episodes of the War of Siena (one of the major laboratories of military architecture) drawing geometric shapes with a compass on the ground plan of a fortification at a desk bearing a scale model of the city under siege⁹². Drawing, more than architecture itself, became a metaphor for power and its exercise in history. In 1536 Bernardo Pérez translated a chronicle of the Italian campaigns written by Galeazzo Capella to the future Philip II: «so You can read what is drawn in history books, for history is painting that talks»⁹³. Charles V himself was known to be fond of drawings of land and fortresses, which he brought to Yuste, and to sporadically practise this art, for as Francesco Sansovino wrote, «talhora ritirato in secreto passava il tempo col disegnar qualche pianta di fortezza o di altro edificio»⁹⁴. In sympathy with the proliferation of books of drawings and manuscripts circulating among Italian Renaissance artists like mobile galleries⁹⁵, borders

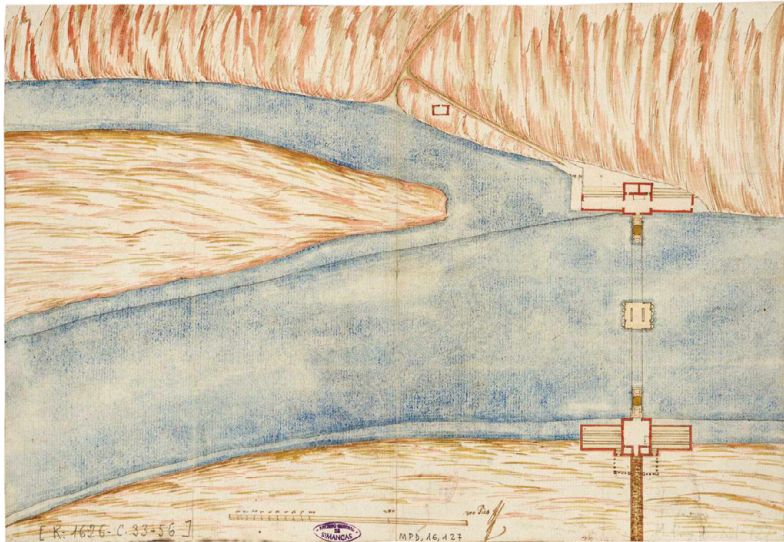


FIG. 11 JUAN DE' MEDICI. *Plano del curso del Río Bidasoa a su paso por Behovia*. España, Ministerio de Educación, Cultura y Deporte. Archivo General de Simancas, MPD 16, 127.



FIG. 12 PIETER VAN DER MEULEN. *Intercambio de princesas en 1615 en el Bidasoa*, (Crown Heritage) Encarnación Monastery, Madrid.

were introduced in the chambers reserved to sovereigns and their advisers before appearing (as horizon, battle or fortress) on the walls of the ceremonial rooms with which they shared the political scenario.

Ceremonies represented the power of consensus in motion. Consequently, like the science of fortification, the science of etiquette was restricted knowledge only gradually disseminated. Both comprised reserved knowledge, the converse of propaganda⁹⁶, for they formed part of the secrets of power, even when intended to attest to its grandeur by embodying the capacity to organise space both in its innermost depths and its remotest bounds. The reception and interpretation of cartographers' and engineers' drawings paralleled the development of ceremonies around which palace life was structured in keeping with practice codified on the grounds of other drawings that defined the hierarchies in courtly space⁹⁷. Borders also acquired a ceremonial dimension, providing the setting for royal encounters and matrimonial alliances along traditional boundaries such as the River Bidasoa. As preparatory drawings and celebratory paintings show, the

royal travel called for by such events afforded an opportunity to inspect the fortifications in the surrounds and establish disputed boundaries with the aid of devices deployed for the occasion (commissioned from military engineers such as Juan de' Medici in 1615). The topographic accuracy of such illustrations, which complemented narratives, calls up the panoramic technique of military and cartographic drawing. Subordinate, however, to the theatrics of dynastic balance, they cunningly established visual symmetries by concealing territorial rivalries evident in the preliminary negotiations and the depiction of armies in battle formation behind the courtly entourage. The fact that some of the paintings representing these scenes were hung alongside the maps, battles and view of cities that adorned the New Hall in Madrid's castle attested to the ceremonial relevance afforded depictions of the frontier⁹⁸. Irrespective of diplomatic events, however, the command of space and time was a conceit shared by the courtly and military dimensions, which on occasion used the same symbols, such as the angle square and the compass, to express the importance of mensuration and with it the architectural nature of power⁹⁹.

Cartography and design endowed drawings with a dynamic thrust where science and art¹⁰⁰, space and time converged, extending the use of perspective to military and hence political activity as a whole¹⁰¹, while applying the progress in optics to which Golden Age literature bore witness¹⁰². The visual integration of knowledge, whose highest achievement is identified with seventeenth century Dutch art, was also present in the drawings of borders and cities authored by the Spanish monarchy's military engineers. As their overviews and ground plans, while seeped in the same visual culture, lacked the aesthetic connotations that characterised decorative or celebratory representations of the land, they were free to deploy the capacity to capture reality. Regarded as minor works in the conventional hierarchy of genres, they were pivotal to an artistic and political as well as a scientific itinerary. Viewing them as they were seen by the king and ministers or generals for whom they were intended is tantamount to understanding that they were as subordinate to power as they were free of representational codes. Their interpretation is comparable to an ekphrastic exercise. They attempted to emulate that rhetoric device, but not in competition with poets as painters of stories, but with historians, while lacking the latter's penchant for persuasion, at least in secret maps and perspectives. These depictions immediately transferred what the draughtsman saw to the prince's quarters, enabling him to «see with his eyes» what was beyond the line of sight. This absentee viewing was patterned on governmental procedures, in which the monarchy's power was channelled through viceroys and governors¹⁰³. The crown was structured around provincial courts, but also through a system of symbolic pictures and illustrations which in the case of royal portraits were afforded majestic tribute¹⁰⁴. Reversing its initial role as a restricted resource, military and hence political drawing, along with other governmental techniques, erupted onto the courtly scenario in a monarchy that identified with visual representation¹⁰⁵.

Nonetheless, the plain, apparently unadorned images that emerged from the chain of visual production and consumption that ran from borders to palace was not bereft of aesthetic factors. As in ceremony and the culture and spatial dimension of power as a whole, the pictorial traditions of Flanders and Italy converged in these drawings, condi-



FIG. 13 DIEGO VELÁZQUEZ. *The surrender of Breda* (detail), 1634-1635. Prado Museum, Madrid.

tioned by a taste shared by the court and the territories. «Artless art» in appearance only, every millimetre of these portrayals of reality were bound by the laws of perspective and geometry. In such drawings of state the colour that vivified countryside and buildings, the framing that wrested them from nature, the pen stroke that defined and categorised their elements, were indebted to a broader cognitive range that exceeded mere tactical utility. Engineers' drawings, fruit of that artistic experimentation, served both to furnish «urban portraits» for the purposes of warfare¹⁰⁶ and to celebrate power through a new form of political imagery that was translated to engravings or cartographic painting, as well as to the frescoes found in large libraries and palaces or the prints and paintings of bourgeois interiors portrayed in the seventeenth century by Dutch painters such as Vermeer. In the fifteen hundreds, city views and maps, preceded by feudal horizons present in the thirteen hundreds in Italian spaces such as republican Siena or the lordly Emilian castle at Torrechiara (ca 1460), adorned the walls of the Farnese Palace at Caprarola, the Vecchio Palace at Florence, the Vatican library, the courtyard in Álvaro de Bazán's palace at Viso del Marqués and the Hall of Battles at El Escorial, to name a few of the better known venues in Italy and Spain¹⁰⁷.

That gave rise to a new genre for adorning palatial walls that supplemented allegorical images. Lands and fortresses, rendered with new techniques, ultimately proliferated in the far views in canvases of battles, synthesising historical painting and geographic image. One of the most prominent examples lies in the canvases in the Hall of Realms, where topographic accuracy was a sign of authenticity intended to extol the Conde Duque de Olivares's enlargement policies and reputation. These paintings are an ode to the cult of observation of reality subject to the ruler's perspective. History was played out in specific geographic space to reflect the ceremonial and legal consummation of surrender through the figures portrayed in the foreground. Exceptionally, in Maíno's *The recovery of Bahía*



FIG. 14 FRAY JUAN BAUTISTA MAÍNO. *The recovery of Bahía de Todos los Santos* (detail), 1634-1635. Prado Museum, Madrid.

de Todos los Santos, the political and ceremonial image of the victorious general offering the defeated army a tapestry with the royal effigy, was set in the middle ground. Time and space converged in the Hall of Realms under the king's unifying gaze, in which everyday rule was transferred to the primary site for courtly representation by means of visual images or texts in drawings, panoramas or narratives rife with fortresses and frontiers. In contrast to the secrecy in which the drawings that marked out lands and battles were cloaked, this display of reality, this embodiment of the idea of the legitimacy of power, was openly exhibited in courtly environs.

Nonetheless, all these pictures shared the need to place the monarchy's law in high relief. The far views in Velazquez's *The surrender of Breda* and other battlefield paintings were not mere stage props but fragments of a world whose domination depended on the ability to be represented, seen and understood. These renderings of distant horizons controlled by a network of fortifications were the outcome of translating engineers' drawings from paper to canvas, although at times indirectly, with engravings as intermediaries. The eloquence of the foreground scenes in these paintings, where history and politics prevailed, was reinforced by the descriptive rigour of backgrounds that showed the true extent of the kingdoms whose heraldic image adorned the vaulted ceiling in this hall. History took shape in the amplitude of space and, as in some Dutch paintings, emblematic scenes were juxtaposed to descriptive or cartographic illustrations. The two were united by history in which nature, humanised by war, was a realm of rational technical control where representation was justified by the virtues embodied in the attitudes of the victorious generals.

These paintings aimed to be an objective record of events and to convey an idea. Standing before the throne with its steps and canopy, for an instant the viewer shared the vantage of the sovereign for whom they were intended. Paintings of bastions attested

to the climax of technical as well as political design; painted maps described and recorded events, converting realities into notations, whereas in engineers' drawings notations occupied fragments of territory, albeit to transform them in keeping with the same idea that guided the viewer's gaze in the Hall of Realms¹⁰⁸. This differed substantially from the allegorical rhetoric that would later be deployed at Versailles, where frontiers and fortresses occupied the far views in only a few latter-day decorative panels on the Ambassadors' Staircase¹⁰⁹. In the Spanish court drawing was projected onto reality to step through the looking glass of the political prudence with which power aimed to regulate its transformative capacity by choosing which part of a design would be built. In this light, *Las Meninas*, the family of Philip IV's dynastic manifesto, embodied the doctrine of integrating power and image, melding majesty, vision and depiction in a pictorial crystallisation of the idea of government as design, removed from frontiers and battlefields to palatial seclusion.

That inner retreat, closed to the courtiers who gazed at depictions of battlefields and lands on canvas or engraved maps to visualise the monarchy's vast expanse, was the domain of secrecy, of the true exercise of power, the customs office for drawings where frontier as abstraction could materialise and its fortresses bodied forth. Like courtly ceremony, this space also had an itinerary that ran to the monarch's own study from the quarters in Madrid's Alcázar or Castle where the Council of War (created as a branch of the Council of State in 1526 in charge of military affairs in the three crucial domains: the defences for Castile, the artillery and borderline fortifications¹¹⁰) held its meetings. Compared to the controlled dissemination of frescoes, canvases and engravings, the extreme reserve with which drawings were dealt was indicative of their importance. A drawing was more than a deferred order or still motion: it was a military and political manoeuvre. Where images are acts rather than celebrations, governing is gazing, designing and building. In and through drawing, power started to become effective as image-based rule. Kepler resorted to the image of the magistrate and the council to describe the sense of sight, regarded as representation, as in painting¹¹¹. Saavedra Fajardo also, in his *Impresa 56* (which combines compass, writing and secrecy) resorted to the image of the painter and the architect to extol the role of the secretary, guardian of royal records: «The Council puts forward the idea for a factory. The secretary draws the ground plan. And if it is flawed, the building erected over it will also be flawed. To express that idea in this *impresa*, his pen is also a compass, for not only must he write, but he must also measure and adjust resolutions, synchronise occasion and timing so that building is undertaken neither too early nor too late...»¹¹². The extensive writings on the secretary attest to his political role¹¹³. Ruling was a way of seeing (farther away and deeper within than others) and of painting, in which reality had first to be drawn to be appropriated. Foresight involved more than organising defence; it also entailed initiating a design for a conquest. If fortification was an act of territorial appropriation which, like founding cities, implemented a legal title to sovereignty, every picture of a city or a frontier was an open door in the walls of actual or potential enemies. Hence the value accorded stolen pictures, clandestine descriptions and their visual depictions, drawn in the shadows of spontaneity or from memory. Even when delineated with no perspective and in child-like mode, by prisoners for instance, they were useful sources of information about horizons otherwise inaccessible¹¹⁴.

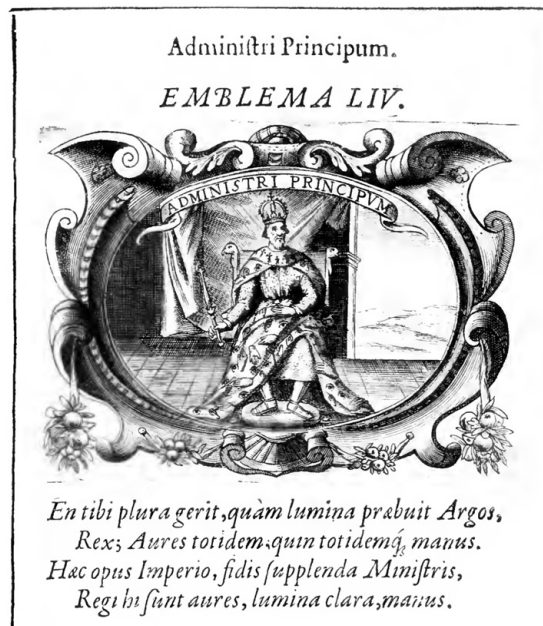


FIG. 16 JUAN DE SOLÓRZANO PEREIRA. *Emblemata centum regio politica*. «Emblema LIV». Madrid, 1653.

FIG. 15 CESARE RIPA. *Iconologia*. «Spia». Venice, 1645. Cristoforo Tomasini.

For today's information-obsessed mentality, secrecy is a conceit even blurrier than frontier, while constituting its inescapable reverse. Beginning in the sixteenth century, however, many authors, such as Botero, described secrecy as an imperative to the exercise of power¹¹⁵. In his *Príncipe Perfecto* published in 1662, Jesuit Andrés Mendo resorted to the metaphor of the eyes, identified with prudence, to contend: «be he who rules an Argos from whom nothing is concealed [...] and when he with his power embraces the four corners of the world, like our Spanish monarch, be he the *oculus mundi*. All should he see with the eyes of understanding»¹¹⁶. Secrecy became one of the pillars of political science, inseparable from prudence and surveillance. The image of the vigilant prince, like Argos, was consequently invoked by Saavedra Fajardo as a sceptre with eyes in his impresa 55 («*His Praevidere et provide*»), and by Solórzano Pereira, in emblem LXVI («*Legum munia, vrbiuum moenia*»), with its city decked with the eyes of the law (and hence of power), and especially in LIV («*Administri principum*») where the king is depicted wearing a robe adorned with embroidered eyes. The metaphor was also used by Cesare Ripa to represent spies, with a lantern (light in the dark) and a dog (vigilance)¹¹⁷. All these elements formed part of ever more complex decision-making that was changing the exercise of power.

Together with the rise of science of number and the art of cryptography¹¹⁸, the development of archives helped shape a view of confidential information in which drawings of sensitive points and routes were a crucial element in a complex system of espionage that also found its way into literature¹¹⁹. Beginning in the fifteenth century, secret cartography was crucial to competing with Portugal for expansion¹²⁰. Against that backdrop,

Hieronymus Müntzer's voyage across Spain in 1494 and Martin Benheim's¹²¹ design of the globe illustrate two early episodes of the pursuit of information by the major political powers and their growing dependence on technology. The zealous custody of the Royal Census in the House of Trade at Seville symbolises the race for representing space as well as the ongoing improvements in technique¹²² that made secrets age at a dizzying pace. Designs for fortifications met much the same fate, for they were soon rendered useless by the circulation of knowledge that led to the publication of the earliest treatises in the sixteenth century. Espionage focusing on secret devices and machines was enlarged to include maps, as shown by the dealings conducted in Portugal by Giovan Battista Gesio, Philip II's Neapolitan cartographer in charge of extraordinarily ambitious measuring and drawing projects in a world that appeared to be too small for the monarchy¹²³. French espionage in Spain¹²⁴, the object of the greatest historiographic attention, along



FIG. 17
ALBERT DÜRER,
Melancholia I,
1514.
Staatliche Kun-
sthalle Karl-
lsruhe.

with spying in the Mediterranean area¹²⁵, was of particular significance in the sixteenth- and seventeenth-century enthusiasm for studies on espionage¹²⁶. Fortification drawing played a crucial role in this scenario and on occasion was disguised as a fondness for classical art to conceal its actual objectives. This The precision of defensive detail in Francisco de Holanda's drawing of Sant'Elmo Castle at Naples on the occasion of a voyage to Italy in 1539 and 1540 under the orders of John III of Portugal to depict ancient monuments alongside new fortifications reveals more than academic purpose¹²⁷.

In one of his most famous engravings, an allegorical vision of melancholy whose interpretation is shrouded in mystery even today, Dürer depicted the symbolic attributes of construction, identified with thought and geometric activity. The winged female figure that embodies the condition sits alongside an unfinished building, surrounded by measuring instruments. The sea is shown at a distance as a boundary to be crossed. The figure



FIG. 18 HANS HOLBEIN THE YOUNGER. *Jean de Dinteville and Georges de Selve (The Ambassadors)*, 1533. London, National Gallery.

rests a compass against a board on which she is not drawing; rather, her head is raised and her attitude pensive. A huge key hangs from her waist, used to open and close the chest where she keeps her mental secrets¹²⁸. The combination of secrecy, line drawing and mathematics strengthened the master builder's intellectual personality. Therefore, Dürer's pensive angel is a female draughtsman who custodies impenetrable ideas so vulnerable that they need to be hidden. The museum of instruments and images of mathematical knowledge in whose midst she sits, as if amid the wood carvings in a *studiolo*, would later be copied in other depictions of mensuration and drawing in a world in which the political dimension was becoming ever more explicit. They also appeared in the no less well known canvas *The Ambassadors* painted by Hans Holbein the Younger in 1533, where the globe bears lines marking Magellan's route and a mathematical and political frontier identified with the division defined in the Treaty of Tordesillas acknowledged by neither the French nor the English monarch. With the many layers of meaning that make it one of the best visual synopses of the political culture of its day, the painting can be interpreted as a reappraisal of diplomacy that stressed the power of mathematics and cartography in the competition for the domination of a world that had begun to be global. In their silent dialogue, however, symbolised by elements such as the distorted skull¹²⁹, these French ambassadors to Henry VIII's court also exude a need for secrecy, inherent in the ambition to design the world and in the power of the image as a tool of government, a conceit whose implications had been fully grasped by the monarchy against which they were pitted.

NOTES

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2. Tenured professor of Modern History. Department of Modern, Contemporary and American History, Journalism, Audio-visual Communication and Advertising, Faculty of Liberal Arts. University of Valladolid. Pza. del Campus s/n, 47011-Valladolid. carlosjh@hmca.uva.es
3. SAN JUAN DE LA CRUZ, 1957, pp. 683 and 715-716. [English translation, D. Lewis: http://www.ccel.org/ccel/john_cross/canticle.txt, 20160416]. Significantly, St John resorted to the image of the traveller who «takes new roads, unknown and untried», to explain other verses of his *Noche Oscura: ibid.*, p. 630. [English translation, E.A. Peers: http://www.ccel.org/ccel/john_cross/dark_night.viii.xvi.html, 20160416].
4. ROTTERDAM, 1998, pp. 48-49.
5. HOLANDA, 1984, p. 16.
6. See RICARD, 1965; EGIDO, 1982; GÓMEZ SOLÍS, 1990. Compare to BLANCO, 1996.
7. See BOGNOLO, 1996 and 2000; DUCE GARCÍA, 2005.
8. See DUCE GARCÍA, 2001.
9. ARREDONDO, 1528. Compare to SEARY, 1996.
10. ALDANA, 2000, p. 405.
11. See MANGANI, 1998.
12. See BATAILLON, 1960; ROSENTHAL, 1971 and 1973; WALTER, 1995; GONZALO SÁNCHEZ-MOLERO, 2000.
13. See POLLEROS, 1993.
14. See BRAUDEL, 1949.
15. See PARKER, 1998, pp. 36-37.
16. See MADERUELO, 2005.
17. BUZZATI, 2005, pp. 278-279.
18. See SICARI, 2006.
19. See IOGNA-PRAT, 2016.
20. HEIDEGGER, 1994.
21. FEBVRE, 1912, 1928 and 1935.
22. SCHMITT, 1979 and 2007.
23. See SCHLÖGEL, 2007.
24. See TOUBERT, 1992. On the Modern Age, for which there is extensive literature, see: NORDMAN, 1998; DELSALLE and FERRER, 2000; FASANO GUARINI and VOLPINI, 2008; BERTRAND and PLANAS, 2011. On fortification on the frontier in general, see: SODINI, 2001.
25. See SAHLINS, 1989.
26. In Ramón de Basterra's poetry, for instance, and his *Escuela Romana del Pirineo*, or Ernesto Jiménez Caballero and his vision of the Pyrenees as a historic barrier to celebrate the end of the Spanish Civil War: BASTERRA, 2001; JIMÉNEZ CABALLERO, 1939.
27. See AZARA, 2005.
28. See CÁMARA MUÑOZ, 1991.
29. See LÓPEZ ALEMANY and VAREY, 2006, pp. 15-22.
30. See SLOTERDIJK, 2004 and 2007.
31. See CHECA and GARCÍA, 2011.
32. See PEIL, 1999; BÖKER, 1999. Compare to GORDON, 1987, pp. 231-252.
33. See ANGELINI, 2007.
34. See HARRIES, 1992.
35. Cesare Ripa's 1593 *Iconologia* portrayed «Misura» (mensuration) as a «donna di grave aspetto» who held a ruler in her right hand, representing the Roman foot, and in the left an angle square and a compass, for «La Misura è ciò che col peso, con la capacità, con lunghezza, alteza & animo si termina & finisce», and on the grounds of her instruments, she is associated with geometry (RIPA, 1992, pp. 289-291). The figure bears a striking similarity to Ripa's «Theoria», shown as a young woman gazing upward, on her head a compass with the tips pointed toward the sky (*ibid.*, pp. 530-531). The allegory inherent in *Ordine Dritto, e Giusto* can also be set in the same conceptual and symbolic realm (*ibid.*, pp. 328-329). The compass, like the angle square and other measuring instruments in the same semantic sphere, were associated with different branches of knowledge and the arts, portrayed as states of mind or mental faculties. See CORRAIN, 2010. Compare to PIERGUIDI, 2008.
36. See CHECA, 1986.
37. See ELLIOTT, 1972, pp. 69-70; PARKER, 1990, p. 165. For a modern version of Vargas's book, see VARGAS MACHUCA, 2003, edited by Cuesta Domingo and F. López-Ríos. Compare to MARTÍNEZ DE SALINAS, 1991.
38. See HERNANDO SÁNCHEZ, 1998.
39. See SILVA CASTELO-BRANCO, 1994.
40. See PORRAS GIL, 2002.
41. See BRESCIANI ALVAREZ, 1965; CÁMARA MUÑOZ, 2000; LÓPEZ MILLÁN, 2011.
42. See GALERA i MONEGAL, 1998.
43. See SCHUMACHER, 2002.
44. See MITRE FERNÁNDEZ, 2015; SÁNCHEZ GARCÍA, 2015.
45. See USUNÁRIZ, 2006; BÉLY, 2008.
46. See PADRÓN, 2004; CÁMARA MUÑOZ, 2014.

47. See DELSALLE and FERRER, 2000.
48. See HERNANDO SÁNCHEZ, 2013a.
49. See HERNANDO SÁNCHEZ, 2006.
50. SAAVEDRA FAJARDO, 1976, pp. 791-792.
51. See VALDEÓN BARUQUE, 1994.
52. See CASADO SOTO, 2006; BUNES IBARRA, 2006.
53. See HERNANDO SÁNCHEZ, 2001a.
54. See CÁMARA MUÑOZ, 1998.
55. See CÁMARA MUÑOZ, 2005.
56. That was the formulation described in treatises authored in the fifteen fifties by Francesco de Marchi and Mario Galeota, among others; see: BRUNETTI, 2006.
57. See RIBOT, 1990; RIZZO, 2007.
58. See LÓPEZ TORRIJOS, 1999.
59. See CÁMARA MUÑOZ, 1999.
60. See GUILMARTIN, 1974.
61. See GARCÍA TAPIA, 2004.
62. MARCHI, 1599. Compare to CONCINA, 1990.
63. PÁEZ DE CASTRO, 2014, p. 74.
64. See PACINI, 2013.
65. See LUCENA SALMORAL, 2003; BERNAL RODRÍGUEZ, 2004.
66. See PARKER, 2006.
67. See ZULETA CARRANDI, 2013.
68. See BROCCO, 1989; BUISSET, 2004; FIORANI, 2005; RAMACHANDRAN, 2015.
69. See VAN DAMME, 1997; PARKER, 2001.
70. See BALL and PARKER, 2014.
71. See KAGAN, 2005.
72. See GONZALO SÁNCHEZ-MOLERO, 1999 and 2005.
73. See BOUZA, 1995; KAGAN, 2005.
74. See MARÍAS and PEREDA, 2002 and 2004; SÁNCHEZ RUBIO *et al.*, 2004.
75. See SÁNCHEZ RUBIO *et al.*, 2014.
76. See MILITELLO, 2004; MANFRÉ, 2013.
77. SPANNOCHI, 1596. Compare to MAZZAMUTO, 1986, p. 16; CÁMARA MUÑOZ, 1988; POLTO, 2001.
78. See VIGANÒ, 2004; MARTÍNEZ LATORRE, 2006; CÁMARA MUÑOZ *et al.*, 2010.
79. See CÁMARA MUÑOZ, 2006. Compare to VIOLA NEVADO, 2008.
80. See CÁMARA MUÑOZ, 1991; ORTEGA VIDAL, 2001.
81. AYALA, 1948, p. 550.
82. SÁNCHEZ-GIJÓN, 2000. Compare to HERNANDO SÁNCHEZ, 2000 and 2001b.
83. See ÁLVAREZ-OSSORIO, 2000.
84. See HALE, 1983.
85. B. CASTIGLIONE, 1994, pp. 191 and 193.
86. HOLANDA, 1921, pp. 180-181.
87. See BARBEITO, 2008; BLASCO ESQUIVIAS, 2013.
88. See GONZALO SÁNCHEZ-MOLERO, 2013, pp. 773-779.
89. See MARTÍNEZ HERNÁNDEZ, 2003.
90. BRUNETTI, 2006.
91. LEONARDI, 1975, pp. 115-126.
92. See BORSI, 1980, pp. 99-125.
93. «Prólogo del maestro Bernardo Pérez al serenissimo y muy esclarecido Señor el Principe don Philipe»: CAPELLA, 1536, p. 1 v.
94. F. SANSONO, *Il Simulacro di Carlo V Imperatore*, Venice, 1576, cited by CHECA CREMADES, 1999, p. 12.
95. See FORLANI, 2012.
96. See HERNANDO SÁNCHEZ, 2013b.
97. See BARBEITO, 2005; CASTAÑO PEREA, 2006 and 2009.
98. See DEL RÍO BARREDO, 2008; COLOMER, 2003.
99. See HERNANDO SÁNCHEZ, in press.
100. See SCHULZ, 1990; ROMANELLI *et al.*, 1999.
101. See DÍAZ MORENO, 2014.
102. See GARCÍA SANTO-TOMÁS, 2014.
103. See HERNANDO SÁNCHEZ, 1999.
104. See BODART, 2011.
105. See HERNANDO SÁNCHEZ, 2003.
106. See CÁMARA MUÑOZ, 2009.
107. See PARTRIDGE, 1995; QUINLAN-MCGRATH, 1997; GAMBÌ *et al.*, 1997; BROWN, 1998; PACETTI, 2007; RODRÍGUEZ MOYA, 2009.
108. See BROWN AND ELLIOT, 2003; ÚBEDA DE LOS COBOS, 2005; KAGAN, 2008; MARÍAS, 2012.
109. See ZIEGLER, 2015; GADY, 2015.
110. See FERNÁNDEZ CONTI, 1998; DOMÍNGUEZ NAFRÍA, 2001.

111. See ALPERS, 1987, p. 74.
112. SAAVEDRA FAJARDO, 1976, p. 548; see GÓMEZ ORFANEL, 2008.
113. See SIMONETTA, 2004.
114. See CÁMARA MUÑOZ, 2009.
115. BOTERO, 1603, f. 34v.
116. MENDO, 1662, p. 49; *vid.* BREDECKE, 2012, pp. 56-62.
117. GONZÁLEZ DE ZÁRATE, 1987, pp. 172 and 189; SAAVEDRA FAJARDO, 1976, pp. 533-546; RIPA, 1630, Parte III, p. 90; *vid.* DE LA FLOR, 2009, pp. 107-152; NAVARRO BONILLA, 2014-2015.
118. See GALENDE, 2002.
119. See RODRÍGUEZ DE DIEGO, 1998a and 1998b; NAVARRO BONILLA, 2003, 2004 and 2008; AICHINGER, 2013.
120. See PORRO GUTIÉRREZ, 2003.
121. CALERO, 1996.
122. See SÁNCHEZ, 2013.
123. See GOODMAN, 1990, pp. 81-94.
124. See D'ORGEIX, 2005. Compare to CARNICER GARCÍA and MARCOS RIVAS, 1998; MARCOS RIVAS and CARNICER GARCÍA, 2001.
125. See SOLA and PEÑA, 1996; SOLA CASTAÑO, 1997.
126. See CARTER, 1964; ECHEVARRÍA BACIGALUPE, 1984; SALINAS, 1994; CABAÑAS AGRELA, 2003; CARNICER and MARCOS, 2005; NAVARRO BONILLA, 2005.
127. See DESWARTE, 1992, pp. 163-183.
128. See KLIBANSKY *et al.*, 1991; AZARA, 2005, pp. 187-192.
129. See FOISTER *et al.*, 1997; NORTH, 2004.

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