Writing the History of the New World into Universal History

Colonial Chronologies and Astral Knowledge in Late-Seventeenth Century Spanish America

Inscrevendo a história do Novo Mundo na história universal

Cronologias coloniais e conhecimento astral na América Hispânica do final do século XVII

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Abstract In this article, we study historical and astronomical works published between 1680 and 1690 by Diego Andrés Rocha, *oidor* of the Royal Audience of Lima, and the Creole intellectual Carlos de Sigüenza y Góngora, viceregal cosmographer of New Spain. We contend that for these Spanish American colonial authors, history writing and the knowledge of celestial phenomena were inextricably linked within a

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shared epistemic framework. Astronomy and astrology provided them with a foundation for reasoning, judging the weight of disparate evidence, and establishing the legitimacy of competing claims related to the chronology of the New World, especially regarding theories about the ancient origins of the Indians. We show how the mobilization of astral knowledge in the establishment of local chronologies offered an answer to politically charged questions about the place of the Americas in the universal history of empire and Christian redemption, as well as the authors' own place in their respective colonial societies.
Keywords Astral knowledge, History writing, Colonial Spanish America

Resumo Neste artigo, estudamos obras históricas e astronômicas publicadas entre 1680 e 1690 por Diego Andrés Rocha, *oidor* da Audiência Real de Lima, e pelo intelectual *criollo* Carlos de Sigüenza y Góngora, cosmógrafo do Vice-Reino da Nova Espanha. Sustentamos que, para esses autores coloniais hispano-americanos, a escrita da história e o conhecimento dos fenômenos celestes estavam inextricavelmente ligados, no âmbito de um quadro epistêmico compartilhado. A astronomia e a astrologia lhes propiciaram referências para argumentar, julgar o peso de evidências incongruentes e estabelecer a legitimidade de reivindicações concorrentes ligadas à cronologia do Novo Mundo, especialmente em relação às teorias sobre as origens antigas dos índios. Mostramos como a mobilização de conhecimentos astrais no estabelecimento de cronologias locais ofereceu uma resposta a perguntas politicamente sensíveis sobre o lugar das Américas na história universal do império e da redenção cristã, assim como sobre o próprio lugar dos autores em suas respectivas sociedades coloniais.
Palavras-chave Conhecimento astral, escrita da história, América Hispânica colonial

Introduction

It was probably the spring of 1681 in Lima when printers Manuel de los Olivos and José de Contreras published a thick in-quarto volume that went by the title *Tratado unico, y singular del origen de los indios occidentales del Piru, Mexico, Santa Fe, y Chile*. The author was the elderly magistrate Diego Andrés Rocha (1607-1688), a man who had occupied many different senior judicial and administrative offices in the Viceroyalty of Peru for about 40 years. By the time this book – his sixth published work – appeared, Rocha was *oidor* of the Royal Audience of Lima, arguably the highest-ranking position that a colonial official of his standing could occupy. The work expounded Rocha's theory about the peopling of the Americas in ancient times, a theory that amounted to the idea that Indians in the Spanish Americas were the mixed descendants of ancient Iberians (directly related to one of Noah's grandsons, according to Rocha), Carthaginians, and remnants of the Ten Lost Tribes of Israel, all of whom had arrived in the continent by way of Plato's Atlantis.[1]

In November 1680, a few months before Rocha's (1681) *Tratado* began to circulate through the Lima book trade, a very bright comet became visible around the world and remained so until March 1681. By that time, Mexico City had a thriving market for almanacs and astrological prognostications. The comet's sighting stirred heated competition, with several authors offering their takes on how to interpret the significance of such a noticeable celestial event. One of the authors who took a stake in the debate was the renowned Creole polymath Carlos de Sigüenza y Góngora (1645-1700), who quickly produced a pamphlet entitled *Manifiesto filosófico contra los cometas despojados del imperio que tenían sobre los tímidos*.[2] This work grew into a lengthy commentary which, owing to circumstances that cannot be addressed here, came

1 On Rocha and his treatise, see: León Azcárate (2004); Camacho Delgado (2008); Bland (2016, p. 187-199); Carvalho (2020).

2 The pamphlet is no longer extant, but the author included the text in the first chapter of his *Libra astronomica, y philosophica* (SIGÜENZA Y GÓNGORA, 1690, p. 8-19).

to light ten years later through the printing presses of Mexican printer Paula de Benavides under the title *Libra astronomica, y philosophica* (SIGÜENZA Y GÓNGORA, 1690). According to a dominant perspective, the views expounded by Sigüenza in this book should be interpreted as the unequivocal signs of the author's committed quantitative empiricism, a testimony to the emergence of a modern scientific sensibility in a colonial setting. And this scientific attitude, allegedly, emerged in the face of a soon-to-be surpassed world of fear, unexplainable celestial influences, and qualitative assertions based on sterile Aristotelian/Scholastic syllogisms (NAVARRO BROTÓNS, 1999) – or so the story goes.

Rocha's (1681) *Tratado* and Sigüenza's (1690) *Libra* are, ostensibly, very different books. On the surface, they seem to have nothing in common, besides the fact that both were written by high-ranking colonial officials (Sigüenza was the viceregal cosmographer of New Spain) – and even this assertion must be carefully qualified, given the world of differences separating the specific contexts surrounding the viceregal courts where each author lived and worked – and the approximate concurrence in time of their publication. Rocha's book belongs to the world that Sigüenza supposedly vanquished. It is a lengthy treatise replenished with fantastical theories, none of which could ever be proven. Its reasonings are based on resemblances, conjectural etymologies, and extreme prejudice against Jews; its structure is that of a rigid Scholastic disputation. It is hopelessly incomparable to the refreshingly modern *Libra*, period. Or is it?

But Rocha's (1681) *Tratado* contained, as an appendix, a curious dissertation on the causative effects of comets, written as a letter to his son: *Copia de carta que el autor escribió a su hijo (...) sobre el cometa del año de 1680*. In it, the author set out to demonstrate that comets could, in principle, be rigorously determined as the causative agents of good or ominous effects depending on several of their observable characteristics, such as color, shapes and orientations of their tails, or their trajectories. This epistle is not simply bound with the treatise on the origins of the Indians by convenience or accident – the two works are put together by design. If the coupling of themes seems like a striking oddity, Rocha's

mindset may be better understood by putting it in relation with that of his contemporary in New Spain.

The year when Sigüenza y Góngora wrote his first discussion of the same comet of 1680, the above-cited *Manifiesto filosófico*, he also penned a dissertation on the origin of the Indians in a performative and political text: *Theatro de virtudes politicas* (SIGÜENZA Y GÓNGORA, 1680). Rehearsing the ekphrastic genre, the polymath described the triumphal arch erected in Mexico City for the entry ceremony of viceroy Tomás de la Cerda y Aragón, Marquess of la Laguna, in the capital of New Spain in 1680. In Sigüenza's pen, the arch becomes nothing less than an embodiment of history: the history of post-conquest Mexico, obviously, but also the history of the Spanish empire in general, and the ancient history of those lands and their first inhabitants. Thus, not unlike Rocha in Lima, albeit rehearsing different genres, Sigüenza worked, in parallel, on a dissertation on comets as well as a historical treatise. What is more, drawing from the very same authorities that Rocha liberally quoted in his *Tratado*, and, crucially, employing the exact same methods of etymological resemblances and comparison of temperaments, Sigüenza – presumed champion of mathematically quantifiable empiricism – arrives at the conclusion that the first inhabitants of the Americas were direct descendants of Noah that had conquered the separation between Old and New Worlds.

We are thus before an appealing parallelism, a kind of mirroring device: a magistrate in Lima writes a treatise on the origins of American peoples, to which he finds worthy appending his sober dissertation on a comet visitation; at the same time, a cosmographer in Mexico writes a treatise on the comet, and, in a simultaneous side project, reflects on the biblical genealogy of the Indians in exactly the same terms as his Limeño counterpart. The purpose of this article is to delve further into this parallel, inquiring into what makes Sigüenza's and Rocha's intellectual outlooks so strikingly similar. This matter unfolds into other interrelated queries: can the unifying thread be their shared interest in comets or astronomy more generally? If so, how exactly does this interest play out in their similar takes on the problem of American origins?

Were astral knowledge and what we might term the investigation of the "deep history"[3] of humankind commonly related intellectual pursuits?

By delving into Rocha's and Sigüenza's cases, this paper intends to scrutinize the role of astral knowledge in the writing and rewriting of American histories. Hefty and justifiably influential analyses of the problem of the "invention of the Americas" in the sixteenth century or of Enlightenment debates on "how to write the history of the New World" are available in the extensive literature on the history of history-writing (GERBI, 1955; O'GORMAN, 1958; ELLIOTT, 1970; CAÑIZARES-ESGUERRA, 2001; RABASA, 2012; GRUZINSKI, 2017). Comparatively, the American seventeenth century is somewhat less studied, and the legitimating role played by astral knowledge has seldom been explored. This essay addresses this gap in the historiography.

One last remark before proceeding is that the usual interpretation of our main characters would be that Sigüenza and Rocha used astronomy under the strictures of a nascent Creole patriotism. Such argument seems problematic: while scholars have focused on the role and transformations of the ideal of *patria* and Creole patriotism in the development of national colonial identities, they have neglected the discrete mechanisms, strategies, and moments that connected the writing of local histories with wider epistemic concerns that did not rely solely on colonial contexts. David Brading's (2015, p. 86-88) and Jorge Cañizares-Esguerra's (1999) assertions that astrology was used to either denigrate or reassert the dignity of those born in the American hemisphere has come to dominate scholarly understandings of the problem. Besides somewhat downplaying the possibility that the emergence of Creole patriotism might be yet another way of asserting the Spanish monarchy's place in providentialist history, these important works do not delve much into the intricacies of astral knowledge practices in

3 "Deep history," i.e., the investigation of the distant past of humankind through a blend of anthropological, linguistic, archaeological, and genetic approaches has witnessed a curious surge of interest in the first decades of the twenty-first century. See, for instance, the work of Daniel Lord Smail (2008), perhaps the most prominent advocate of this trend of scholarship.

the New World. Indeed, the argument about astrology as a means of promoting the qualities of the Americas is based mostly on juxtapositions of excerpts from disparate sources, and it sees chronology and its instruments merely as a backdrop to the defense of an emerging American identity.

Our emphasis here is not the development of new forms of American sovereignty, but the mobilization of astral knowledge as a discrete yet crucial legitimizing tool for the insertion of the Americas in the history of Christianity and Salvation. Crucially, we will not focus on technical methods and practices, but on the performative discourses that played out the epistemic value of astronomy in the historical writings of Creole societies of Mexico City and Lima at the end of the seventeenth century. This is, ultimately, a story about using the stars in local claims of universality.

A Circumspect Place for Astral Knowledge in History Writing

The *oidor* Diego Andrés Rocha was born in Seville in 1607, the son of a physician who worked for the Inquisition and emigrated with his family to Lima in 1627 to take up the chair of medicine at the Royal University of San Marcos. There, Diego Andrés studied law and canons, and moved on to become a jurist and senior colonial official, ascending to magistrate in the highest court of the Viceroyalty of Peru (TORIBIO MEDINA, 1904, p. 133-134). Rocha wrote many Latin treatises on theology and matters pertaining to canon law, but undoubtedly his most famous work is the *Tratado* on the origins of American peoples, published, as we have seen, with the appended letter on the meaning and interpretation of the great comet of 1680-1681.

Rocha's (1681) main claim was that the New World had been populated over three waves of migration from the Old World. The first two waves comprised ancient Iberians, who were the direct descendants of the biblical Tubal, a grandson of Noah. In the second wave, the Iberians had mixed with Carthaginians. They crossed what was to

become an ocean by way of the Platonic lost continent of Atlantis before it submerged, settling mainly in South America. In the third wave, 300,000 remnants of the Ten Lost Tribes of Israel had reached New Spain. Rocha argued that contemporary Indians carried traces of those remote ancestors. Thus, albeit corrupted by climate and by interbreeding with ancient Mexicans, Peruvian native people still displayed some typically Iberian virtues, such as bravery and ingeniousness. According to the author's deeply rooted anti-Jewish sentiments, Hebrew descent was responsible for vices like effeminacy and greed, which showed up more prominently in the native inhabitants of Mexico. Does the juxtaposition of such treatise and a public letter positing the possibility of establishing the influences of a comet from its observable characteristics obey any kind of internal logic, or was publishing these two discourses together simply a marketing strategy?

One of the publication licenses printed with Rocha's (1681, p. 3) *Tratado*, by Juan de Morales Valverde, canon penitentiary of the archdiocese of Lima, states precisely that he had "read, by order of Your Excellency, the two works that doctor D. Diego Andrés Rocha, *oidor* of this *Real Audiencia*, intends to give to the press," and identifies in both works Rocha's "great and exquisite erudition, Christian faith, and zeal".[4] For Valverde, then, it seems that these were two distinct, and not necessarily related, pieces. For the censor, what connected the two works was Rocha himself, and the virtues of "erudition, Christian faith, and zeal" applied to the composition of both.

In some ways, Rocha's proposal for the origin of American Indigenous peoples was even more politically expedient than Sigüenza's. Valverde praised Rocha for the "discernment with which he uncovers the traces of those who came to populate these realms," presenting what amounts to "a remarkable novelty, which is to find in antiquities what no one understood

4 Freely translated by the authors: "He visto por orden de V. Exc. las dos obras que tiene destinadas a la prensa el señor Doctor D. Diego Andrés Rocha, Oidor de esta Real Audiencia, i reconosco en ambas su grande, i exquisita erudicion, christiandad, i zelo".

before"[5] (ROCHA, 1681, p. 3). To take this further, Valverde states that the most admirable novelty that Rocha presents in the *Tratado* was the "restitution to our lord and King, by the right of return, of the vassals who have been so because of conquest, but should have been vassals because of their origin. Joyous should they be, as is now known, for having returned to their prince and principle"[6] (p. 3). The censor thus credits Rocha for an accomplished justification of the legitimacy of the king's claims of sovereignty over the American territories and its native inhabitants based not on the right of conquest or on the imperative to convert the gentiles, but on shared ancestry.

In Rocha's (1681) retelling of the history of the New World, there occurred in fact no forcible conquest, but simply a restitution to the Spanish kings of what should have always been subject to their rule. With a single movement, Rocha conquers cultural difference (since the Indians, who were expected to rejoice in this finding, were just the descendants of the original Spanish colonizers of ancient), as well as spatial separation, by elevating the American colonial polities to the same level of the Spanish possessions in Europe. And he does this by conquering the remaining difference: the one that seemingly imposes different times to the history of Indians and Europeans. At the heart of Rocha's strategy then lies the need to bring different chronologies to an agreement: to project the succession of events of one history onto another, as it were. He must establish the concurrence between Indian and Spanish histories, both particular, and the single truly universal history, namely the history of humankind's fall and redemption (all enacted in the idea of the universal empire). This chronological endeavor, as we will see, was implicitly related to Rocha's commentary on the comet in various, albeit inconspicuous ways.

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5 Freely translated by the authors: "Admirable es la perspicacia, con que descubre las huellas de los que vinieron a poblar estos Reinos (...). Estimable novedad, hallar em antiguedades, lo que no se habia podido entender antes".

6 Freely translated by the authors: "reducir a nuestro Rey, i Señor por el derecho de reversion los vassallos, que lo son por conquista, i debian serlo por Origen, dicha de ellos, conocida aora, por aver buelto a su Principe, i principio".

When it came down to the letter on the comet, Valverde declared that he saw in it "the great prudence and Christian judgment of the author. He does not steer from the Court in which Your Majesty (God save) put him, judging as righteously in astrology as in jurisprudence"[7] (ROCHA, 1681, p. 3). This last statement hints at a deeper connection between the two works: not only were both written by Rocha with the same zeal and erudition – which were common general terms of praise – but they seem to partake of the same methods and ways of reasoning: Rocha, the magistrate, weighs the evidence and draws conclusions about the ancient population of the Americas and comets in the sky in one and the same way, like a judge deciding on a case. This can be clearly seen in the text when Rocha (1681, n.p. [appendix]) argues that the same consequences of comets cannot follow from disparate causes – that would be illogical. For how can, say, the orientation of the tail of a comet in relation to the sun be interpreted as effecting some uniformly negative influence, when this direction continuously varies as time passes (as he had asserted from real observations of the comet)? Dispassionately, he ultimately advised his son to avoid panic and the rush to embrace vulgar interpretations. What we have before us here is an affirmation not of the supposed sterility of the Scholastic ideal of science as syllogistic demonstrative knowledge, but the very opposite: Rocha is defending the epistemic soundness of his whole enterprise.

Through the lens of this juridical epistemology, Rocha's historical and astral enterprises are united in even more profound ways. According to literary scholar Christopher Johnson,

> This remarkable juxtaposition of topics (…) speaks to the desire on the part of the late seventeenth-century creole *mentalité* to master, if not understand, what Michel de Certeau calls the heterological – whether such alterity be ethnographic or

7 Freely translated by the authors: "veo la mucha cordura, i christiano juizio de el Author. No se desvia de el Tribunal, en que Su. Mag. (que Dios guarde) le puso, juzgando com tanta rectitud en la Astrologia, como em la Iurisprudencia".

> astronomical. In other words, the inexplicable presence of advanced civilizations in the Western Hemisphere, like the marvelous appearance of comets, were both conundrums which threatened scientific and theological assumptions. Both phenomena challenged the notion of a stable, hierarchical universe whose microcosmic center was European man (JOHNSON, 2004, p. 412).

While we find the deployment of De Certeau's notion of heterology engaging, it seems to miss a crucial aspect of the problem. By reducing Rocha's operation to a need to domesticate the radical alterity of (supposedly) wondrous celestial appearances and incomprehensible groups of people, viewed basically as puzzles or "conundrums," Johnson remains oblivious to the most important ways in which early modern astral knowledge and history writing were in fact related. Rocha's operation of rewriting or re-inscribing particular, local histories into a larger one was in no way unusual among early modern scholars of very distinct casts, and examples can be encountered over a very long stretch of time. One common thread running across them is precisely the recourse to astronomy as a means of claiming legitimacy for the chronological agreements, revisions, and amendments that were obtained.

A crucial point to be made is that Rocha's approach to the question of the origin of the Indians (and, as we will see, the same counts for Sigüenza) is an issue of *chronology*, an established scholarly discipline that sought to find parallels between biblical and classical histories to establish their ultimate agreement (GRAFTON, 1983, p. 3; 1993, p. 115-116). His main challenge was to ponder the relative weight and validity of conflicting genealogical narratives and chronicles of events pertaining to human history, in order to arrive at coherent conclusions that would legitimately aspire to the acceptance of his audience. Since the sixteenth century, perhaps before, chronological assertions were filtered through the lenses of humanist textual criticism, but this was not the whole story. In the face of competing, contradictory evidence from reliably interpreted sources with equal claims to authority – or, as

it became evident early on for every "chronicler of the Indies," in face of the *absence* of any textual sources –, astral knowledge increasingly came to the rescue.

Indeed, by the time Rocha was writing, a rich tradition of "technical chronology" was well established. As Noel Swerdlow and Anthony Grafton have demonstrated in a series of groundbreaking publications, sixteenth-century scholars rediscovered in ancient authors like Varro, Censorinus, or Josephus the importance of astronomical methods for dating past events and deciding on competing claims (GRAFTON, 1983; GRAFTON; SWERDLOW, 1985; SWERDLOW, 1990; SMOLLER, 1994; NOTHAFT, 2011). Gathering and collating disparate textual indications of historical events taking place around the same time as past solar and lunar eclipses, which could be calculated back in time with a certain degree of reliability, became a favorite methodology for these technical chronologers. Establishing histories of the passage of comets in time and space (in genres known as *historiae cometarum* or cometographies) was also a chronological tool. Preparations leading up to the 1582 Gregorian reform of the calendar were a momentous example of the mutual dependence between chronology and technical astronomy. Technical chronologers deeply invested in the correlation of these two disciplines were still active in the early eighteenth century and beyond, i.e., men like Isaac Newton and Giovanni Domenico Cassini, among others (SWERDLOW, 1990; SCHILT, 2021).

The calendrical matter was of utmost importance for everyone who ventured into writing histories of the New World from the sixteenth century onward. For several authors across the Americas, studying the heavens, counting time and writing history seemed to be indissociable elements. However, connecting the periodic movement of celestial bodies with the passage of human experience implies a certain set of beliefs and practices that are not innate to all cultures. For Europeans and Creoles alike, the Christian calendar, which observed liturgical festivities within solar and lunar cycles, was not only a timekeeping instrument but the basis of history itself: the time of Creation and Salvation were the beginning and end of human action. Therefore, their history could

only be told according to the astrological and astronomical frameworks that supported the Christian calendar. Since Amerindian cultures did not share this mode of time technology, one of the great challenges of the colonial encounter was to find meeting points between Indigenous and European modes of computing time and memory keeping (GRUZINSKI, 2017; DÍAZ, 2020b).

These are the reasons why we will find lengthy calendrical discussions in an epochal book such as José de Acosta's (1690) *Historia natural y moral de las Indias*. They also help to account for the striking artefact of re-elaboration of time that is the *Codex Tovar*, commissioned in the late sixteenth century by Jesuit missionary Juan de Tovar to Nahua artists. Their purpose was to make a calendar capable of expressing Christian liturgical festivities and the Nahua cycles of twenty days – understood by Europeans as months – in a single legible space (DÍAZ, 2020a). The format of the sixteenth-century Nahua codex compiled by Tovar resembles an almanac, with one page per month, but instead of predicting the future, this calendar is a chronicle about the past of the Mexica people. For later Creole intellectuals, in turn, discovering the history of their nation frequently meant recovering – or recreating – astral knowledge of the ancient inhabitants.

To affirm the biblical origin of the Indians, a stance echoed throughout Rocha's (1681) *Tratado*, as well as in Sigüenza's works discussed below, held a series of implicit associations that different authors on both sides of the Atlantic brought to the foreground. Indeed, these works added to a long list of books that dealt, in one way or another, with the pressing question of the ancestral origins of the native peoples of the Americas. Already in the sixteenth century, several of the first chroniclers of the Spanish invasion of the New World, men such as Gonzalo Fernández de Oviedo (1535) in his *Historia general de las Indias*, Francisco López de Gómara (1553) with *Historia general de las Indias*, Pedro Cieza de León (1553) in *Primera parte de la chrónica del Perú*, or Agustín de Zárate (1555) with *Historia del descubrimiento y conquista del Perú*, had devoted long passages of their works to an examination of this problem of origins. For many of these writers, confronting

this question was a task borne out of their own first-hand experience with radical human alterity. As importantly, it was prompted by deep religious anxieties over the legitimacy of enslaved Indian labor, a matter that spoke to the heart of discussions surrounding the legitimacy of the conquest, the political organization of nascent colonial societies, and their economic viability. Thus, the widely known Valladolid debates of 1550-1551, opposing Bartolomé de las Casas and Juan Ginés de Sepúlveda and their respective supporters on the question of whether Indians were naturally entitled to freedom hinged on, among other things, competing claims about their origins.

Perhaps unsurprisingly, cosmographical authors also held a stake in the debate around the origin of the native inhabitants of the Americas. This was due to the fact that the discussion inevitably led to a consideration of the distribution of Earth's landmasses (in the present and in the past), their connections, and the magnitude of the obstacles separating them, namely the oceans. Already in 1540, Alejo Venegas had included a discussion of the origins of the land's native inhabitants in his *Primera parte de las diferencias de libros que hay en el universo*, published in Toledo. More than 60 years later, Enrico Martínez's (1606) *Reportorio de los tiempos, y historia natural desta Nueva España* also found it necessary to confront the problem in earnest. Between one and the other, José de Acosta took the problem in his hands in the *Historia natural y moral*, a work that can also be read as, among many other things, a cosmographical treatise.

By Rocha's and Sigüenza's time, the list of books dedicated in part or exclusively to this investigation had swollen considerably. The political and religious legitimacy of the colonial enterprise – and, consequently, of the Spanish empire itself – was ever more explicitly reliant on what could be established about the ancestral origins of the first Americans. A new generation of religious chroniclers belonging to missionary orders or the fraction of the secular clergy entrusted with Indian parishes – men such as Miguel Cabello Valboa (2011), the Dominican Gregorio García (1607), and the Franciscan Juan de Torquemada (1615) – took up the origins debate, alongside political thinkers and

historiographers deeply attuned with political realities, such as Juan de Mariana (1592), Antonio de Herrera (1601), Inca Garcilaso de la Vega (1609), and Juan de Solórzano Pereira (1648), the latter being the hugely influential compiler of Spanish colonial law, and himself an *oidor* in Lima when Rocha was starting to climb the ladder of social status in the viceregal administration.

One latent preconception across these authors was the similitude between Indians and the Jews. Missionary-scholars in the sixteenth century, such as the Dominican friar Diego Durán (1867, p. 2-7), who thought that one of the Ten Lost Tribes of Israel arrived in the Americas, underscored analogies between Jewish and Indian rituals. Such association provided parameters to describe the idolatry of infidels. Other scholars explicitly interrogated whether Adamic astral knowledge had traveled with the dispersal of the Peoples who eventually populated the Americas. In this line of thought, it was constantly repeated that the Indians had lost their once-possessed astronomical knowledge. Diego Durán (1880, p. 488-493), for instance, did not hesitate to state the ignorance of Aztec astrologers, who had failed to predict the portent of the comet that announced Moctezuma's fall. Though his writings were not published until the nineteenth century, his ideas were known to the Jesuit Juan de Tovar, whose works (which also circulated only in manuscript form) in turn heavily influenced José de Acosta's (1590) *Historia natural y moral de las Indias*. These ideas were well known and thoroughly revised in Sigüenza's context.

Thus, in a dissertation on the origin of the Indians, chronology and astral knowledge went hand in hand. However, mathematical astronomy was not always an explicit tool. Rather, an author's mastery was discreetly implied. Chronologers would debate the technical aspects of their work in correspondence, and occasionally in print, but a published chronology would not necessarily display the method and the discrete data behind dated events. In the seventeenth century, the astronomical basis of chronology was rendered progressively explicit in writers such as the Jesuit Giovanni Battista Riccioli (1669). But as we will see in the cases that concern us here, there is scant evidence of observations, tables, and numbers that were put to work. Most frequently, the

sources under scrutiny simply lacked any reference to a celestial phenomenon, or, at the very least, to a dateable one for that matter. In other occasions, the chronologer did not master the mathematical tools that were needed to perform backward calculations for the date of a given celestial occurrence, or there was no astronomical theory accounting for it, or there could even be mutually incompatible theories. At any rate, astral knowledge was part of the toolkit of chronology as a technical, social and intellectual practice. It did not need to be conspicuous, or even employed. One simply had to recognize its important place in a shared epistemic culture of history writing. In other words, a man like Rocha did not have to really employ astronomical calculations in his chronological investigations, although he had nothing to lose – much to the contrary – if he signaled to his readers that he was no stranger to celestial observations and their interpretation.

Mobilizing Computations

Rocha's contemporary in New Spain, Carlos de Sigüenza y Góngora, was a prolific author who wrote across a variety of genres under different auspices. Cosmographer, chair of astrology and mathematics at the Royal University of Mexico, professional almanac maker, poet, and a writer of chronicles paid by different patrons, across all his activities, he was deeply committed to writing history or, more precisely *histories*. In the form of yearly prognostics, reports of military conquest, historical fiction of a circumnavigation, the history of the apparition of the Virgin of Guadalupe or the chronology of the Mexica empire (GONZÁLEZ GONZÁLEZ; MAYER, 2002, p. 226-239), he deployed persistent efforts to set local events and circumstances in a wider sense of space and time that would include not just the New World, but other places around the globe that were not included in European historical records. Across his multifaceted production, astronomical knowledge was applied to this effect in rather explicit ways.

His engagement with astronomy and chronology as interdependent disciplines was more conspicuous than in Rocha's work. In his

Libra astronomica he consistently weaved the contemporary debates into his argumentation. The appearance of celestial phenomena was situated within polemics over the ages of the world. Natural philosophers held different opinions concerning whether the universe had been more vigorous, with the skies freer of comets, in the first ages of the world. Sigüenza took sides. He challenged the assumption that the decay of the world and the end of times was signaled by an increasing protuberance of comets (SIGÜENZA Y GÓNGORA, 1690, p. 25). He rejected the belief that the number of comets that appeared in the sky corresponded to the number of dead dignitaries in history (p. 37). He aligned with commentators that disputed mentions of comets in the Old and New Testament as proof of historical reckonings (p. 22; p. 29). Thus, he straightforwardly and critically addressed the debates concerning the relationship between astronomy and chronology current in his time.

The crux of the matter was the interpretation of the potential influences of astronomical appearances over mundane affairs. Sigüenza was profoundly skeptical and insisted that holding this ancient belief required at least the establishment of precise chronologies that could only be attained through astronomical computation. For this he called upon "modern" authorities found in seventeenth century histories of comets, which relied on astronomically based chronological concordances, i.e., time-adjusted parallel series of celestial and earthly events. The resulting evidence, he claimed, overwhelmingly showed that comets and calamities did not occur at the same time nor in close proximity to each other, as was often claimed. Comets, and other celestial events for that purpose, were not to be regarded as God's heralds of ominous events nor as causative agents of any event pertaining to the course of human affairs. Celestial phenomena were nothing more than material objects whose appearance could at most coincide with momentous events, by pure chance. In other words, what Sigüenza claimed was that astronomical happenings should not be viewed as agents of historical change – at the very best, they could be tools for establishing dates of events that were not triggered by their visitation. More ambitiously, however, by reading the right sources in the light of empirical data, Sigüenza believed that he

could participate in the collective task of amending universal chronology, in order to bring sacred and particular histories into agreement.

In this sense, his work on comets was deeply connected to a wider chronological project. We can see glimpses of it in the preface to the *Libra astronomica*. Its author, Sebastián Guzmán de Córdoba, Sigüenza's friend and patron who undertook the publication of the book, gives further insight into that unknown technical endeavor. Lauding an unpublished manuscript entitled *Año mexicano* as one of Sigüenza's most accomplished enterprises, he gave a summary of a work that was lost or never completed. He explained that Sigüenza began studying "matters of the ancient Indians" in 1668. In order to study their computations of time, he combined his knowledge of "the oriental nations" (probably meaning China, considering the Jesuit context in which he then lived), with annotations of common events made by Spaniards and Indians in their respective calendars; and he supplemented these records with references to eclipses found in "very old maps of the Indians" that he had in his possession. From these sources, Sigüenza had learned the reckoning of the "Mexican year," a unit of time used by the most educated, or "political," members of the "nation" who inhabited Septentrional America. Moreover, he had traced the Mexica chronology back to the confusion of the tongues in Babylon. He concluded that the Indians had a better leap year system than Asians and Europeans[8] (SIGÜENZA Y GÓNGORA, 1690, [sig. ¶2]).

8 Freely translated by the authors: "Este libro en no grande cuerpo tiene gigante alma, y Solo D. CARLOS pudo darle el ser, porque juntandose la nimia aplicacion que desde el año de 1668 (según me ha dicho) ha puesto en saber las cosas de los antiguos Indios, con lo que acerca de la constitución de todos los años de las naciones orientales sabe (que es en estremo mucho) y combinando suceso comunes, que anotaron los Españoles en sus Kalendarios, y los indios, en el proprio suyo, y coadyuvandolo con eclipses de que ay memoria, con sola expresión del dia, en mapas viegissimos de los Indios, de que tiene gran copia, hallò lo principiaban en el dia que pocos años despues de la confusión de las lenguas fue el equinoxio verno. Trata del modo admirable con que valiendose de triadecateridas en dias y años, usaron del Bisiesto mejor que todos los Asiáticos, y Europeos, y pone à la letra el TONALAMATL, que es el arte con el que prognosticaban el porvenir".

This general information on Sigüenza's method may by unsatisfactory to a historian of technical chronology, but it is precisely the lack of information that allows us to emphasize what is important to our argument: without giving detailed technical explanations to his contemporaries, Sigüenza strove to make his audience understand that astronomy was a legitimate tool that could elevate the authority of Ancient Mexican time-computation to the status of European calendrics. Ultimately, mobilizing astronomical knowledge in pursuit of an amendment of universal history would inscribe Sigüenza's homeland, *patria*, into a Christian history where the place of the Americas and its inhabitants was constantly interrogated.

It should be clarified that *patria* is a term that was rooted in early modern Spanish renderings of the Roman ideal of nation, which could equally mean a city of birth, province, or realm. It implied a provincial or urban display of civic praise through the celebration of the history of secular and religious institutions. It was an ideal of nationhood constituted by nobility, the merchant class, guilds, and clerics. Creoles such as Sigüenza (and, to a certain extent, a Spaniard like Rocha) inherited this notion that traveled from Spain to the New World. In their understanding, *patria* excluded natives, enslaved Africans, and other people who were not of Spanish descent. Ultimately, Creole renderings of *patria* such as Sigüenza's were crucial to claims of agency within the holdings of the providential Spanish monarchy (BRADING, 2015, p. 97-102). If Sigüenza desired to give an astronomical legitimation to Ancient Mexican time keeping, it was to defend the idea of a long-lost glorious past that could only be rediscovered through the mindset of reason and Christianity.

Sigüenza's constant interweaving of astronomy and chronology is visible throughout his historical works. For comparative purposes, we will briefly discuss this connection in the aforementioned *Theatro de virtudes politicas* (SIGÜENZA Y GÓNGORA, 1680), where he described an iconographic program for the triumphal arch celebrating the arrival of the new viceroy to Mexico City. The festivities occurred in Mexico City, in November 1680, precisely the month when the comet appeared

in the skies in New Spain and other parts of the world. The pageantry that Sigüenza designed told the history of the Mexica Empire. This was an ingenious exercise in ekphrasis, as well as a political statement. For Anna More (2013, p. 111-140), the triumphal arch had a redemptive function: to recognize the civilized past of Mexico and to convey a model of good governance. She understood the project as part of an attempt to create a local archive for Creole political sovereignty. Namely, that argument focused on Sigüenza's strategies of piecing together historical documents of Spanish and Indian making in order to recreate an authoritative local archive that would give legitimacy to his *patria*.

Yet, we claim, Sigüenza's visual program needs to be viewed from a wider perspective in which politics and epistemology played out, first, universal aspirations that were ultimately instrumental but not merely subjected to claims of local agency. In other words: yes, Sigüenza was dealing with local political struggles – the desire to assert a place within a highly stratified viceregal hierarchy – but his strategies were connected to wider contemporary efforts (in the Americas, Europe, Asia, and beyond) to rewrite the history of history through valued epistemic tools, such as revisions and rewritings of official documents using, to varying degrees, astronomical records. Similar endeavors had occupied Europeans and elite Nahuas since the early years of the Spanish arrival in New Spain (RABASA, 2012). Writing the history of the Mexican regents into the timeline of world history was not only about asserting the political relevance of New Spain in the broad framework of the Spanish Empire, as Diego Andrés Rocha had done when he justified the legitimacy of the subjecthood of Indians. Sigüenza created his chronological pageantry with the purpose of it being "universal".

By writing the history of the Mexica empire Sigüenza self-consciously linked his efforts not only to Alexandrian astronomers dating celestial events by reference to the reigns of Babylonian and Eastern kings and to Roman emperors, to Fathers of the Church who cultivated chronology as a conversion strategy, and to the works of sixteenth century humanists, but also to the seventeenth-century astronomical reforms of the discipline epitomized in the work of scholars such as

Riccioli (1669). Moreover, Sigüenza implicitly linked himself to the missionary efforts that tried to understand, prove, and explain the place of the Americas in the history of the Christian World. With this project Sigüenza, a former Jesuit novice repealed by the order but inexorably attached to it, ultimately wanted to provide a rationale and a blueprint for the conversion of souls. His instruments included an alliance between philology and astronomy as they were practiced in the long intellectual tradition of chronology (GRAFTON, 1983, p. 66-75). He conflated classical deities and biblical figures through a crossover of classical and biblical histories. He established these associations through very complicated etymological exercises supported by selective readings of classical authorities, sixteenth-century humanists, and chronicles of the New World. These strategies were employed by a wide variety of writers on both sides of the Atlantic.

The third prelude to the description of the pageantry is a window into his method. First, Sigüenza y Góngora (1680, p. 12) established that Mexico was founded by Neptune, who was an historical figure, and not a "chimeric king, or a fantastic deity, but a subject that really existed, and with such excellent circumstances, such as having been the progenitor of the American Indians".[9] To make this argument, he first established a phonetic correspondence between Neptune and Nephthuim, the son of Mizraim, mentioned in Genesis 10, 13. Second, he resorted to a modern work on antiquities by the ecclesiastical judge Bernardo Aldrete (1614): *Varias antigüedades de Africa, España y otras provincias*, published in Antwerp. In this work he found a long dissertation on the origins and etymology of Neptune, which became key to his argument: the Latin verb *aperuit*, reported Sigüenza, derived from NIPHTACH, the passive form of the Hebrew verb PHATACH,[10] *to open*. The name then rightly corresponded to the attributes of God: "Taking from this root the name

9 Freely translated by the authors: "Quimérico Rey, o fabulosa Deidad, sino sujeto que con realidad subsistiò, con circunstancias tan primorosas, como son haber sido el Progenitor de los Indios Americanos".

10 We maintain Sigüenza's exact rendering of the Hebrew words.

of Neptune, one and the principal property attributed to him is displayed: to open the earth, shake it, make it shudder and tremble"[11] (SIGÜENZA Y GÓNGORA, 1680, p. 12-13). It was no wonder that the Indians of central Mexico, who experienced earthquakes on a frequent basis, were linked to such progeny (SIGÜENZA Y GÓNGORA, 1680, p. 19).

Establishing the origin of the Indians implied evaluating bookish hypotheses supporting a direct lineage between Neptune-Nephthuim and the first inhabitants of the Americas. First, Sigüenza refuted the Carthaginian ancestry of the Indians supported by some of his contemporaries, including Rocha (1681). Instead, in agreement with Solórzano Pereira (1648), he asserted that the Indigenous inhabitants of the Americas were the missing link of a lost branch of Jewish descendance. They were the sons of Nepthemi whose unknown fate was noted in the *Antiquities of the Jews* by Flavius Josephus (1559). They were also distant nation prophesized in Isaiah 18. Finally, by citing chroniclers of the Indies such as López de Gomara (1553), Gregorio García (1607), Agustín de Zárate (1555), as well as Marisilio Ficino's (1588) commentary on Critias, and Athanasius Kircher (1665), Sigüenza claimed that the lost Hebrew nation had gone to Atlantis before passing on to the West Indies (SIGÜENZA Y GÓNGORA, 1680, p. 14-20). As announced in the introduction, he was invested in the same debates as Rocha. Yet, unlike his contemporary, Sigüenza oriented these genealogical questions to precise astronomical computations.

Theatro de virtudes, a text designed for political advancement, was part of Sigüenza's larger endeavor to correlate history and time in different scales, i.e., to include local history in a universal history of Christianity. To this end he also wrote astral-based histories as an astronomer and almanac maker. There are no extant copies of his printed prognostics although a record of his requests to publish and a limited number of manuscripts submitted to the Inquisition are extant in the

11 Freely translated by the authors: "Sacando desta rayz el nombre de Neptuno, muestra una y la principal de las propiedades que le atribuyen, abrir la tierra, sacudirla, y estremerla, y hazerla temblar".

National Archives of Mexico.[12] On the other hand, the sole extant copy of a pamphlet entitled *Noticia chronologica de los reyes* (SIGÜENZA Y GÓNGORA, 1681), held in the Lilly Library Special Collections at Indiana University, adds to what little information we have concerning Sigüenza's approach to technical aspects of his chronological program, to which astronomy was instrumental. The polymath played with the common tropes of popular early modern genre of the almanac. Brief reconstructions of the past generally presided over the prognostication of future historical or meteorological events: a chronological notice of the creation of the world, the deluge, and other historical landmarks such as the foundation of a city or the birth and death of regents. In the history of almanac publication in the New World, this exercise of connecting past and present was strongly reaffirmed by inserting notes of local history within those mainly European tables of chronology that were reused and tweaked by different local printers. These strategies were appropriated by the Mexican author.

In *Noticia chronologica de los reyes*, Sigüenza y Góngora (1681) justifies that his method was much more than a process of moving information from one place to another. It was, moreover, an entire recalculating and re-writing endeavor. His project, he stated, was to write the history of the rulers of Mexico not by *trasladando* (in the literal sense

12 ARCHIVO GENERAL DE LA NACIÓN (AGN), Mexico City. *Autos en razón del pronóstico de temporales del año de 1688 compuesto por el Sr. Carlos de Sigüenza y Góngora*, 1687, f. 1; [*Prognostics for the year 1677*], 1676 f. 11r-17v; [*Request to publish prognostics of 1682*], 1681, f. 98r; [*Request to publish prognostics of 1674*], 1673, f. 165r; [*Request to publish prognostics of 1683*], 1682, f. 192r-193v; *Almanaque para el Año de 1690*, 1689, f. 203r-210r; [*Request to publish prognostics of 1675*], 1674, f. 211r; *Autos en razón del pronóstico de temporales para el año de 1690*, 1689, f. 212r-215r; [*Request to publish prognostics of 1672*], 1671, f. 216r-v; *Almanaque y Lunario de D.C de S y G. Para el año Bisiesto de 1698 según el Meridiano de México*, 1696, f. 235r-242v; [*Request to publish prognostics of 1677*], 1676, f. 243r-244v; [*Request to publish prognostics of 1673*], 1672, f. 271r-272v; [*Request to publish the prognostics of 1693 and full prognostics*], 1692, f. 283r-293v; [*Request to publish the prognostics of 1991*], f. 336r -336v; *Almanaque de D.C. d. S y G para el año de 1692 Bisiesto*, 1691, f. 342r-352v; [*Request to publish prognostics of 1678*], 1677, f. 349-350r; *Autos en razon de el prognostico para el año de 1691 compuesto por el Sr Carlos de Sigüenza y Gongora*, 1690, f. 356r-358v. Ramo Inquisición, 670.

of taking a thing from one place to another, which would imply merely transcribing) the information from previous authors that "merely impose their order, and that with some imperfections, perhaps" but by "specifying the day of their entrance into the empire or government, and the full duration of their reign". For this, he claimed to have used "some ancient annals of the Mexicans, starting from the year 1402, as well as other paintings by them, and also the original books of the Secretary of Government and War of this New Spain"[13] (quoted by MORE, 2013, p. 153). Sigüenza may have been involved in a dispute over interpretation, for he additionally underscores that he followed a strict methodology based on a careful collation and reading of archival sources in order to defend his scholarship against those who had called it into question.

Explicitly, Sigüenza made a telling association; he referred to Mexica calendrical sources as "annals", referring to the European genre. His project was thus not just to compare, but also to elevate Indian time-reckoning sources to the Christian historical record. However, he did not expound on his method, announcing that his procedures would be explained elsewhere:

> As to the adjustment of our calendar days, which coincided with those of the Mexica Calendar, more information (*noticia*) is needed, which can only be delivered in my treatise *Cyclographia Mexicana*, if it ever comes to see the day[14] (SIGÜENZA Y GONGORA, quoted by MORE, 2013, p. 154).

13 More (2013, p. 153) gives the Spanish original, from which we have translated: "no trasladandolos de algunos Autores, que solo ponen su orden, y quizas con algunas imperfecciones (...): sino especificando el dia de su entrada en el Imperio, o Govierno, y todo el tiempo de su mando; para lo qual me vali de unos Annales antiguos de los Mexicanos, que comiençan desde el año de 1402 y de otras pinturas suyas, como tambien de los libros originales de las Secretarias de la Governacion, y Guerra, de esta Nueva-España".

14 More's transcription reads: "En lo que toca al ajuste de los dias de nuestro Kalendario, que coinciden con los del Mexicano, es necesaria, mas noticia, que no se puede dar sino es en mi *Tratado de la Cyclographia Mexicana*, si alguna vez viere la luz".

To conclude, we consider worth noting that elevating the epistemic status of Indian records was not a singular effort in Sigüenza's immediate context. Especially in Jesuit elites who worked in close connection with key viceregal institutions such as the Inquisition, the Metropolitan Cathedral, and the Real Universidad de México, understanding the history of Mexican antiquities and the role of astral knowledge within a lost tradition was of utmost importance in the justification of a pre-Hispanic history of Christianity in New Spain.

Luis Becerra Tanco (1675, [sig. Av]), the first reader and later the first official chair of Mexican language, and Chair of astrology at the Royal University of Mexico prior to Sigüenza, was deeply invested in unearthing astronomical legitimacy that would support the "juridical inquiry" (*averiguación jurídica*) of the apparition of the Virgin of Guadalupe. His agenda was to prove that the Virgin appeared to the Indians in their language and that she was a part of their history; that is, of their conversion from idolatry to Christianity. Claiming that with great pains he had learned to read the Mexica system of computation in their time wheels, numbers, paintings, and characters, he dated the apparition of the Virgin in the outskirts of Mexico City to the year 590 after the foundation of Mexico-Tenochtitlan (BECERRA TANCO, 1675, f. 11). Giving news of his chronological conversion allowed him to establish a prehistory of the Virgin's apparition in terms of the Mexican tradition.

To create proof for this case, he needed to claim the legitimacy of Mexican astral timekeeping. He identified parallelisms between the patterns of inscriptions made on Mexican manuscripts and the Gregorian and the Hebrew calendars (52 solar years, each corresponding to 365 days, as well as lunar months that Mexicans allegedly called them after the moon, just as in Hebrew). For religious rituals, he also describes another calendar made of eighteen months of twenty days each, to which they would add five additional days that he compared to the leap years in the Gregorian calendar. These Mexican sources, which he calls paintings (*pinturas*) and maps (*mapas*), recorded historical events and, if they were stripped of their "superstitious" aspects, held the same truth

and legitimacy as documents drawn up by public notaries (BECERRA TANCO, 1675, f. 12r-v).

Becerra Tanco (1675) traced the continuity of reading and interpreting these Mexican astronomically based records beyond the coming of the Spanish Monarchy. The pre-Hispanic tradition of memory keeping continued, he claimed, when the Indians learned to read and write the alphabet, especially in the Colegio de Santa Cruz de Tlatelolco. They copied ancient memorable events from paintings and maps, in addition to new events, and gave credited accounts both in the Mexican pictorial language and in alphabetic script. Becerra underscored that at this time the Indians also wrote about the propagation of the Gospel in the New World, especially in what concerned the history of the apparition of the Virgin of Guadalupe. It is worth emphasizing here that in his description of these instruments of memory, Becerra Tanco highlighted astronomically based correlations to claim not just the trustworthiness of Indian calculations but, moreover, their universal validity according to astronomically based Christian and Jewish chronology.

Finally, through an examination of as many astronomically based Indigenous sources as he could gather, he set out to prove that before the conversion of the Indians to Christianity, the devil had deceived the Mexican people by investing a deity, who went by the names of *Teotenantzin* (meaning mother of the gods), and *Toci* (our grandmother), the attributes of the Virgin. That idolatrous deity was venerated precisely in the place where the Virgin of Guadalupe made her miraculous apparition. By the Virgin's providential presence in that precise site of that cult, she freed the Indians of their idolatry. So, by establishing the Mexica history with legitimate astronomical computations, he argued that the Virgin of Guadalupe had actually been destined to reveal herself to the Mexicas. Like Sigüenza and Rocha, throughout his argumentation, Becerra Tanco (1675, f. 19r-v) appeals to observation and evidence, not authority. He presents eyewitnesses, that is, people raised in the tradition of Mexican memory keeping that were born before or not long after the arrival of the Spanish in New Spain. He gave no credit to his Mexican contemporaries.

Becerra Tanco's work was profoundly influential in the Jesuit circle around Sigüenza. For instance, Francisco de Florencia (1688, p. 1-2), rector of the main Jesuit colleges in Puebla and Mexico, began his history of the apparition of the Virgin by asserting her presence, in the form of a lunar eclipse that immediately preceded the foundation of Tenochtitlan. Given astronomy's capacity to date past events through recorded phenomena, like eclipses, and the possibility of translating different calendars with such tools, this astral discipline appeared to men like Becerra Tanco, Florencia, and Sigüenza as the best tool for putting such deeply consequential stories on a firm, authoritative basis. In Sigüenza's milieu, astronomy was used for the computation of concordances between the Indian and Christian time cycles and this form of knowledge was a legitimized epistemic framework for the reappraisal of local ancient history in universal Christian time. The history sought out by these Creole intellectuals allows time to be domesticated and ordered in a succession that accommodates the pre-conquest American past and the longing for salvation in a single narrative.

Conclusions: Questions of Evidence

The early modern project of using astral knowledge for the writing of history was adapted to different media, genres, and occasions in the American colonial settings that we investigated. This form of knowledge was the backbone of an exuberant pageantry display for the entry ceremony of a new viceroy in Mexico, the presentation of an almanac, a treatise of the origins of the Indians, or a public letter by a viceregal magistrate. It was also, unsurprisingly, a fundamental argumentative tool in astronomical disputes over the significance of comets. The mobilization of astral knowledge was a crucial tool for the creation and legitimization of a framework for representing human action in space and time. However, the ways in which this knowledge was played out relied on particular agencies and contexts.

What brings the Creole authors discussed in this essay together is their continuous quest for rational and legitimate tools for the writing of

history. One of the backbones of their strategies was the mobilization of a legitimate method of producing compelling evidence for history writing. In other words, in common there was an epistemological concern regarding the presentation of proof. Indeed, both of Rocha's works are representative of an epistemology and style of argumentation typical of seventeenth-century Ibero-American legal and political thought. Rocha confronts both sets of questions (the origin of the Indians and the significance of the comet) armed with the tools furnished by the second wave of Scholastic thought, which dominated Iberian educational institutions, from Jesuit colleges to universities, on both margins of the Atlantic. He tries to reduce every problem to proper syllogisms, and, more generally, strives to demonstrate the necessity of his conclusions by ruling out every possible alternative or objection to his preferred views (BLAND, 2016, p. 187-99). For Sigüenza y Góngora, astronomical data, through a detailed scrutiny of sources, was treated as a piece of rational proof, like so many records in the civil and ecclesiastic bureaucracy.

If only we remember that "empirical data" in this context necessarily included sound similarities between words, and perceived – or imagined – resemblances between people, we will come to understand that Rocha shared with Sigüenza the exact same stance regarding the legitimacy of knowledge claims. Debating whether this stance was "modern", "pioneering", "archaic", "original" or "derivative" – terms all too frequently encountered in analyses of knowledge production in the colonial Americas – seems to us to completely miss the point. In Rocha's case, astral knowledge appears partly as a rhetorical device intended to reaffirm his mastery of a tool that any chronologer worthy of this name should know, and partly as a component of the very epistemic architecture of his treatise. The fact is that Rocha did not find sufficient evidence in the correlation between observed characteristics of comets and their presumed positive or negative influences and claimed it would be irrational to ascribe them any capacity for interfering in human affairs and history. He required additional proof of cause and effect. The Mexican cosmographer held a perfectly similar belief: he claimed that opinions do not suffice to ascertain that comets are nefarious appearances, and

that their supposedly calamitous effects could not be explained through reason. Sigüenza's aim was, in the first place, to assert that opinions do not suffice as proof; and second, that reason and evidence are essential for the construction of authority. Behind this argument, what was at stake was precisely the meaning of "authority" or, in other words, the construction of epistemic legitimacy.

It cannot pass unnoticed how ironical it is that that Sigüenza came to epitomize all sorts of projections, onto the past, of hopes for alternative or colonial modernities, Creole awakenings, processes of identity building, the establishment of "scientific rationality" in Mexico (before, concurrently, or right after its supposed emergence elsewhere, depending on the narratives being argued for or against), and many other historical developments and landmarks. None of this seems easy to square with the fact that his ways of managing evidence and its epistemic value are so like the "old-fashioned" Limeño magistrate's. Both men were learned civil servants with similar training: both had studied canons and the art of judicial reasoning; both appealed to reason and evidence as legitimate epistemic methods; and both sought their own legitimation in viceregal contexts.

Through these not so different efforts to come up with a unified history of humankind, free of apparent contradictions between Scripture and classical authorities, and their modern interpreters, Rocha and Sigüenza carved out a place for their respective viceroyalties in a unified history of humankind. An important point to be made is that the establishment of credible chronologies – including the ones that could lead to a solution to the question of American origins – opened a set of politically charged epistemic questions. For men like Rocha and Sigüenza, who lived in a world where histories of comets, of the New World, and of the origin of Amerindians, were equally framed in a Christian universal history, chronological order was based on and at the same time reasserted social order on several scales. Chronological order informed these scholars' relationships with other members of the colonial elite and the viceregal courts (not to mention with the Spanish empire itself), as well as the relations between Indians, Spaniards, and

Creoles between themselves and each other. Political legitimacy, and the very organization of colonial polities, hinged on the settlement of conflicting claims of genealogical precedence, jurisdictional disputes that had to be solved with a recourse to ancient uses and customs, and, ultimately, to the place of the Americas in the universal history of salvation. In fact, what brings Rocha and Sigüenza together is their desire for an authoritative way of writing history, which would in turn allow for the weaving of particular histories into the larger history of redemption.

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