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Plus ultra: Coloniality and the mapping of American natureculture in the empire of Philip II

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Introduction

By 1570 the Spanish empire under the reign of King Philip II had already ruled the part of Central America known as New Spain for half a century. The famous conquistadors like Hernán Cortés and Christopher Columbus were dead and gone, but stories of their great fortune were very much alive in the so-called old world of the European continent. An abundance of fantastic narratives facilitated by the printing press had created an image of America as the promised land of fortune in which everything from sea monsters and fountains of youth to vast gold and silver mines were to be found.[1] At the same time, reports were coming back to the government of a situation of virtual anarchy and very sinful living. The epistemological problem faced by Philip II and his ministers was that they lacked knowledge of the new continent and its various human and non-human inhabitants, as well as of its actual geographical layout. They were beginning to realise that the scale of their new territorial possession would demand new scientific methods to be efficiently ruled and exploited.

The mapping impulse of early modern media grew directly out of the imperial ambitions of the Spanish monarchy and the rise of global political

expansionism. As the American continent emerged out of the Atlantic in the view of the early moderns, geopolitical conquest presupposed some kind of evidence to validate the claim that a particular piece of land would now be considered part of a given empire. In this way, media were integral not only to mapping but to the execution of political power itself. As Bernhard Siegert reminds us, the map is the territory in the sense that it is not just representation of space but a space of representation. Understood as cultural techniques, maps are media that are in themselves agents of subject constitution.[2] The development of a given cartographic technique therefore reflects changes in an epistemic order which is enmeshed with historically-specific power relations. Cartographic sketching along with name-giving, illustrations, descriptions, documentation, and other forms of materially perpetuated knowledge from empirical observation produced the territory that the empire claimed.

In his spherological theory of globalisation, Peter Sloterdijk remarks that ‘the discovery of an unknown quantity – a continent, an island, a people, a plant, an animal, a bay, a sea current – presupposes the availability of the means to repeat the first encounter’.[3] These means were media and the end to which they were put was the mapping of the unknown for purposes of political subjugation and exploitation of its resources. The process of land appropriation therefore presupposed a double and more or less simultaneous scientific achievement on both continents – partly carried out by those cosmographers, cartographers, and natural historians that were sent to the new continent to pursue empirical observation and documentation to be shipped back to Seville and then zealously guarded in the most intimate chambers of the government’s edifices, but also composed by the long-distance orchestrating and calculation of what was rapidly becoming visible as an entire sphere: the globe itself as a possible object of appropriation. Hence the motto *Plus Ultra*, Latin for ‘further still’, as the limit of the unknown was to be continuously pushed as Magellan’s circumnavigation of the planet had paved the way for a cross-oceanic network of protocapitalistic commerce.

The Atlas of Battista Agnese produced as a gift from Charles V to his son Philipp II in view of his ascension to the throne aptly captures the importance of mapping for the global imperial ambitions.[4] The empire over which the sun never set, which became another motto of Philipp’s as he took over Portugal and their colonies in the East Indies and Africa, is here depicted as an object of possession, a globe. The map reflects the change in European world

view over the 70 years from the end of the 15th to the middle of the 16th century. The discovery of its apparent roundness and the possibility to circumnavigate it as proved by Magellan's expedition in 1519, which made the planet conceivable as such, also inaugurated the global race for resource possession and exploitation that is still ongoing and arguably a main feature of the Anthropocene, with oil and coal being the clearest and most salient features today.

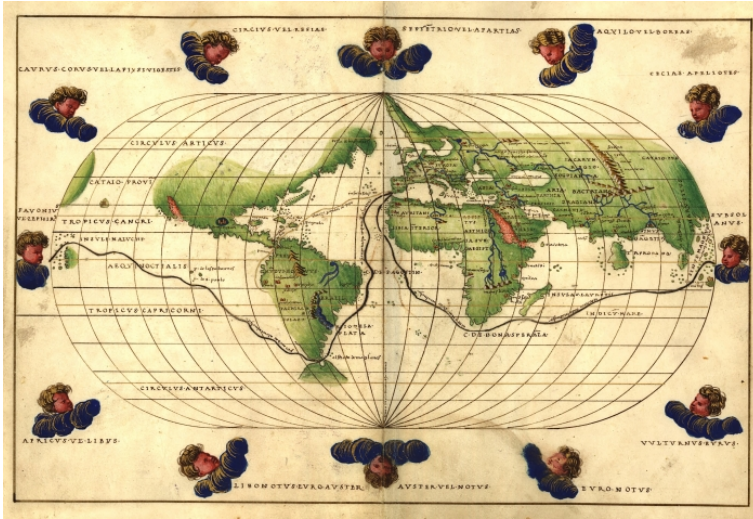


Fig. 1: Battista Agnese, Portolian Atlas (ca 1540), World map. Source: Library of Congress.

Magellan's journey is marked on the map with a thick line beginning and ending in Seville, aided by the powerful winds which surround the world and make nautical infrastructure possible, while the routes of the Spanish treasure fleets sustaining the trans-Atlantic empire are marked in red. The map thus visually marks the Columbian exchange that brought corn, potatoes, tomatoes, and beans to Europe, while sugarcane, wheat, livestock, and diseases were brought to the Americas. This mixing of previously separate biotas and the largest human population replacement in 13,000 years created a reorganisation of planetary life without geological precedent.[5]

The role of cartography in the consolidation and codification of colonial discursive practices 'can be identified in a series of key rhetorical strategies implemented in the production of the map, such as the reinscription, enclosure and hierarchization of space, which provide an analogue for the acqui-

sition, management, and reinforcement of colonial power'.[6] Another important aspect to stress in this context is the fact that modernity is highly enmeshed with coloniality in that its affirmation of Western civilisation as the here of geographical space and the now of historical time was completely contingent on conquest and colonisation.[7] These were all in turn depending on media for the process and storage of relevant geopolitical information.[8]

Coloniality, media, and the Anthropocene

The proposition for an epoch called the Anthropocene emerged among geologists and stratigraphers in the new millennium. Paul Crutzen declared that one ought to stop calling the current epoch the Holocene, and that it should rather be called the Anthropocene, in reference to the impact made by *Anthropos* ('man').[9] Since then it has become a critical concept urging revision and new approaches throughout the sciences and humanities as well as in the art world, among journalists and activists. In the humanities in particular the geological epoch seemed to resonate with critical work being done since the 1990s to challenge notions of a sharp division between nature and culture and a progressive modernity.[10] For geologists and stratigraphers, the Anthropocene means a possible new time period that would follow the current Holocene, which started about 11,700 years ago. This in turn needs to be put in the context of millions of years of time that constitutes geological time-scales.

To define any geological time unit stratigraphers need a so-called 'golden spike' – or GSSP for Global boundary Stratotype Section and Point – which is constituted by the clearest durable signal of transition. The GSSP is the lower boundary of the time unit, which marks the beginning of it. An early proposition for a GSSP from Paul Crutzen who coined the term was to place it at 1784, the year that James Watt patented the steam engine, as a symbol of the start of the industrial revolution and the carbonification of our atmosphere by the burning of coal extracted from the lithosphere.[11] Paleoclimatologist William Ruddiman argues that the Anthropocene began 5,000 years ago, when humans had already altered the biosphere through rice cultivation, deforestation, and stock raising.[12] The British led Anthropocene Working Group has been tasked with preparing a proposal for the golden spike, and has recently suggested a significantly more recent 1950 as the start-

ing point, taking its point of reference in the 'Great Acceleration' and the nuclear bomb.[13] Other scientists have argued that 1610 is a better candidate, based on a dip in atmospheric carbon-dioxide visible in two arctic ice core records, suggesting a human fingerprint linked to the new world colonist's impact on indigenous American agriculture and the related mass death of 50 million people.[14] These two twelve-centimetre diameter ice cylinders trap ancient air bubbles, allowing the reconstruction of the environmental conditions of the past 68,000 years in which 1610 represents the last low point of carbon dioxide to 271 ppm before the rise to the current catastrophic and record breaking 412 noted in 2017.

Peter Sloterdijk also argues that the term 'Anthropocene' risks hiding the historical process which led up to the present situation by referring to humanity as a whole rather than the specific forces at play. He prefers the term 'Eurocene' or a 'technocene' initiated by Europeans and further points to the relation between cattle breeding and imperial politics as a forgotten aspect of the political expansionism that is undoubtedly essential to the Anthropocene.[15] Bruno Latour in turn, supports 1610 with the following words 'the great "discoveries", the colonisation, the fight to occupy territories, forests, carbon dioxide, it's all here defining the Anthropocene: anthropology plus climatology in a violent land grab'.[16] From a decolonial perspective, the complex coloniality/modernity is evidenced by the geological findings underlying the suggestion for 1610, since the very process of genocidal extinction in the Americas is the likely cause of the dip in CO₂. Rolando Vazquez has put forward a very convincing argument about colonial world-making in relation to the Anthropocene. He insists that the Anthropocene is not just a matter of advanced human impact on earth, but rather the impact of a particularly modern/colonial way of living on earth and of worlding the world. 'The mass colonial genocide was the early expression of a system geared towards the consumption of life, the consumption of human and non-human life, the consumption of earth.'[17] Adding to this understanding of the modern/colonial Anthropocene suggested by the Orbis hypothesis, I argue that the mapping impulse of early modern media is the *sine qua non* of the whole process. This is a non-trivial proposition, as it reveals the essential operations leading up to the catastrophic situation that we are facing in the 21st century, and thereby may contribute to an equitable renegotiation of human life on earth.

Pineapple repetitions

The pineapple is a strangely familiar yet exotic object which in the 21st century, following 500 years of existence in the symbolic order of the West, can be acquired in almost every European supermarket. The fruit encapsulates the typical movement from early modern proto-capitalist imperial desire for the exotic, over large-scale exploitation and redistribution along with human agents in the form of slave labour, to the 20th century multinational corporation Dole, which put it on the tables of the Western middle class.[18] The first recorded encounter between Europeans and the pineapple is found in Gonzalo Fernández Oviedo's *Natural History of the Indies* (1525, 1535), where it became the object of the authors high praise.[19] The discernment between natural histories and aesthetic objects in the early modern era is arguably difficult to uphold. The Cabinet of Curiosities is a case in point, where such books and the exotic content they recorded shared space with the paintings that are today considered art.[20] Oviedo's attempt to render the pineapple in words and image is an interesting point of departure because the author so explicitly states what is at stake in this mediation of a quantity unknown to Europe.

Oviedo was appointed Official Chronicler of the Indies by Holy Roman emperor Charles V in 1532 and held the position until his death in 1557. Based on the island of Hispaniola (today divided between Haiti and the Dominican Republic) he wrote what came to be the century's most authoritative text on the history of the Spanish conquest and exploitation of the Americas as well as a description of the continent's human and non-human lifeforms, its geology and climate. This 2,000-page natural history composed on the official order of the Emperor offered an enticing view of the possibilities for exploitation, which would indeed be more systematically carried out during the reign of Philip II and enter a new phase with the expedition of Francisco Hernández in 1570.



Fig. 2: Drawing of a pineapple from the manuscript of Gónzalo Fernández de Oviedo's *Historia Natural y General de Las Indias* (1535). Source: Library of Congress.

The book became extremely popular and was translated into Latin, Italian, and English and thereby provided further fuel to the coming European race for colonies and exploitation.[21] Epistemologically, this *immutable mobile* played a role as a mediator in early modern globalisation. Returning to the pineapple, Oviedo's initial comparative remarks are telling of the state of aesthetic judgment of the time:

[o]n this island of Hispaniola there are some thistles, each of which produces a pineapple (or, better said, an artichoke), because it looks like what Spaniards call a pinecone, yet without being one. This is one of the most beautiful fruits I have seen in all the world in which I have travelled.[22]

Oviedo then puts forward a long catalogue-like comparison of all the geographical spaces that do not contain a comparable fruit; it is emblematic of the early encounters with unknown quantities that are still formed through the tradition of natural history. It still seems viable to actually recount all relevant known spaces of the world, because a global geopolitical consciousness is not yet in place. The particularities of this catalogue further testify to a kind of localised early modern fame, which was noticeable in certain European networks. Oviedo then recounts the aspects in which he deems the pineapple to be such a superior fruit:

beauty of aspect; sweetness of scent; an excellent taste. So, among the five bodily senses, three of which can be applied to fruits, and even a fourth, which is touch, [this fruit] partakes most excellently of these four things or senses, above all the fruits or delicacies which man's diligence in the exercise of agriculture produces. It has yet another great advantage, which is that it is maintained and grown without any trouble to the farmer. ... The vegetative drive is the one by means of which plants and all similar creatures grow; the sensitive drive receives impulses of benefit or harm, just as when one waters, cleans or digs around trees and plants they feel this cultivation and attention by thriving and growing; but when one neglects, singes or cuts them, they dry up and are ruined.[23]

Interestingly, Oviedo's exploration of the sensuous qualities of the pineapple includes a conception of non-human lifeforms that seems less passive than that of the Cartesian worldview, which would become dominant over the course of modernity. In such a conception, plants and animals were basically inanimate and lacking in self-directed and purposeful motion, a view that is only rather recently being seriously contested.[24] This alterity of the non-human and non-Western was arguably a discursive precondition for global coloniality. It is therefore particularly interesting that in this first recorded encounter with a pineapple, Western man has not yet succumbed to this world-view. Again, Oviedo duly remarks and explains ontological aspects that are a given to any modern reader, but in doing so he makes explicit the epistemological dimensions of the object in question. These onto-epistemological aspects, to use Karen Barad's concept, open up an environmental backdoor to colonial history which has hitherto mostly been disregarded.[25] The pineapple does not have senses (these are proper to man) but instead

possesses a 'vegetative drive' by which it grows and a 'sensitive drive' responding to environmental treatment. The one-way causality that would be set up between subject and object in most modern metaphysics is here absent in what Timothy Morton has called 'the aesthetic dimension', and the object can be posed as actively engaging and interacting with humans.[26] Paradoxically, while it is this conception of the object that allows for Oviedo's vivid depiction of the pineapple, it would subsequently play a part in the Heideggerian concealment of the fruit as an exotic consumerist object of the Western world.

As Oviedo returns to the precious pineapple, he gets to the core of his bodily and affect-oriented mapping of this unknown quantity.

To touch it, if truth be told, is not all that soft or gentle, for it seems that the fruit itself wants to be picked up respectfully, with a towel or handkerchief, but once in your hand, no other gives such contentment. And, weighing all these attributes and individual features, there is no [person of] middling judgment who would not give these pineapples or artichokes pre-eminence over all fruits. Neither the illustration of my pen nor my words can bestow on the original the accurate description or the glory of this fruit in a manner so wholly satisfactory as to be able to explain the matter without a brush or a drawing, and even with these it would be necessary to use colors to make it more like (if not entirely, at least in part), to make it easier to understand than by what I do and say, because in some manner the reader's sight would be able to share in this truth.[27]

Oviedo does his best to convey this aesthetic dimension of the pineapple, handily systematised through the relevant senses. Note that the pineapple 'wants to be picked up respectfully', revealing a rather intimate relationship between author and object. Oviedo's metadescription of the cultural techniques of writing and sketching focuses on the inability to fully convey a record of this experience, although this is the deeply felt ambition of his enterprise.

Oviedo's *Historia Natural y General de las Indias* with its vivid depiction of the pineapple was published and read both in Spanish and English by mid-century. The Sevillian medical doctor Nicolas Monardes assembled and published a three-volume 'medicinal history of the things coming from the West Indies' in 1574 where he included the pineapple and described its beneficial properties. Like Oviedo's account, the book was immediately translated into English and widely read. Monardes follows Oviedo's description, and underscores the wondrous character and beneficial properties of the newly-discovered fruit. It supposedly relieves stomach problems and strengthens the

heart, restores lost appetite and cools in hot evenings. Monardes had himself been brought one dried and one conserved sample of pineapple, of which he decidedly prefers the latter.[28]

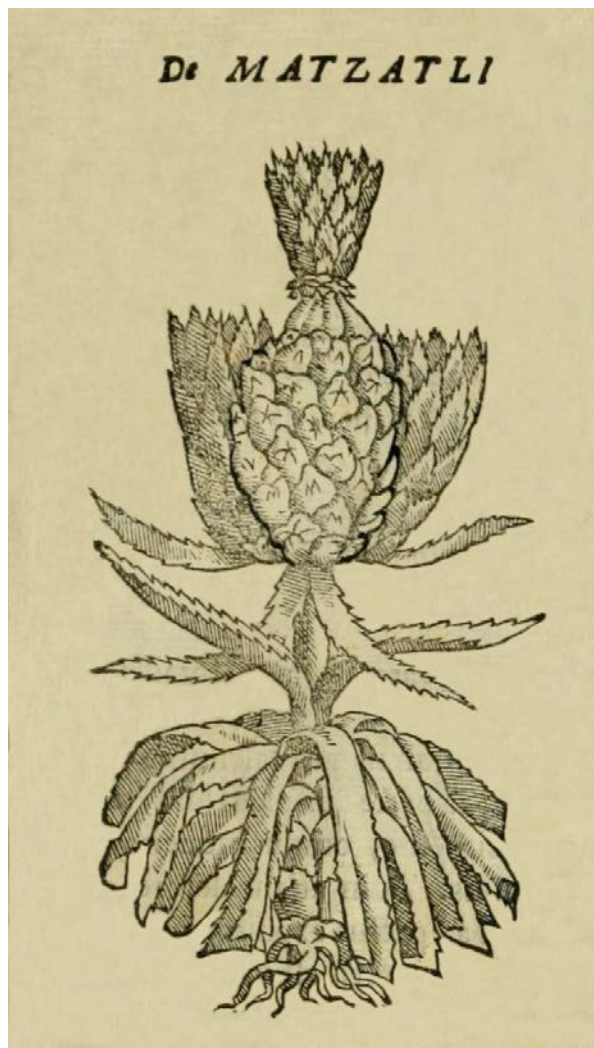


Fig. 3: Francisco Hernández, 'De Matzatli' from *Rerum medicarum Novae Hispaniae thesaurus*, (1628). Source: Wikimedia Commons.

Francisco Hernández, the general physician of the Indies and leader of the scientific expedition to New Spain in 1570-1577, also contributed to the consolidation of the pineapple as a discovered object through his depiction in his

Historia general y natural de las Indias. His account is decidedly more systematic and less personal than that of Oviedo. Listing its botanical properties and general benefits, he admits that its medicinal use may be limited, but that its properties of smell and taste are of great pleasure. He also recounts that it has been brought conserved to the Court of Spain and speculates that it should be able to grow on Spanish soil given the right conditions. Indeed, the pineapple plant was brought back with the Hernández expedition in 1577 and an attempt at cultivation in the gardens of Aranjuez was made by Philipp II. According to José de Acosta, it had been brought back already to Philipp's father Charles V who reportedly praised the smell but refused to taste the fruit, which after all had travelled across the Atlantic and may not have been in great shape.[29]

The infrastructure of geobotanical mapping

To understand the phenomenon of discovery, then, it is indispensable to show the means of acquisition which guarantee that the cover concealing what was previously hidden is removed once and for all. Accordingly, whenever Europeans of the Renaissance spoke of discovery, they meant episodes of finding and the things found, but above all the means of making them known and keeping them.[30]

Sloterdijk's Heideggerian understanding of the event of 'discovery' is elucidating because it helps undo the seemingly natural of the known. This epistemological precondition – the possibility of repeating and reproducing the object – points to the essential part played by bureaucratic media and cultural techniques in the establishment of this new world order and terrestrial globalisation. These manifold practices and processes were both what literally made the colonisation and exploitation of vast lands possible by supplying the indispensable information, and simultaneously they nourished a successively increasing rush to possess colonial lands for exploitative purposes.

Following the enticing and promising if unsystematic reports by Oviedo from the Americas, Philip II appointed Juan López de Velasco as Chief Cosmographer and new Chronicler of the Indies (following Oviedo) at the newly-reformed institution Casa de la Contratación in Seville which, under the rule of the Council of the Indies, controlled the flow of information, objects, and lifeforms between the Iberian Peninsula and the Americas. He was tasked with providing in-depth information about the possibilities of exploitation on the new continent.[31] Accounts like those of Fernández de Oviedo

had indicated that the newly-acquired lands were vast and potentially full of natural resources, including humans to be used as labour force, animals, plants and precious minerals to be imported, but there was no systematic information about it.

López de Velasco seems to have shared his ruler's insight about the power of media and information. Rather than travelling to the new continent like Francisco Hernández, he constructed an extensive questionnaire of about 50 questions, which was shipped over to local governors on the new continent, ordering them to supply the requested information for each region[32] – which they did, often using indigenous local knowledge and skill to make detailed maps and thorough descriptions.[33] Responses came back in the hundreds, and information was multiplied. López de Velasco and the Casa de la Contratación thereby produced the first statistical study of the new world; they had gathered extremely valuable data that became the precondition of the type of large-scale exploitation that was to become the hallmark of Western colonialism.

As a case of the enmeshment of coloniality/modernity/media, the mapping of American natureculture in the Spanish colonial empire of the 1570s and 1580s stands out as being part of a shift toward more systematic and scientific practices. The project was initiated by Philipp II and led by the Chief Medical Officer of the Indies Francisco Hernández, whose monumental books and sketches as well as his introduction to Europe of a number of live plants and seeds were instrumental in both the geopolitical understanding of the available resources and the scientific development in Europe.[34]

The several letters to Philipp II and his officials written by the Italian naturalist Ulisse Aldrovandi testifies to the widespread urge in European political and scientific circles to systematically map the new world. Aldrovandi, who built one of the most impressive cabinets of curiosities and would be considered the father of natural history by both Buffon and Linnaeus by the late 18th century, was part of the mediation process of new geobotanical and zoological life forms on the European side of the world. Aldrovandi's *theatro del mondo* consisted in a building containing objects of medical practice, teaching and gathering practices, connecting paintings, sketches, annotations, living and dried plants, specimens, books, and letters for the purpose of experimental knowledge elaboration in what would today be called a lab. Among the specimens on display in Aldrovandi's cabinet and reproduced in his books and manuscript was an American armadillo de Indias, which is still to be found in Bologna.[35] Already in 1567 Aldrovandi wrote to the local

resources, as well as their colonial possibilities of alteration, new plantation, and processing.

The natural history of the Indies is proceeding with all proper care and diligence, and thus in eight months since the work began, more than eight hundred new plants, never seen before in these parts, have been depicted, with large figures on large paper, all true to life and representing all the parts and proportions with greater and fresher exactness than ever before. ... There are so many things in the new world, with so many wonderful virtues, all of which I see, I touch, I test, I draw, and I describe clearly and precisely in Spanish in a not unpleasing style, and which I am beginning to prepare to transfer to Spain.[37]

Compared to Oviedo's natural history and his emblematic rendering of the pineapple in word and image, Hernández comes through as a much more systematic and sober compiler. While he does attest to having seen, touched, and tested the specimens he describes, he does not focus on the affect or bodily experiences thereof. Instead he uses a similar form throughout, listing properties and information that he believes to be useful for the purpose he has been assigned by Philipp. However, both Hernández and Oviedo insist on the limitations of their available media for conveying what they have perceived. In his close contact with local native herbalists, medicine men, and doctors, Hernández discovered their system of classification, which influenced him, as well as their linguistic naming which in many cases remain.[38] For instance, the native word 'xocolatl' for cacao bean survives in the word 'chocolate' almost literally in the majority of European languages, and 'tomatl' is equally present in several languages in versions of the word 'tomato'. Hernández also had his natural history translated into Nahuatl and left behind copies of it in New Spain for the benefit of locals.

Besides the massive amounts of information that Hernández gathered using local informants, he was also asked to send back plants, herbs, and seeds for cultivation in Europe. This is the actual carrying out of the Columbian Exchange, the bringing of corn, potatoes, and other staples to Europe while livestock and diseases were introduced in the Americas.[39] This was 'the largest human population replacement of the past 13,000 years, the first global trade networks linking Europe, China, Africa and the Americas, and the resultant mixing of previously separate biotas'.[40] Hernández' part is of course only a fraction of this process, but his case gives us the opportunity to study one particularly interesting instance as it constituted the first mediation of new life-forms and was ordered and sought after by Philip II for political purposes. The king repeatedly wrote to Hernández urging him to send

his work as soon as possible, but the doctor was reluctant, perhaps because he realised the immense value that his mapping of the botanical world had to the empire. Officially, he names the risk of losing the valuable books in case of shipwreck before they are copied and translated, which of course serves to buy him time.

Hernández' immense mapping project proceeded and he seemed to be astonished to see the extent of resources available and their possible use in the old world (enough medicine for the whole world), declaring that his books are being written in Latin so that they may be communicated to other nations, and in Spanish so that those nationals not learned in the ancient language may also profit from his findings. He also promises to send back a cargo with large quantities of plants with instructions for domestication and cultivation in European soil. In the end, Hernández sent back no less than sixteen volumes containing around 3,000 plants on 893 pages of text and with 2071 illustrations.[41]

In another letter from the same year, Hernández describes the results of his mapping project. In line with Sloterdijk's remark about media and discovery, the latter always presupposes the means to repeat the first encounter, in this case the books of sketches, paintings, and descriptions of these unknown quantities and their beneficial qualities.

I have so far drawn and painted three books full of rare plants, most of them of great importance and medicinal virtue, as Your Majesty will see, and almost two more of terrestrial animals and exotic birds, unknown in our world, and I have written a draft of whatever could be discovered and investigated about their nature and properties, a subject on which I could spend my entire life.[42]

Hernández is an actor of the network known as the Columbian exchange, which brought hitherto unknown plants to Europe that would eventually make them staples and key products in feeding populations. Among the most obvious ones are corn, potatoes, and beans, but also cocoa, tobacco, and chilli. As Crosby remarks, it is hard to imagine the Italian kitchen without the tomato, but the cultivation and eventual preparation of it into dishes through the cultural technique of cooking starts with the mediation of the new life form in the Americas. Both the plant itself, its seeds, and the adequate knowledge of cultivation and preparation was necessary for this process to take place. Indeed, this was the task that Hernández had been given by Philip II for his five-year scientific expedition.

Apart from the other species of solanum, there are in this world other fruits called tomato because they are round and enclosed in a skin. They are dry and cold in the first degree and they contain a certain degree of acidity. ...Others turn red when they are completely ripe. First, they turn green, then yellow, and then red. ... In summary, the shape of the plants and its membranes all correspond respectively to the species of Solanum. With respect to food, one can use them either in ground form or mixed with chili to make a very agreeable sauce that improves the flavour of many dishes and at the same time stimulates the appetite.'

The tomato however, had arrived in European gardens only years after Cortéz encountered it in the 1520s, and by the time Hernández wrote this it was cultivated in the gardens of European elites, as it had travelled northward in the form of seeds from the port of Seville, which controlled the flow of goods from the Americas.

A more valuable and exclusive plant was the *Theobroma cacao*, which had been held in the highest esteem among the pre-Columbian populations. Hernández recounts that the cacao beans were employed like money in markets, and much higher valued than gold, silver, or precious stones.[43] He also notes that the natives used the bean to produce an esteemed drink which he compares to wine. But the cacao bean would also come to be regarded with the highest esteem in the corresponding European political elites. In difference from the tomato, it was kept in secrecy and monopoly by the Spanish empire, which controlled its trade well into the 17th century. The business of chocolate was serious, and Hernández also describes the medical benefits of drinking it, alleviating the seriously ill in various diseases like dysentery and liver malfunction. Caution was recommended however, since 'excessive drinking of cacao brings with it numerous illnesses and diseases, because it obstructs the intestines'.[44]

The Jesuit priest and missionary Bernardino de Sahagún spent most of his life in New Spain and were among those who thought that in order to convert the natives one had to understand their culture, language, religion, and practices (a position he shared with Juan de Ovando, president of the Council of the Indies). He spent around 30 years on an encyclopaedic project of mapping 'the things of New Spain', for which he employed the Mexican intelligentsia and learned Nahuatl. The completion of this equally monumental book project coincided in time with Hernández' expedition and the cosmographic activities orchestrated from Seville. Completed in 1575-1577, it came to comprise twelve books and 2,468 illustrations made by his converting students. Sahagún's work is often considered a pioneering work of mod-

ern ethnography in its way of employing and including interviews with informants. The cacao plant and the practices associated with its seed is mentioned in a number of cases. The preparation of chocolate for drinking by means of repeatedly grounding the dried seed is described in detail, as well as the various flavourings that were used. Weddings, religious ceremonies, and royal settings are all described as events where the drink was featured. Interestingly, in the colonial appropriation of the cacao bean much of these practices were adopted as such, meaning that the value ascribed to the seed by the natives was in fact imported to European courts. Dominican friars were instrumental in this process, as they adjusted the preparation recipe to suit Europeans and added Asian pepper and spice as well as Cuban sugar to the Mesoamerican seed.[45]



Fig. 5: Illustration of a chocolate merchant. Bernardo de Sahagun, The Florentine Codex. Source: Library of Congress.



Fig. 6: Illustration of cacao tree from Hernández *Quatro libros de la naturaleza* (1615). Source: Archive.org

Conclusion

After seven years of botanical and zoological mapping in New Spain and Peru Hernández was able to return to Spain with a large amount of descriptions, books, sketches, and paintings. The precise circumstances of his arrival have remained obscure, but an autographed letter from Hernández to Philipp II located by the author in the General Archive of the Indies in Seville describe how he came packed with cargo of books and illustrations, as well as plants, seeds, and animals. The viceroy of New Spain Martín Enriquez sent a letter

to Philipp in March 1577 announcing that the General Physician of the Indies had departed for Spain with a fleet packed with cargo containing Hernández, 22 remaining books of his mapping project, two large chests, and 78 bags of seeds and roots, trees, and herbs, which were all to be presented to the King. The media (books, illustrations, descriptions, maps) and live plants, animals, and seeds are often mentioned in the correspondence with the king by both parts, thus testifying to the importance placed on these geobotanical transfers, of which Hernández' huge scientific expedition was but one of many in the 1570s. Other parallel mapping initiatives include the project orchestrated from the Council of the Indies by Juan de Ovando followed by Juan López de Velasco and resulting in the huge corpus of *Relaciones geográficas*; the multi-volume and multi-author project of Bernardino de Sahagún; the natural history of José de Acosta; the medicinal and botanical history of Nicolás Monardes. All of which formed part of the colonial infrastructure along with the work of officials, missionaries, cosmographers, sea captains, and others that gave rise to and consolidated the discursive formation of the new world as an almost infinite landmass ripe for exploitation for the need of Europeans, who connected it with the East in their global transoceanic trade network.

Among the live plants Hernández mentions having brought in his letter of arrival was a *Matsatli*, the Nahuatl word for pineapple, offered to Philipp II with the suggestion to plant and cultivate it in the Alcázar. As he arrived in Seville in August 1577 after six months at sea, Hernández stayed in the town to instruct the mayor of the Alcázar gardens on the appropriate cultivation for the seeds, roots, and plants he had brought.[46] The pineapple turned out to need tropical conditions and hence it would be cultivated in the Canaries, and later in other European colonies like Mauritius. The cacao bean represents another colonial staple and came to be cultivated by means of slave labour primarily in West Africa, aside from the plantations in the Caribbean and on South and Central American soil. Today 70% of the world's cacao beans grow in West Africa, where it represents a critical cash crop for local farmers who cannot afford chocolate themselves, while tropical forests are continuously cleared, causing massive deforestation particularly in the Ivory Coast. The labour on these plantations include an estimated 2 million children used in hazardous work.[47] The Western desire for chocolate shows no sign of slowing down, and production and global consumption was on the rise in 2018.

The mapping impulse of media should be understood in relation to its colonial and geopolitical origins in early modernity. The colonial history of

Spain constitutes a clear example of the rapid building of environments, altering of habitats, and establishment of global networks. This colonial infrastructure is still in place even after political independence was granted throughout the past two centuries. The current eco-crisis and the proposition of an Anthropocene epoch is hard to imagine without these developments in the 16th century which inaugurated a large-scale exploitation built on global political expansionism and an incessant quest for natural resources, which continues to this day. The exponential growth and efficiency of techniques of resource exploitation is at the heart of the great acceleration of the past 50 years, a process which is inconceivable without the colonial infrastructure which became increasingly complex during its 500 years of existence. This critical perspective drawing from decolonial thought can help inform the growing interest in geomedial and mapping, which, I would argue, are intimately associated as discursive practices. These very processes reveal how *nature* is turned into *culture*, a distinction that is obviously difficult to uphold and has more to do with onto-epistemology than any particular realism, revealing the mapping of American natureculture as constitutive of a particular colonial and modern world-making. In the end, the conditions for this development were media operations and the rise of an infrastructure that allowed for long distance and global-scale *governmentality*.

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Notes

- [1] Somolinos 1960, p. 484; Davies 2017.
- [2] Siegert 2011, p. 13.
- [3] Sloterdijk 2013, p. 98.
- [4] Padron 2004, p. 3.
- [5] Lewis & Maslin 2015, p. 174.
- [6] Huggan 2008, p. 115.
- [7] Mignolo 2000.
- [8] Siegert 2003, pp. 66-95.
- [9] Davies 2015, p. 42.
- [10] Latour 2017.
- [11] Crutzen 2000.
- [12] Ruddiman 2003.
- [13] Zalasiewicz 2015.
- [14] Lewis & Maslin 2015.
- [15] Sloterdijk 2015, p. 328.
- [16] Latour 2017, p. 384.
- [17] Vazquez 2017, p. 82.
- [18] Okihiro 2009.
- [19] The plant is mentioned in passing in Hernando Colón's *Historia del Almirante*, in which he recounts the itineraries and endeavors of his father Columbus, but it was written and published after Oviedo's work.
- [20] Bredekamp 1995.
- [21] Myers 2007.
- [22] Ibid., p. 159.
- [23] Ibid., p. 160.
- [24] Hall 2011, p. 48.
- [25] Barad 2007, p. 185; Alaimo 2016, p. 8.
- [26] Morton, 2013, p. 21.
- [27] Myers 2007, p. 160.
- [28] Monardes 1574, p. 101.
- [29] Acosta 1589, p. 175.
- [30] Sloterdijk 2013, p. 98.
- [31] Portuondo 2009, p. 211.
- [32] Cline 1964.
- [33] Mundy 1996.

- [34] López Piñero & Pardo Tomás 1996.
- [35] Findlen 1994, p. 30.
- [36] Sallent del Colombo 2016, p. 187.
- [37] Hernández 2000, p. 48.
- [38] Ayala 2005, p. 29.
- [39] Crosby 2003.
- [40] Lewis & Maslin 2015, p. 174.
- [41] López Piñero & Pardo Tomás 1996, p. 53.
- [42] Hernández 2000, p. 50.
- [43] Hernández 2000, p. 108.
- [44] Ibid.
- [45] Off 2006, p. 30.
- [46] Somolinos 1960.
- [47] Konstantas 2018.