

‘Las ciencias curiosas’: Curiosity, Studiosness, and the New Philosophy in the *Carta de Sor*

Filotea de la Cruz and the *Respuesta a Sor Filotea de la Cruz*

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Curiosity and the *Respuesta*

The autobiographical letter from the Mexican nun and poet, Sor Juana Inés de la Cruz (1651-1695) to the Bishop of Puebla, Manuel Fernández de Santa Cruz, the *Respuesta a Sor Filotea de la Cruz* (1691; henceforth the *Respuesta*) remains one of the most studied, yet most misunderstood, texts in her extensive body of writings. In November 1690, Fernández de Santa Cruz published, without Sor Juana’s permission, a treatise entitled *Carta atenagórica* (1690), which the Jeronymite wrote in response to a sermon given by the Jesuit Antonio Vieira in 1655 on the question of ‘la mayor fineza de Cristo’, or the greatest demonstration of Christ’s love for mankind. As an introduction to the treatise he appended a pseudonymous letter written in the guise of a nun from Puebla, Sor Filotea de la Cruz, the *Carta de Sor Filotea* (1690; henceforth the *Carta*), in which he critiqued Sor Juana’s treatise and her commitment to intellectual pursuits. In response, Sor Juana penned the *Respuesta*, a defence against the accusations the Bishop had levelled against her.

As Rosa Perelmuter Pérez has noted, throughout the history of its reception most critics have interpreted the *Respuesta* as one of the first feminist documents to be written in Spanish America (Perelmuter Pérez 1983: 147). Octavio Paz, among others, interpreted the text’s driving force as a defence of women’s learning: ‘Se da cuenta de que la atacan sobre todo por ser mujer y de ahí que su defensa se transforme inmediatamente en una defensa de su sexo’ (Paz 1982: 538). More recent studies have expanded their spheres of analysis to include rhetorical aspects of the text (Bokser 2006; Scott 1994; Segura 1994; Ludmer 1991;

Merrim 1985), its relationship to the nun's *vita* (Myers 1990), its list of women of letters (Peraita 2000; Jaffe 1993), and the construction of subaltern subjectivities (Martínez San Miguel 1994). Nonetheless the vast majority of critics still situate the text primarily within the literary and socio-historical context of women's writing and women's access to knowledge.¹ While its concern with gender is certainly important, this single-minded approach has led commentators to overlook other significant aspects of this compendium of Baroque knowledge. In this essay, I place the exchange in the context of contemporary discourses surrounding knowledge, its acquisition and application. It is within these parameters that I then turn to the question of gender, re-reading both the *Carta*'s and the *Respuesta*'s engagement with women's access to knowledge in seventeenth-century Spanish America through a reevaluation of Sor Juana's description of her intellectual method.

In order to do this, I examine a significant feature of both the *Carta* and the *Respuesta* that remains unexplored by commentators – the accusation against Sor Juana of the sin of curiosity, and her response. Re-reading the *Carta* and the *Respuesta* as texts that engage with the word 'curiosity' not only offers a more historically grounded approach to understanding the disagreement that underlies the texts, but also demonstrates how these two letters engaged with a word at a point in the late seventeenth century that witnessed a significant reevaluation of its meaning and application. In this, I build on Neil Kenny's work on the history of curiosity in the early modern period.² In doing so, I apply his approach to a new transatlantic context and also identify some of the limitations of his approach when applied to texts written by women.

¹ Only one article has addressed the influence of Thomist thought, although it does not comment on the significance of 'curiosity' (Montross: 1980).

² Kenny uses the term 'curiosity' to refer to a family of terms across European languages that encompasses curiosité, curiositas, and Neugier, among others. For ease of reference, in discussion of his work, I use the term 'curiosity', though in discussion of the *Carta* and the *Respuesta* I revert to the Spanish terms used in the letters, 'curioso' and 'curiosidad'.

Kenny argues that in early modern Europe, curiosity was a key word in regulating the circulation of knowledge. This discourse was defined by a multiplicity of opposing voices, each with equally strong convictions about what the term meant. Across European institutions, writers fought over radically different concepts of curiosity. Among these discordant voices, however, Kenny charts two significant and related transformations in the understanding of the term over the course of the seventeenth century. First, the term underwent a reversal in moral value, from being a largely, but by no means exclusively, negatively charged term, to being a dominantly, though by no means entirely, positive one. At the same time, in certain discourses, curiosity became associated with novelty, and a desire for all things new, in particular as it was associated with the development of scientific investigation. In this way, use of the word curiosity could signal discussion of modern scientific ideas and practices (Kenny 2004).

While Kenny's study of curiosity primarily concerns France and Germany, he has also charted changes in the use of the term across Europe (Kenny 1998). More recent studies have also addressed the changing fate of the term in Spain. Jesús Pérez Magallón has shown how in Spain, 'curiosidad' became an attribute of the New Philosophy, and how the discourse around it demonstrates the moral and theological anxieties that accompanied these new ideas (Pérez Magallón 2002: 46-51). By examining the use of 'curiosidad' in the *Carta* and the *Respuesta*, I expand Kenny's and Pérez Magallón's arguments beyond Europe, and provide an example of how the term was negotiated in late seventeenth-century Spanish America. In this, I follow Kenny's lead in examining one particular instance of how writers shaped their own meaning of 'curiosity' in order to further their own social or political aims (Kenny 2004: 8). By doing so, I demonstrate how the discourse of curiosity in relation to modern scientific ideas also was present in Spanish America. I will also show how, in this particular instance,

the valuation of the term ‘curiosity’ as applied to modern scientific ideas, remained negative, in contrast to the dominant trends Kenny attests to in Europe.

Curiosity and studiousness in the *Carta de Sor Filotea*

Throughout the Middle Ages and until the seventeenth century, the meaning of ‘curiosity’ across Europe had predominantly been informed by Augustine’s definition in the *Confessions*. There, Augustine identified curiosity as the intellectual equivalent of lust – a desire for intellectual stimulation by the observation of natural phenomena, which keeps one’s attentions directed towards material things, and distracts from contemplation of the divine:

Beside the lust of the flesh which inheres in the delight given by all pleasures of the senses (those who are enslaved to it perish by putting themselves far from you), there exists in the soul, through the medium of the same bodily senses, a cupidity which does not take delight in carnal pleasures but in perceptions acquired through the flesh. It is a vain inquisitiveness dignified with the title of knowledge and science. As this is rooted in the appetite for knowing, and as among the senses the eyes play a leading role in acquiring knowledge, divine words call it ‘the lust of the eyes’. (Augustine 2008: 10.35.54)

From this Augustinian concept of curiosity as the ‘lust of the eyes’, the term became predominantly negatively charged, with an emphasis on an excessive, or disordered, desire for knowledge, in particular of the things that God has hidden from humankind: ‘Curiosidad es querer saber sobrado o desordenadamente, lo cual siempre es pecado venial’ (Navarra 1586: 23.28, cited in *Autoridades*).

The first connection between this Augustinian understanding of curiosity and the *Carta de Sor Filotea* occurs half-way through the letter, when Fernández de Santa Cruz evokes the ancient Egyptians as an example of a disordered use of knowledge. Augustine had emphasised the irony of those who study the heavens to number the stars and predict eclipses, yet are unable to perceive the darkening of their own souls. Their ‘irreligious pride’ makes them withdraw from God and ‘eclipses [His] great light from reaching them’ (Augustine 2008: 5.3.4). In a similar way, Fernández de Santa Cruz explains how the ancient Egyptians used their astrological knowledge to gain political power, rather than seeking eternal salvation:

¿Qué pueblo hubo más erudito que Egipto? En él empezaron las primeras letras del mundo, y se admiraron los jeroglíficos. [...] El Espíritu Santo dice abiertamente que el pueblo de los egipcios es bárbaro: porque toda su sabiduría, cuando más, penetraba los movimientos de las estrellas y cielos, pero no servía para enfrenar los desórdenes de las pasiones; toda su ciencia tenía por empleo perfeccionar al hombre en la vida política, pero no ilustraba para conseguir la eterna. (Juana Inés de la Cruz 2004: 1453)

The connection between the Augustinian understanding of curiosity and Fernández de Santa Cruz’s portrayal of the Egyptians can be read as an implicit attack on Sor Juana, given her well-known interest in ancient Egypt and in astronomy. Pyramids, hieroglyphs, and Egyptian deities appear throughout *Primero sueño*, *Neptuno alegórico*, and *El cetro de José*, and her knowledge of the celestial spheres is well-attested in *Primero sueño* (Hill 2000: 67-68). By attacking the erudition of the Egyptians, so often praised by Sor Juana, and phrasing his critique in terms reminiscent of the Augustinian notion of curiosity, Fernández de Santa Cruz implies that both they and she are guilty of the vice. In this, Fernández de Santa Cruz adopts the negatively charged Augustinian understanding of ‘curiosity’ that dominated church

thinking and teaching throughout the early modern period (Kenny 2004: 17; Meijering 1980; Oberman 1974).

While Fernández de Santa Cruz uses the Egyptians implicitly to accuse Sor Juana, his criticisms become more explicit further in the letter. Twice he accuses Sor Juana of the sin of curiosity, in the first instance instructing her to renounce her ‘curiosidad, que es vicio’:

Digo a V.md. lo que aconsejaba Gersón: Préstese V.md., no se venda, ni se deje robar de estos estudios. Esclavas son las letras humanas y suelen aprovechar a las divinas, pero deben reprobarse cuando roban la posesión del entendimiento humano a la Sabiduría Divina, haciéndose señoras las que se destinaron a la servidumbre. Comendables son, cuando el motivo de la curiosidad, que es vicio, se pasa a la estudiosidad, que es virtud. (Juana Inés de la Cruz 2004: 1453)

Here, Fernández de Santa Cruz explicitly accuses Sor Juana of curiosity, opposing the ‘vicio’ of ‘curiosidad’, found in the study of ‘letras humanas’ to the ‘virtud’ of ‘estudiosidad’ represented by ‘letras divinas’. This opposition recalls the distinction Thomas Aquinas created to answer Augustine’s critique of curiosity. In the *Summae Theologiae*, Aquinas distinguished ‘studiositas’ (‘studiousness’, or Fernández de Santa Cruz’s ‘estudiosidad’), a devotion to learning, from Augustinian ‘curiositas’, an unhealthy appetite for knowledge. According to Aquinas’ definition, learning had to be directed towards the deepening of one’s faith, limit itself to the bounds of human intelligence, and be directed to something useful and not to anything harmful. If these conditions are fulfilled, then ‘this studiousness about the knowledge of sensible things is virtuous’ (Aquinas 1991: 167.1-2).

Fernández de Santa Cruz’s comments, however, make it clear that Sor Juana’s pursuit of knowledge fails this test, and therefore falls under the remit of ‘curiosidad’. For the

Bishop, only ‘letras divinas’, the study of Scripture, aided by prayer and contemplation, count as ‘studiositas’. All worldly learning, ‘letras humanas’, therefore count as ‘curiosidad’. He cites Jean Gerson, the fifteenth-century chancellor of the University of Paris, to support his point. In a series of lectures given as chancellor in 1402, *Contra curiositatem studentium*, Gerson criticised the attempts of philosophers to obtain truth beyond that which is revealed to them by God (Gerson 1969: 31).

Further in the text, Fernández de Santa Cruz repeats his accusation of curiosity levelled at Sor Juana:

No es poco el tiempo que ha empleado V. md. en estas ciencias curiosas; pase ya, como el gran Boecio, a las provechosas, juntando a las sutilezas de la natural, la utilidad de una filosofía moral. (Juana Inés de la Cruz 2004: 1453)

Here, Fernández de Santa Cruz aligns curiosity, through the evocation of ‘ciencias curiosas’ with ‘filosofía natural’, which he opposes to ‘filosofía moral’, and which can in turn reflect the same distinction he had created earlier between ‘letras humanas’ and ‘letras divinas’. Natural philosophy, the study of the material world, and secular learning, are both categorised as ‘curiosidad’, whereas moral philosophy and the study of Scripture are thus implicitly ‘estudiosidad’ and therefore admirable practices.

To his citation of Gerson, above, Fernández de Santa Cruz adds the authority of Boethius. In *De consolazione philosophiae*, Boethius had argued that the path to happiness was through introspection, contemplation, and prayer, as opposed to through knowledge of earthly things, which are mere shadows of the truth (Boethius 1999: III.ix). In a later work, in imitation of Boethius, *De consolazione theologiae*, Gerson argued the same of theology (Gerson 1998). Both men, however, advocated a specific point that is crucial to

understanding Fernández de Santa Cruz's criticism of Sor Juana. For Boethius and Gerson, natural philosophy was dangerous because it emphasised applied knowledge over revealed truth, which in turn was closely associated with the practice of an active life in search of knowledge, over a contemplative life focussed on receiving divine revelation.

Gerson emphasised that the categorisation of a particular activity as curious depended on its aim, which in turn was influenced by the vocation of the person in question (Gerson 1969: 29). As a woman religious, Sor Juana was expected to lead a purely contemplative life. For Fernández de Santa Cruz, this was the only way to come to a better knowledge of God, through self-analysis and prayer (Glantz 1998). The letters he wrote to the nuns under his authority in Puebla admonish them to give themselves over to the will of God through the annihilation of earthly desires: 'Hija mía el camino que has de llevar no admite sequedades, porque si el camino adonde caminamos es la aniquilación y no quieres nada; quien tiene la sequedad quiere el consuelo y esta es falta en el ejercicio de la aniquilación' (Torres 1722: f.401). For Fernández de Santa Cruz, Sor Juana's active pursuit of worldly knowledge was incompatible with her contemplative vocation as a woman religious, as it did not further her pursuit of God, and placed her in danger of eternal condemnation (Juana Inés de la Cruz 2004: 1453). By categorising her activities as 'curious', he condemns them as sinful, thereby asserting his authority to control her access to knowledge and her participation in its exchange.

Curiosity and the modern scientific method

Fernández de Santa Cruz's development of 'curiosidad' in the *Carta* suggests that his application of the term to Sor Juana had a specific connection to modern scientific practices, a connotation the term had acquired across Europe by the late-seventeenth century. Already in 1402, Gerson's lectures posited a connection between curiosity and the empirical method

of acquiring knowledge, in particular the use of observation to determine the causes of things (Gerson 1969: 37). Over the course of the seventeenth century, with the development of the scientific method across Europe, this association between curiosity and empirical observation became ever stronger. In contrast to Gerson's description, however, the seventeenth-century association between the scientific method and curiosity was, for the most part, articulated in positive terms (Kenny 2004). In Spain, the evidence for this shift in meaning is more sparse than it is for France or Germany, but there are examples found as early as 1622 that associate curiosity with the practice of empiricism, giving it a positive valuation, as in Francisco de Barreda's *Invectiva a las comedias*:

Es el arte una observancia atenta de ejemplos graduados por la experiencia y reducidos a método y a majestad de leyes. Su principio es la curiosidad. Véase en la medicina: advertían los hombres cuáles remedios aprovechaban, cuáles dañaban, cuál enfermedad desesperaba de la salud, cuál la prometía cercana. Y desta atención hicieron preceptos que, reducidos a método, llamamos arte. (ctd. in Pérez Magallón 2002: 47-48)

Barreda identifies 'curiosidad' as the starting point of an epistemological method that operates by carefully observing the material world, ordering what one sees according to past experience, and thereby deducing the laws which govern the properties of things. His approach associates him, relatively early in the seventeenth century, with the ideas of the New Philosophers, who rejected authority as a means to knowledge, and adopted an epistemology based on observation and experimentation. For Barreda, not only is curiosity a key element of the empirical method, but it is thereby a worthy characteristic, to be cultivated rather than disparaged. Later in the century, the Jesuit Juan Eusebio Nieremberg, in *Curiosa y oculta filosofía*, suggested a connection between curiosity and the New Philosophy, the seventeenth-century movement which promoted the use of observation and experimentation

in the acquisition of new scientific knowledge. Nieremberg described his book as an: ‘obra muy útil, no solo para los *curiosos*, sino para doctos escriturarios, filósofos y médicos’, whose aim was to investigate ‘secretos y problemas de la naturaleza con *Filosofía nueva*’ (Nieremberg 1643: [frontispiece], my emphasis).

Looking more closely at the *Carta*, there is evidence to suggest that Fernández de Santa Cruz was referring to the adoption of an empirical method in his accusation against Sor Juana. In his letter, he counsels Sor Juana to imitate Justus Lipsius, the founder of Neo-Stoicism, one of the philosophical movements that dominated seventeenth-century Spain and that rejected the material world as a source of moral truth. In doing so, he implicitly admonishes her to reject the senses as a source of knowledge, and instead to refer to the authority of the ancients, as well as to remind herself of the fallibility of the senses and of the material world.

At the end of the letter, as the last authority Fernández de Santa Cruz cites, he points to Saint Jerome, patron of Sor Juana’s order, as an intellectual model for her to follow.

A San Jerónimo le azotaron los ángeles porque leía en Cicerón, arrastrado y no libre, prefiriendo el deleite de su elocuencia a la solidez de la Sagrada Escritura; pero loablemente se aprovechó este Santo Doctor de sus noticias y de la erudición profana que adquirió en semejantes autores. (Juana Inés de la Cruz 2004: 1453)

Fernández de Santa Cruz references Jerome’s autobiographical narrative in which he dreams that he has been brought before a heavenly court, and is accused of following the teachings of Cicero. The vision had a profound impact on Jerome, and afterwards he vowed to renounce secular learning and to devote himself to Biblical scholarship (Rebenich 2002: 8-9).

Fernández de Santa Cruz’s account, however, reverses the story, and emphasises the benefit

that Jerome gained from reading Cicero. His revisionist reading of the story emphasises the value of classical authorities, even of pagan authors, over new ideas acquired from experiential learning.

Fernández de Santa Cruz's choice of Cicero as an example of profitable reading also points to a potential further criticism of Sor Juana's intellectual pursuits. Cicero was known for being a critic of Epicurus, in particular of his physical atomism and his theory of the atomic swerve to explain how atoms came into contact with one another when their natural motion was to move downwards in a straight line (Cicero 1991: 1.20). By citing Jerome's reading of Cicero as an example of beneficial secular reading, it is possible that Fernández de Santa Cruz is alluding to Cicero's critique of atomism, and therefore implicitly warning Sor Juana of the dangers of atomism as a particularly radical position held by certain adherents to the New Philosophy.

To accuse Sor Juana directly of atomism would have been a serious charge in the late-seventeenth century Hispanic world, for atomism, in the sense used by Lucretius in *De natura rerum*, denied the existence of a divine order in creation. Furthermore, it was also incompatible with the Catholic doctrine of transubstantiation, as it denied the existence of attributes of things beyond their accidents, thus excluding the possibility of a change in substance without affecting the accidents. In 1745, the Spanish doctor and *novator*, or New Philosopher, Diego Mateo Zapata (1664-1745), who had been imprisoned by the Inquisition, included Sor Juana in his list of prominent Hispanic anti-Aristotelians and atomists (Zapata 1745: 22-23). While he does not accuse her directly, and there is no explicit reference in her works to atomist thought, it is possible that Fernández de Santa Cruz associated empiricism with the more radical atomism, and warned Sor Juana of the dangers of both.³

³ For an analysis of possible atomist influence on Sor Juana's works, see Hill (2000).

By presenting Sor Juana with the examples of Justus Lipsius, Jerome, and Cicero, Fernández de Santa Cruz implicitly orders Sor Juana to exchange her empirical interest in the natural world for a rejection of material things and contemplation of the divine. The advice the Bishop gives Sor Juana is articulated in such a way as to directly target her as someone who has rejected a neo-Stoic approach to the world, and is engaged in what he sees as the dangerous practice of natural philosophy. In doing so, he presents an understanding of curiosity that exemplifies yet nuances Kenny's and Pérez Magallón's presentation of the transformation of the term in the seventeenth century.

Both critics argue that curiosity's association with the new scientific method was concomitant with its increasingly positive valuation in the seventeenth century (Kenny 1998: 66; Pérez Magallón 46). In the context of such revaluations, Fernández de Santa Cruz's use of 'curiosidad' is especially significant; while he acknowledges the association between curiosity and the practice of empiricism, he continues to incorporate them under the old Augustinian negative understanding of curiosity. His insistence that the only path to God is through the rejection of all material desires stands in direct contradiction to the tenets of the New Philosophers, whose energies focussed on the material world. Fernández de Santa Cruz's conception of 'curiosidad' encompasses both old and new understandings of the term. His letter demonstrates his awareness of its late seventeenth-century use to denote natural philosophers and empiricists, and his accusation of Sor Juana as 'curiosa' includes these connotations. Nonetheless, his strict asceticism and adherence to neo-Stoicism mean that he remains wedded to the Augustinian moral understanding of curiosity as one of the three primal sins. For Fernández de Santa Cruz, the empiricism of the New Philosophers, among whom he counts Sor Juana, remains sinful, a dangerous embracing of the material world, and a distraction from the contemplation of God.

Flour and Spinning Tops: Curiosity and studiousness in the *Respuesta a Sor Filotea*

This two-fold accusation of Sor Juana – that she is a practitioner of the New Philosophy, and that as such she is also guilty of the sin of curiosity, requires a strong yet subtle defence. In the *Respuesta*, Sor Juana does not distance herself from the substance of Fernández de Santa Cruz’s claims. Indeed, she affirms her practice of empiricism, and presents herself as a natural philosopher, and a practitioner of scientific experiments. However, she also seeks to demonstrate that these practices are compatible with Catholic faith and with her vocation as a woman religious, and therefore that they do not make her guilty of the sin of curiosity. Sor Juana responds to the Bishop’s understanding of what constitutes ‘curiosidad’ with an understanding of her own that engages with its changing meaning in a different way, and which therefore offers us another perspective on the transformation of ‘curiosidad’ in the late seventeenth-century Hispanic world.

In the following analysis of the *Respuesta*, a different approach is required to that taken in the analysis of the *Carta*. In the *Carta*, the engagement with the discourse of curiosity was evident both through direct use of the ‘curiosity’ family of terms, and through references to discussions of the term in other texts. Dealing with the *Respuesta* is more complicated; nowhere in the text does Sor Juana mention any of the ‘curiosity’ family of terms. However, she nonetheless responds to Fernández de Santa Cruz’s ‘curiosidad’ and ‘curioso’ by addressing the substance of his letter.

Several critics have identified the importance of silence in the rhetoric of the *Respuesta*, arguing that the text is grounded in a complex negotiation between the mutually exclusive terms, for women, of knowing and saying (Ludmer 1991; Segura 1994). The proscription against Sor Juana to say what she knows also precludes her from explicit participation in the discourse of the control of knowledge that the ‘curiosity’ family of terms

implies. In examining Sor Juana's engagement with 'curiosity', therefore, we must look for where the term is articulated implicitly. In the following, I concentrate on three areas where this might be heard through the silence: in her response to the ideas that Fernández de Santa Cruz subsumes under his definition of curiosity, in intertextual references to her own use of the terms elsewhere in her work, and in her use of the Thomist understanding of 'estudiosidad'. This is not to switch from a 'word based' to a 'concept based' approach to the two texts (Kenny 2004: 7). Rather, it is an acknowledgement of the fact that in certain contexts, the words that control discourses of knowledge remain out of bounds to some writers, in particular women, and therefore that those words can only be analysed in their absence. As such, it addresses, and remedies, one of the weaknesses of the 'word based' approach, and provides a model for further research into texts written by women, and others in marginalised or precarious positions within society.

In an often-cited passage of the *Respuesta*, Sor Juana describes standing in one of the convent dormitories, and observing the optical illusion created that the parallel walls appear to run on a diagonal, and that the far wall appears smaller than the near one, when both are the same size. By judging the information received by her sight against her experience of the reality of the room, she is able to deduce the notion of the visual pyramid:

Paseábame algunas veces en el testero de un dormitorio nuestro (que es una pieza muy capaz) y estaba observando que siendo las líneas de sus dos lados paralelas y su techo a nivel, la vista fingía que sus líneas se inclinaban una a otra y que su techo estaba más bajo en lo distante que en lo próximo: de donde infería que las líneas visuales corren rectas, pero no paralelas, sino que van a formar una figura piramidal. (Juana Inés de la Cruz 2004: 1474-1475)

As Jeremy Robbins notes, the conclusion she comes to is less significant than the means by which she has obtained it – what she describes here is a nascent experimental method that brings together experience and reason (Robbins 2006: 243). Furthermore, this passage begins a defence of the utility of the empirical approach that seeks to order it under the Thomist definition of ‘studiousness’, rather than under the Augustinian understanding of ‘curiosity’.

Further in the letter, observation turns into practical experimentation. While watching two girls play with spinning tops, Sor Juana observes the continued circular movement of the top after the girl has released it from her fingers, and wonders where the force behind the movement (‘causa motiva’) comes from, if no longer from the girl’s hand. To answer her question, she sets up a practical experiment to ascertain how the top moves, which she describes as follows:

Y no contenta con esto, hice traer harina y cernerla para que, en bailando el trompo encima, se conociese si eran círculos perfectos o no los que describía con su movimiento; y hallé que no eran sino unas líneas espirales que iban perdiendo lo circular cuanto se iba remitiendo el impulso. (Juana Inés de la Cruz 2004: 1475)⁴

By dusting the floor with flour, and spinning the tops again, she determines that they do not spin in a perfect circle, but rather in a spiral. She is therefore able to ascertain that the force behind the movement is the hand, but that the effect of its force diminishes over time, thus creating smaller and smaller circles in a spiral pattern. Rejecting the Aristotelian method

⁴ Sor Juana does not specify when the observations she details in the *Respuesta* take place. While the term ‘dormitorio’ clearly indicates that the first occurs in the convent, it is less clear at what point her experiment of the top, or her observation of the pins took place. On the one hand, Sor Juana makes frequent reference to the continuous nature of her observations. On the other hand, all three events are narrated as part of the consequence of the prioress banning her from bookish study, which led Sor Juana to learn instead from the world around her, suggesting that they may have all taken place during this time (Juana Inés de la Cruz 2004: 1475).

of deducing effects from pre-ordained causes, she embraces the modern method of deducing causes from observed effects.

Further in the letter, her experimentation teaches her not only about causes, but also about the properties of things, as shown in her description of the convent kitchen, where she observes the transformation of eggs as they come into contact with other substances. Her much-cited exclamation, ‘Si Aristóteles hubiera guisado, much más hubiera escrito’, affirms her rejection of the Aristotelian method of logical reasoning in favour of an empirical approach to knowledge (Juana Inés de la Cruz 2004: 1474). In her description of the eggs, Zapata notes, she gives an example of practical experimentation that ‘puede servir de rubor a todos los que vuelven la espalda a las experiencias, de donde se aprehende tanto’ (Zapata 1745: 22). Her reference to Aristotle inverts Fernández de Santa Cruz’s allusions to classical philosophers. Whereas Fernández de Santa Cruz counselled that reading classical authorities would temper her interest in natural philosophy, and demonstrate the truth of Aristotelianism, Sor Juana counters that observation and experimentation would convince even Aristotle himself of the correctness of the empirical method.

In these descriptions of her intellectual pursuits, Sor Juana aligns her practices with the more positive understandings of ‘curiosidad’ that were prevalent in the seventeenth century, and ran counter to the negative, Augustinian understandings espoused by Fernández de Santa Cruz. Indeed, her description of methodical and attentive observation closely mirrors Barreda’s definition of curiosity in *Invectiva a las comedias*. Furthermore, her attention to detail, and her constant search for knowledge and new ways of learning reflect the terms in which Covarrubias described the ‘curioso’: ‘el que trate alguna cosa con particular cuidado y diligencia’, or ‘el que anda siempre preguntando por qué es esto, por qué estotro’ (Covarrubias 1611). In Sor Juana’s search for new knowledge, she demonstrates the care with which she undertakes each experiment. Her desire to learn is driven by her urge constantly to

ask why – why the walls appear to slope, and the top keeps moving, and the eggs fry in butter but dissolve in syrup. By asking such questions, she discovers the hidden forces and secret properties that lie behind the physical appearance of things.

At no point does Sor Juana seek to disavow her interest in the material world. Indeed, her descriptions of her rudimentary scientific experiments affirm many of the accusations Fernández de Santa Cruz had levelled at her: she is intimately concerned with the material world, and she rejects the neo-Stoic morality that lies behind his injunction for her to renounce her study of creation. Her defence against the accusation of the sin of curiosity does not consist in distancing herself from the attributes Fernández de Santa Cruz puts forwards as characteristic of the curious. Rather, her defence lies in articulating a different understanding of ‘curiosidad’, and in arguing that her intellectual pursuits do not lead her to fall foul of this vice. Against the trend that has been studied of ‘curiosidad’ being claimed as a positive attribute of the New Philosophers, Sor Juana seeks to distance her practices from the remit of curiosity and instead to order them under the definition of ‘studiousness’, thus defending them without bringing into question the orthodox understanding of the vice. As she writes in the *Respuesta*, all of her studies of creation lead her to a deeper understanding of the divine order in creation:

‘Nada veía sin refleja: nada oía sin consideración, aun en las cosas más menudas y materiales; porque como no hay criatura, por baja que sea, en que no se conozca el *me fecit Deus*, no hay alguna que no pame el entendimiento, si se considera como se debe.’ (Juana Inés de la Cruz, 1474)

Although nowhere in the *Respuesta* does Sor Juana use ‘curiosidad’ or ‘curioso’, her silence is crucial in communicating what she believes curiosity was not. She does, however, mention curiosity elsewhere in her works. In her poem ‘Acusa la hidropesía’, in which she

criticises an excess of knowledge, ‘curiosity’ is contrasted to necessary learning: ‘por cuidar de lo curioso, olvida lo necesario’ (Juana Inés de la Cruz 2004: 419-20). In *Primero sueño*, ‘curiosidad’ is positively valued, but only because it is given the qualifier ‘útil’, implicitly contrasting it with the more common ‘vana curiosidad’ (Juana Inés de la Cruz 2004: 456, l.723). For Sor Juana, ‘curiosidad’ is defined by a desire for excessive, and therefore useless, knowledge, which, as Ruth Hill has argued, she contrasts to the restrained and prudent search for learning that characterises the empirical method, as advocated by Francis Bacon, among others (Hill 44-46). As long as the knowledge one seeks is useful, the one searching for it is not curious.

The absence of the terms ‘curioso’ and ‘curiosidad’ in the *Respuesta* is further emphasised by the repeated use of ‘estudio’, ‘estudioso’, and ‘estudiar’, which appear in the letter no fewer than fifty-two times. More than once, Sor Juana uses the terms several times in one sentence:

Y como no tenía interés que me moviese, ni límite de tiempo que me estrechase el continuado *estudio* de una cosa por la necesidad de los grados, casi a un tiempo *estudiaba* diversas cosas o dejaba unas por otras bien que en eso observaba orden, porque a unas llamaba *estudio* y a otras diversión; y en éstas descansaba de las otras: de donde se sigue que he *estudiado* muchas cosas y nada sé, porque las unas han embarazado a las otras. (Juana Inés de la Cruz 2004: 1466, my emphasis)

By repeatedly characterising her intellectual pursuits as ‘estudioso’ rather than ‘curioso’, Sor Juana appeals to Thomist ‘studiousness’, Aquinas’ response to Augustinian curiosity in the defence of natural philosophy, which Fernández de Santa Cruz had already qualified as a

virtue in his letter. The rhetorical impact of her repetition is strongest when she describes the opposition of her superiors to her 'estudio':

Una vez lo consiguieron una prelada muy santa y muy cándida que creyó que el *estudio* era cosa de Inquisición y me mandó que no *estudiase*. Yo la obedecí (unos tres meses que duró el poder ella mandar) en cuanto a no tomar libro, que en cuanto a no *estudiar* absolutamente, como no cae debajo de mi potestad, no lo pude hacer, porque aunque no *estudiaba* en los libros, *estudiaba* en todas las cosas que Dios crió. (Juana Inés de la Cruz 2004: 1474)

By using the term 'estudio', Sor Juana highlights what she perceives to be the absurdity of her superior's request. By definition, a Thomist virtue cannot be a matter of concern for the Inquisition. Furthermore, for Sor Juana, studying the world around us is an integral part of human activity, no more avoidable than breathing. By telling Sor Juana to renounce her 'estudio', the mother superior has confused 'estudiosidad' and 'curiosidad'; her ineptitude is further emphasised by the mention of the short duration of her tenure. In her confusion between 'estudiosidad' and 'curiosidad', and in seeking to ban Sor Juana from learning, the unnamed 'prelada' thus bears a striking resemblance in her actions to Fernández de Santa Cruz, and even more so as he appears in the guise of Sor Filotea, the pseudonym under which he wrote the *Carta*.

In order to demonstrate that her pursuit of knowledge ought to be ordered under studiousness rather than curiosity, Sor Juana must demonstrate the usefulness of the knowledge she acquires, particularly as it relates to her understanding of the divine. She illustrates the purpose of her observation through the example of the spiral motion of the spinning top. The spiral, along with the pyramid, form the two most significant physical

forms in Sor Juana's writing. A poem written to accompany her treatise on Musicology, *El caracol*, demonstrates its importance:

En él, si mal no me acuerdo,
me parece que decía
que es una línea espiral,
no un círculo, la armonía (Juana Inés de la Cruz 2004: 120, ll. 121-124).

Throughout Sor Juana's works, the spiral is a symbol of divine cosmic harmony, drawn from the platonic spiral movements of the planets, Augustine's spiral concept of mathematics, Kircher's books on acoustics, and her own knowledge of musicology, both European and American (Long 2009). In both the poem and the *Respuesta*, observation and reason serve to correct erroneous perceptions of a disordered creation, and to reveal the analogical order of the world. Not only is the top that appeared to spin with no apparent force behind its motion revealed to be ruled by the laws of physics, but it is also shown to be a symbol of cosmic harmony. Likewise, when Sor Juana observes a game of 'alfileres', observation demonstrates that laws of gravity and motion will make them fall in triangular patterns, which themselves fall one on top of the other, to make the Star of David, the mystical sign of the Seal of Solomon, which she interprets as symbol of wisdom, and a sign of the Holy Trinity.

Jugaban otras a los alfileres (que es el más frívolo juego que usa la puerilidad); yo me llegaba a contemplar las figuras que formaban; y viendo que acaso se pusieron tres en triángulo, me ponía a enlazar uno en otro, acordándome de que aquella era la figura que dicen tenía el misterioso anillo de Salomón en que había unas lejanas luces y representaciones de la Santísima Trinidad. (Juana Inés de la Cruz 2004: 1474)

As Stephanie Merrim has noted, throughout the *Respuesta*, ‘humble phenomena ... yield cosmic knowledge’ (Merrim 2010: 214). For Sor Juana, such phenomena are the first link in a great chain of being that leads to God, and which is ascended by observation and by creating connections between different experiences and areas of learning, so as to see the hidden sympathies within creation. This Neoplatonic model is crucial to Sor Juana’s defence of the orthodoxy of her practices as outside the bounds of ‘curiosidad’. Through it, she demonstrates how an empirical approach to the material world can aid ones understanding of the divine.

In her other writings, Sor Juana follows Fernández de Santa Cruz’s negative understanding of ‘curiosidad’; it retains its Augustinian sense of an excessive desire for knowledge. Indeed, for Sor Juana, ‘curiosidad’ is a danger to guard against; she is consistently strong critic of any knowledge that is accumulated uselessly or selfishly. In this, Sor Juana takes an orthodox stance, and presents further evidence for Kenny’s argument that ‘curiosity’, for the most part, retained its negative connotation within the institution of the Church. However, Sor Juana and Fernández de Santa Cruz diverge in their understanding of the relationship between curiosity and the New Philosophy. By embracing the New Philosophy, yet distancing it from the remit of ‘curiosity’, Sor Juana provides an exception to the positive turn of ‘curiosity’ among adherents to the New Philosophy in the seventeenth century. Whereas Fernández de Santa Cruz incorporated the practices of the New Philosophers into his definition of curiosity, Sor Juana excludes her own empirical practices from it. For her, the modern scientific method, when used in the service of faith, is better understood under the Thomist virtue of studiousness.

Curiosity, Gender, and Science in the Americas

Identifying the importance of late seventeenth-century debates around the nature of curiosity in the *Carta* and the *Respuesta* helps us to refine our understanding of the role of gender in the two texts. Kenny argues that, while in many arenas across the seventeenth century, curiosity was increasingly positively valued, this change was concomitant with an increasingly negative evaluation when applied to women (Kenny 2004: 384-422). The particular association between women and curiosity in medieval and early modern Europe went back to the Biblical narrative of Genesis, where it is Eve who is tempted into eating the fruit of the Tree of Knowledge, thus instigating the fall of mankind, and the exile from Eden (Genesis 3:1-7). In the Genesis narrative, Eve's desire is for excessive, or superfluous knowledge; she eats from the one tree that has been forbidden to her, and that promises to give knowledge reserved for God alone. Kenny notes that women's propensity to curiosity was often associated with a desire for excess. Knowledge or practices that were judged supplementary, apparently gratuitous, or unnecessary were often called 'curious', and in particular women's desires for extra layers—whether of clothes or of knowledge—was often denoted as curiosity (Kenny 2004: 389).

This accusation of a tendency to excessive knowledge was easily levelled at women; their perceived lack of need for knowledge in order for them to fulfil their domestic and social roles meant that any desire to learn was much more readily labelled 'curiosity'. We can see this dynamic being played out in the *Carta* and the *Respuesta*: while Fernández de Santa Cruz perceives Sor Juana's scientific pursuits as superfluous to the demands of the vocation of a woman religious, whose life should be characterised by prayer and contemplation, Sor Juana responds by demonstrating that her scientific pursuits are helpful, indeed necessary, to her religious life.

Furthermore, her use of 'estudiosidad' to counter Fernández de Santa Cruz's 'curiosidad' demonstrates how she negotiated opposition not just to the amount women knew, but also to the way in which they acquired such knowledge. Fernández de Santa Cruz was specifically concerned with Sor Juana's acquisition of applied, rather than theoretical, knowledge. In part, we might read this suspicion of Sor Juana's empiricism as that of a strict ascetic, wedded to the kind of Neostoic pessimism that defined much intellectual discourse throughout the seventeenth-century Hispanic world. In Sor Juana's epistemological optimism, he saw himself confronted by a modern way of thinking, whose principles rejected the beliefs about the created world that were at the very heart of his pursuit of eternal salvation during one's earthly life. However, Sor Juana's empirical approach also presented a threat to the traditional hierarchical structures of learning. One of the distinguishing features between the old ways of knowing and the new was the loss of reliance on either teachers or written authorities, and an emphasis on unmediated knowledge. In this way, Sor Juana's New Philosophy presents a change in attitude that is comparable to the new approach to prayer of the *alumbrados* a century earlier. Where they had proposed an experience of prayer unmediated by the ecclesiastical hierarchy, and were met with stark opposition, Sor Juana puts forward a way of learning that no longer relies on the mediation of clerics, theologians, philosophers, or other learned men.

With this in mind, her defence of her intellectual practices as 'estudioso' rather than 'curioso' becomes all the more urgent. By substituting 'curiosidad' with 'estudiosidad' she re-defines the bounds of curiosity, and ensures that her ways of knowing, especially when unmediated by men, are ordered as far away as possible from the negative associations of female 'curiosity', and are instead aligned with the practice of natural philosophy as advocated by Aquinas. Furthermore, by refusing to specify the chronological situation of her experiments, and yet grounding some of them in the space of the convent, Sor Juana gives the

impression of a continuous, God-inspired process of learning, while at the same time affirming their connection to the domestic, cloistered, female space. In doing so, she takes authority over her own access to knowledge, while remaining within the bounds of orthodox Catholic practice.

In the *Carta* and the *Respuesta* therefore, we see played out the way in which ‘to talk about curiosity was to enter an arena within which some of the period’s basic anxieties and aspirations about knowledge and behaviour were thrashed out’ (Kenny 2004). In this case, we find a conflict between two of the dominant epistemological mindsets of the late seventeenth-century Hispanic world. For Fernández de Santa Cruz, the deficiencies of the human mind, and the deceptive nature of material reality make observation a futile and arrogant task. For Sor Juana, following the New Philosophers, observation and reason are the first step to knowledge. Both use different understandings of ‘curiosity’ to defend their position.

Understanding the contested meanings of ‘curiosity’, as well as the philosophical and epistemological developments it often signified allows us to see the dynamic relationship between the concerns of knowledge, gender, and authority, that are at play in the *Carta* and *Respuesta*. In both texts, we find evidence of the debate around curiosity, in particular as it related to the New Philosophy, to the development of modern science, and to women’s participation in them, being carried out in very similar terms in Spanish America as it was in France and Germany. The exchange is evidence of the presence of a lively debate around modern scientific ideas in late seventeenth-century Mexico, even if this existed in the midst of clerical anxieties about such new practices, and resistance to these modern ideas.

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