

# *Hecho reloj:* Human Clocks, Bodies and Sexuality in Early-Modern Spanish Humorous Literature

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**I**N HIS ARTICLE, “EMBODIED Cognitive Science and the Study of Literature,” Howard Mancing brings to the attention of literary scholars the important corrective understanding that humans “are not machines, but systems, complex interrelated biological organisms that function in context and are in a constant process of (autopoietically) adapting to and dealing with that context” (“Embodied Cognitive Science” 29). Moreover, his article “Embodied Cognition and Autopoiesis in *Don Quixote*” anchors the recent volume *Cognitive Approaches to Early Modern Spanish Literature* by positioning the very necessary notion of Theory of Body as the necessary partner to Theory of Mind (38-39). As Mancing so rightly reminds us, “the complete understanding of a work of literature involves a recognition of the biological reality of life” (“Embodied Cognition” 50). Our interpretation of the auto-poietic adaptation of the individual—and by extension, the literary character as we understand him or her—is then both a function of our use of Theory of Body and Theory of Mind. In order to know about a literary character, we must know both about their mind and their body. In Mancing’s terms, “all knowledge is, at the same time, fully social and fully biological,” for the human being exists in constant autopoietic adaptation to the social *and* physical environment (“Embodied Cognition” 45).

The notion of the human machine enters a variety of early-modern Spanish discourses through clock imagery. Using the phrase “hecho reloj” / “made a clock,” writers jokingly highlighted the human body’s sexual functioning. Unlike other sensorial processes, the phenomenal experience of time corre-

sponds to “internal clocks” that, although based in physiognomy, can also respond to external stimuli. Almost all animal species have naturally occurring circadian rhythms of approximately twenty-four hours that respond to light and dark, and that regulate hormones and body temperature plus rest and activity (Campbell 102). Human fertility responds to light and melatonin, with the number of conceptions (especially of twins) falling in the Arctic Circle during the months of darkness. In the absence of light and dark cues as well as social interactions, humans settle into a body rhythm that is slightly longer than twenty-four hours, with sleeping periods rarely lasting longer than four hours (Campbell 114). The use of the image of the “clock-man” by authors such as Miguel de Cervantes and Francisco de Quevedo shows that they understood the ways in which the “internal” clocks of early-modern Spaniards were being “re-set” by social forces.<sup>1</sup>

The mechanical clock appeared shortly before 1300 CE (Mayr 5), although regimentation of daily life according to hours is generally attributed to the monastic discipline set by the Benedictine rule (Mumford 13). The innovation of the mechanical clock over water clocks or candle clocks is its use of verge-and-foliot escapement, in which the escapement controls the acceleration of two falling weights, such that a steady, constant motion is produced. Toledo built its town clock in 1371, Valencia in 1378, Burgos in 1384, Lérida in 1390, Barcelona after 1393, Sevilla in 1396, Huesca by 1423 and Zaragoza around 1424 (Morales Gómez and Torreblanca Gaspar 455). Town clocks arrived gradually in smaller Castilian towns throughout the sixteenth century, replacing daylight and church bells as the means for marking the hours (Asenjo González 176). In the sixteenth century these clocks moved from church towers to municipal buildings, not always without conflict. For Juan José Morales Gómez and María Jesús Torreblanca Gaspar, the physical removal of the public clock to a civic building mirrors the transition from ecclesiastical time, marked according to liturgical rhythms, to commercially structured units of time, as well as from the rhythms of rural labor, marked by daylight, to urban labor, marked by hours (456).<sup>2</sup> Spring-powered clocks

<sup>1</sup> For complaints about the effects of tyrannical clocks in other literatures, see Macey 24-25.

<sup>2</sup> Jacques Le Goff champions the argument for a transition from ecclesiastical time to commercial time, based on the needs of merchants and industry (48-49). Gerhard Dohrn van Rossum maintains that the rapid spread of the clock and the subsequent regimentation of time occurred for a variety of reasons, including the prestige adhering to the clock tower and the appearance the tower gave of governmental authority and order (126-72).

were invented in the mid-fifteenth century, allowing for the making of portable, compact watches and table clocks (Mayr 8). Personal watches had wheel-based mechanisms requiring winding, and were small enough to be worn as adornment, as evidenced by Carlos V's chiming earrings (Cummins 15).<sup>3</sup>

Town clocks as well as table clocks often incorporated human figures. There exists a sixteenth-century table clock in which the right arm of an automaton figure of Carlos V moves in accordance to the bells, as his figure presides over twelve shields of his imperial territories (Montañés Fontenla 22). Civic or church clocks often included automated human figures that struck a bell with a hammer or mallet. These figures went by the epithet “tardón” (literally, slow one) in Castilian or, as in *La pícara Justina*, “hombre de reloj” [clock-man] (Herrero García 21-22). Before the invention of the mechanical clock and the automata, humans were hired to ring church or civic tower bells. Into the seventeenth century the profession of keeping timepieces well-running was so important that the Spanish monarchs employed a royal clock tender whose duty was to keep all palace clocks in time with each other and the sun (Atienza 208). Continued improvement on mechanical designs of timepieces, as in any technology, can be attributed to the desire to replace human effort with that of a machine (Macey 11). Thus, the clock is an automaton insofar as it stands in for a human being.

The topos of the cosmos functioning as a clock was widespread. Good governance is associated with clocks, as seen in the title of Antonio de Guevara's *Relox de príncipes* [Clock of Princes] (1529), or even when one of Lope's characters in *Servir a Buenos* [To Serve the Good] proclaims that republics are like clocks in a tower or on the chest (Fernández, *Anxieties* 117). Religious poetry incorporates clock imagery, as in Lope de Vega's *estribillo* [a verse repeated in a poem], “Un reloj he visto, Andrés” [I have seen a clock, Andrés],<sup>4</sup> in which the Trinity is described according to clock imagery (Heiple 160). The passing of time, both with regards to passing love and the theme of earthly *desengaño* or disenchantment, finds symbolic expression in poems such as Quevedo's “Reloj de campanilla” [Clock Bell] and Francisco López de Zárate's “Enseñando a un príncipe en un reloj a aprovechar el tiempo, y a ser benigno” [Teaching a prince through a watch to take advantage of time and to be benign]. In López de Zárate's work the human appears as subject to the wear of time, with bodily parts that decay and fail at any moment (Heiple 173). The personification of clocks takes a macabre turn when Quevedo, in-

<sup>3</sup> Pocket watches were not available to a bourgeois market until Christian Huygens invented the pendulum watch in 1657.

<sup>4</sup> All translations are mine unless otherwise indicated.

spired by Hieronomo Amalteo, initiates a poetic fashion, lasting until 1681, for the *topos* of the hour glass in which the ashes of the rejected lover or the rejecting beloved flow ceaselessly through the timepiece (Asensio 18-19).

In humorous texts, the image of the human clock serves to make fun of embodied daily life, as bodily rhythms, social habits and economic interactions are held to new standards by the changes brought about by regimented time. Pedro Calderón de la Barca mocks the owner of a portable clock in his *Entremés del reloj y genios de la venta* [Interlude of the Clock and the Inn Geniuses], making fun of both the rarity of the timepiece and its bearer's obnoxious insistence on measuring time. Among the four "genios" causing laughter at the inn, including a hypochondriac, one boastful of his clothing and another of his hometown Villalpando, it is the one who always pulls out his clock to tell time that merits a title billing. The mule boy Pedro and the maid Juana joke of nightfall by making reference to the appearance of the seven "cabrillas," the stars of the Pleiades, but the clock owner pedantically consults his timepiece, proclaiming that it will soon be 7:30. The joke is on him, as Pedro responds: "¿Siete y media? ¡Jesús! ¿Qué está diciendo? / ¿Quién oyó desatino tan horrendo? / ¿En el reloj cabrillas? ¿Es esfera?" [Seven o'clock? / Jesus! What are you saying? / Who heard such madness? / Are there goats or a sphere in the clock?] (180). The clock is not only unnecessary, but turns its owner into a dullard incapable of witty verbal exchange. For example, the law in Valencia continued to stipulate that the work day was "de sol a sol" [from sun-up to sun-down] (Dohrn van Rossum 305). Nonetheless, clock hours were introduced there to limit the time for harder labor: starting in 1537, digging and chopping could only be undertaken from 7 a.m. to 5 p.m., and in 1555 from 8 a.m. to 5 p.m. Indeed, the syntagm "hecho reloj" [turned into a clock], is often used in humorous literature to refer to males who are the unwitting marks of deceit, fraud, and exploitation due to their own dulled intellect. The image extends to physical activity similar to that of the automaton rhythmically pounding and chopping--or to the laborers whose work was measured by a clock.

The joke of the human automaton, "hombre de reloj" [clock-man], appears at its most physical in picaresque novels, *entremeses* (humorous one-act plays performed between acts of other plays) and *bailes* or dances. In the *entremés*, *De ladrones y el reloj* [On Thieves and a Clock] (c. 1625) attributed to Luis Quiñones de Benavente, the *moza*, a lascivious young woman, and the *gracioso*, a stock character that plays the fool, are intent on mugging and robbing a card shark. They plan to do so by making themselves appear like a clock ("que parezcamos reloj") and then giving their target twelve hits

(“dar las doce”) (210). The joke depends on visualizing a bell, shaped like a pot, which will be rung twelve times by a mallet. Francés de Zúñiga, in his *Crónica burlesca del emperador Carlos V* [Burlesque Chronicle of the Emperor Charles V] (1529), likewise pictures the human figure fighting (or not) in terms of a human clock. Upon arriving at Valladolid, the Emperor meets the sad figures of the town leaders, Juan Rodríguez de Baeza, who seems like a drowsy ass, and the comendador Santiestevan, “que parece relox que se le van las pesas abaxo” [who looks like a clock with its weights hanging down] (102). The *pesas*, being the two weights that hang to each side of the gear mechanism in a mechanical clock, express inertia, but also testicles. Enrique Fernández quotes the reference to testicles in a quip from Juan de Timoneda’s *Buen aviso y portacuentos* [Good News and Storybook] (1564) about a woman who asked for the time from a castrated man and received this answer from another: “Mala cuenta le puede dar de eso el reloj sin pesas” [“It is not a question to be asked of a clock with no weights”] (118).<sup>5</sup> In all these instances, clock-like parts associated with rhythmic pulsation stand for physical dynamism (or lack thereof). In *La Pícara Justina* (1605), the female narrator clarifies: “¿Saben a qué los comparo yo estos amantes campanudos que hacen apariencias y no ofrecen? Parécenme que son como afinadores de órgano, que le templan y no le tocan; son como hombre de reloj, que amagan a quebrar la campana y solo la hacen sonar ...” [Do you know to what I compare these bell-like lovers that make a show and do not offer? They seem to me like organ tuners that warm it up and do not touch it; they are like the clock-man who fakes breaking the bell and only makes it sound ...] (López de Úbeda 447). Zúñiga, who served as a *bufón de corte*, or court jester, also describes himself in battle as a clock, but in a pun that preserves his sexual virility: “este coronista ... armado parecía hombrezico de relox de San Martín de Valdeyglesias” [this armed chronicler ... looked like the little clock-man of San Martín de Valdeiglesias] (78). Near San Martín de Valdeiglesias stands a sheer cliff, the haunt of current-day rock climbers, called the Peña de Reloj [Clock Cliff]. Our diminutive court jester boasts of a very erect clock.

The well-adjusted clock in love or marital relations was a *topos* that appeared in serious literature, but satirical and humorous writers took full advantage of images of ill-adjusted, broken or even jerry-rigged clocks to poke fun at sexual relationships. Through the voice of the doctor who participates in the dialogue, Cristóbal Suárez de Figueroa, in *El pasajero* [The Traveler] (1617), recounts the story of an aging married couple. The skeletal wife takes

<sup>5</sup> Both the quotation and translation are from Fernández, *Anxieties* 118.

to her bed, complaining her husband is having an adulterous affair, but she refuses to accept his amorous advances. In the anecdote, images of food and sex are combined: “En saliendo fuera de casa el infeliz esposo, trataba de almorzar famosamente, aforrando el estómago con tres o cuatro pieles del Baco más resentido. Tras esto, reposaba un poco, enderezando los flacos miembros cuando ambiguo el reloj duda si dará o no las doce” [When the unhappy spouse left the house, he tried to lunch abundantly, filling his stomach with three or four wineskins. Afterwards, he rested a bit, straightening his floppy members, when the ambiguous clock doubts if it will or will not chime twelve] (2,374). His members flaccid upon drinking and the clock hesitating to chime, the husband returns home to his wife, Quintañona, whom he then attempts to seduce with delicacies (2,375). The doctor witnesses the spectacle and pleads with the wife not to be jealous of the husband, whether he has a lover or not. The eighteenth-century *Bayle del amor reloxero* [Dance of the Clockish Love], by Francisco Benegasi y Luxán, actually creates a human clock from different stock characters: Amor [Love], Vejete [Old Man], Dueña [Madame], Valiente [Knave], Hidalgo [Gentleman], Miserable [Beggar], Soldado [Soldier], and three Damas [Ladies]. Under the direction of Amor, each character enacts a part of the clock. For example, the Vejete takes the part of the alarm as he suffers from insomnia; the soldier, who has deserted the army for his lover, plays the screw; and the wise (*cuerda*) woman who left an unfaithful lover plays the *cuerda*, or the clock’s cord. The human clock, however, does not work well, never striking more than one, thus disappointing the *hidalgo* by never arriving at the correct time, being lunch time (“la de comer”) and the ladies by never striking more than once (2, 49).

In the *Celestina* (1499) Fernando de Rojas highlights the effects of the town clock on commercial and physical aspects of daily life in early-modern Spain. For example, documents show that Teruel’s town clock was used in the fifteenth century to organize workdays (Morales Gómez and Torreblanca Gaspar 469). The *Celestina*’s characters are alert to the peals of the town bells, and frequently count their ringing as a group (Fernández, “El reloj” 37). Unlike Calisto, who lives in the elastic time of an enamored noble, and Sempronio, Pármeno, Areúsa and Elicia, who all fail to use time well, Celestina knows how to manage time, valuing its worth to her in business terms (39). Calisto is described as “hecho reloj” when Celestina begins to grease him up for money. As Pármeno whispers to Sempronio while they witness the conversation: “Ya escurre eslabones el perdido: ya se desconciertan sus badajadas. Nunca da menos de doce; siempre está hecho reloj de mediodías” [Now the loser’s links are running; now his bell clapper is getting confused. He never

chimes less than twelve; he is always a noon kind of clock] (Rojas 148). Given that Calisto is described as a clock, the first two phrases, “escurre eslabones” [the links are running] and “desconciertan sus badajadas” [the bell clappers are ill-timed], refer to devices of a timepiece. The editors of the 2000 edition explain the first phrase as the movement of the chain that releases the mechanism that will chime the hour, and then reference a refrain from Núñez: “Reloj de mediodía, no da menos de doce” [Noon clock, never chimes less than twelve]. Sebastián de Covarrubias lists “badajo” as the term for clapper, adding that the noun “badajadas” [claps] means “necedades” [foolishness] (182). Calisto, *hecho reloj* [turned into a clock], has now become Celestina’s mark and will begin to put out money for her—a vision that causes Sempronio to salivate. Medieval and early-modern clocks did not have minute hands, let alone second hands, and thus sported only hour hands. When Sempronio remarks that Calisto always gives twelve, is he referring to an erection?

Popular stories and jokes emphasized the clock as an economical machine that mechanized and measured, giving and putting out, even in criminal economic exchanges. In the sixteenth and seventeenth centuries the joke about the stingy man who does not give out occurs repeatedly, and is based on the image of the worthless clock that does not correctly tell time. Melchor Santa Cruz de Dueñas records the joke thus: “Alabando a un señor que era muy escaso, de virtuoso, y que era tan concertado como un reloj, respondió uno: Reloj que no da, no vale nada” [Praising a tightwad as virtuous, and as so well-timed as a clock, one responded: A clock that doesn’t give, is worth nothing] (222).<sup>6</sup> Quevedo’s poem known as “Las sacadoras” [The Takers] expresses bald-faced lust to use other humans for monetary gain (Chevalier). The lyrical voice belongs to a female seeking males who will regularly provide her with *cuartos*, this word meaning both coins and quarter hours. The refrain reads: “Yo los quiero relojes / y no muchachos / que me den cada hora / y aun cada cuarto” [I want them as clocks / and not boys / who give every hour / and even every quarter] (Quevedo 1289). She expects regularly timed contributions and exclaims: “Reloj que sin cuartos diere / horas muy bien concertadas, / ése da horas menguadas / ¡triste de la que le oyere! / El que cuartos no tuviere, / si tiene ochavos es harto” [The clock that would not give / very well-timed quarter hours, / that gives measly hours, / oh, sorry

6 A similar version of the joke is attributed to Alonso Carrillo by María Pilar Cuartero and Maxime Chevalier (see their edition of Santa Cruz de Dueñas 52). In the same edition, they list multiple occurrences of the joke, a few appearing in Lope de Vega’s *La humildad y la soberbia* and *La bella aurora* and Tirso de Molina’s *El mayor desengaño*, plus the *Entremés de los relojes* and *Don Pegote* (446).

listener! / He who doesn't have quarters, / if he has eighths, he's irritating] (1289). *Ochavos*, being a coin of lesser value, clearly refer to a man of less economic power. Nonetheless, the man's relative worth might also be sexual, an eighth of an hour being less satisfactory to the woman than a quarter hour.

In his *entremés*, *El juez de los divorcios* [The Divorce Judge] (1615), Cervantes uses the ill-timed clock imagery to describe failing marriages: “¿Quién diablos acertará a concertar estos relojes, estando las ruedas tan desconcertadas?” [Who in the world will reset these clocks, having wheels so badly timed?] (70). Belén Atienza views the judge who is called upon to fix these faltering clocks as a bad *relojero*, this being the profession of keeping the faulty mechanisms of clocks running well, because he fails to reconcile the couples (212). Both wives complain of husbands who fail to live up to timely desires. Mariana, married to Vejete, first requests that the time limit of marriages be adjusted: “En los reinos y en las repúblicas bien ordenadas, había de ser limitado el tiempo de los matrimonios, y de tres en tres años se habían de deshacer, o confirmarse de nuevo, como cosas de arrendamiento, y no que hayan de durar toda la vida, con perpetuo dolor de entrabbas partes” [In well-ordered republics, the time-limits of marriages should be limited, and after every three years they should be undone or reaffirmed, like rental agreements, and should not last a lifetime, with perpetual pain for both parties] (Cervantes 62). The judge does not dismiss out of hand this suggested social engineering, but rather admits that if this “arbitrio,” a term used for proposed governmental or societal reforms, could have been put into practice, and especially for money, it already would have been done. According to Covarrubias, the second meaning of *arrendar* is “dar o tomar a renta” [to rent a service for a period of time] (151). To define a fundamental unit of human society, perhaps the most fundamental, in terms of limited term contracts, points toward a modern view of human relationship in which measured time, rather than life events, determines beginnings and endings. Mariana’s complaint reveals that she understands marriage as a contractual obligation to render services that are marked by the course of the day as she loses sleep waking up in the middle of the night to give him warm cloths, to adjust him in bed, and to give him syrup so he can breathe (“porque no se ahogue del pecho”) [so that his chest not strangle him] (Cervantes 62-3). She slips, however, as she describes the age difference that renders her marriage difficult in traditional temporal terms as her springtime and his winter (62). Upon turning down her request for a divorce, the judge returns to a traditional understanding of marital temporality: “y, pues comistes las maduras, gustad de las duras; que no está obligado ningún marido a tener la velocidad y corrida del

tiempo, que no pase por su puerta y por sus días” [since you ate the ripe fruit, enjoy the hard; no husband is obliged to detain the velocity and rapidity of time, that it should not pass through his door and his days] (64). The image of cyclical time, spring leading to fall, would reinforce the traditional notion of life-long marriage, but ripe fruit normally softens. Instead, here it hardens into dried-up fruit, yielding little nourishment and implying hard times for the wife who receives little in return for her care of the aging, withering body of her husband. Despite the bitter aftertaste of the judge’s judgement, Mariana is allowed to entertain the notion of marriage as a temporary contract, if only in jest.

The second wife, Guiomar, sues for divorce from her husband, a soldier, because he refuses to submit to a temporally regimented work day, choosing, instead, a day based on leisure. The only exact hour the so-called soldier recognizes is two o’clock, when he appears for lunch. Otherwise, he spends the mornings going to mass or gossiping in the Puerta de Guadalajara, the afternoons in the gaming house, returning home at midnight for dinner—if there is any—, and wanders all night (66). Along with his imprecise hours comes a lack of income, to which the soldier regularly admits, saying that he has no occupation (67). The grounds for which Guiomar requests divorce are telling, for she claims the man before the court is not the man she married, whom she thought was “moliente y corriente” [milling and running] (66). This idiomatic phrase originates in the description of a well-timed waterwheel (Cejador y Fruaca 177). Similar to clocks in their operation, water mills ran on the rhythmic motion of wheels, gears, and spars; moreover, water-run clocks were present in Roman and Islamic Iberia. The association between lustful wives and mills needing tending dates to fourteenth-century Castilian proverbs (Shipley 247-48), but is also found in Apuleius’s *The Golden Ass*. When one adds Guiomar’s insult about her husband’s lack of sexual performance to his lack of economically productive activity, it becomes clear why she believes he is not the *molinero* [miller] she thought she married.

Cervantes’s divorce-seeking wives seem to suffer from sexual frustration induced by ill-adjusted sexual drives between partners. Mariana, married to the Vejete whose ailing body she spends her physical energy and time tending to, is condemned to a sexless marriage due to the cyclically mismatched time of youth and old age. Guiomar suffers the neglect of her soldier husband who has rejected capitalist time, which should leave him free to spend carefree, lustful moments with her, yet he is off at the inns and gambling halls. The ending to this *entremés*, abrupt and unsatisfactory for the twenty first-century reader, closes with the musicians singing a repetition of the judge’s ruling:

“Entre casados de honor, / cuando hay pleito descubierto, / más vale el peor concierto, / que no el divorcio mejor” [In honorable marriages / when there is a clear dispute, / better the worst concert, / than the best divorce] (72). One could imagine a poor performance by the musicians undermining the decision as they themselves played in ill harmony. Nonetheless, the clock image Cervantes explores in this *entremés* does not offer the same recognition of “women’s right to pursue sensual satisfaction in human relationships” as one sees in his exploration of similarly unfulfilling marriages in *El celoso extremeno* [The Extremaduran Jealous Husband] and *El viejo celoso* [The Old Jealous Husband] (Martín 198). The judgement casts the women into the mechanized, measured world of regimented time and weighty judges where voices calling for sensual pleasure will receive no sympathetic hearing.

Lewis Mumford, in addition to linking the regimentation of time to the rise of modern capitalism, also notes its mixed effects on bodily life. Although it is perhaps helpful to maintain certain functions, such as eating and defecation, the worker’s regimented day has led to the deterioration of modern sexuality, since the “strength of the impulse itself is pulsating rather than evenly recurrent: here habits fostered by the clock or the calendar may lead to dullness and decay” (270). Scientific studies of infertility show that disrupted circadian rhythms do more than just put a damper on sex lives; they actually decrease fertility. Increased rates of melatonin have been found in the blood of men suffering from infertility and have been posited as a possible explanation for the phenomenon (Karasek et al.). A recent study links irregular sleep to infertility due to the interruption of the circadian-controlled release of hormones stimulating ovulation (Russo et al.). The Crown of Castile showed signs of demographic crisis around 1560, and Spain was pushed into negative population growth by 1600, a trend that would not reverse until the middle of the eighteenth century (Alvar Ezquerra 47-8). Factors contributing to the decline included famine, epidemics, and emigration to the Americas as well as the expulsion of the *moriscos* (38-41, 57-9). Increasing urbanization of the remaining population caused declining birth rates, with fewer marriages and births (63). Alfredo Alvar Ezquerra comments that there would have been birth control “practices,” but not methods, in the urban centers. Was urban life in early-modern Spain, with its shortage of young, productive men in marriages coupled with sexual and mercantile economies based on mechanized time, contributing to this decline? The gendering of the “hombre de reloj” / “clock-man” has only one exception that I have found, in the description in *La pícara Justina* of the female innkeeper who makes a pleasant sound as the money received from guests rings in her purse: “mas si un huésped

se le escapa sin pagar, da el golpe en vago, desconciértase el reloj y arma un ruido del diablo” [but if she lets a guest escape without paying, the clock gets discombobulated and sets off a diabolical noise] (López de Úbeda 317). This “clock-woman” is subject to the same commercial regimentation as the “clock-man.” Thus, the exception proves the rule, the rule of mechanized, commercial time over the human body.

### Works Cited

- Alvar Ezquerra, Alfredo. “La población española: Siglos XVI al XVIII.” *La sociedad española en la Edad Moderna*. Ed. Antonio Domínguez Ortiz and Alfredo Alvar Ezquerra. Madrid: Istmo, 2005. 17-81. Print.
- Asenjo González, María. “El ritmo de la comunidad: Vivir en la ciudad, las artes y los oficios en la Corona de Castilla.” *La vida cotidiana en la Edad Media: VIII Semana de Estudios Medievales: Nájera, del 4 al 8 de agosto de 1997*. Logroño: Instituto de Estudios Riojanos, 1998. 169-200. Print.
- Asensio, Eugenio. “Reloj de arena y amor en una poesía de Quevedo (fuentes italianas, derivaciones españolas).” *Dicenda: Cuadernos de filología española* 7 (1988): 17-32. Print.
- Atienza, Belén. “El juez, el dramaturgo y el relojero: justicia y lectura como ciencias inexactas en *El juez de los divorcios* de Cervantes.” *Bulletin of the Comediantes* 56.2 (2004): 193-217. Print.
- Benegasi y Luxán, Francisco. *Obras líricas, jocoserías que dexó escritas*. Madrid: Juan de San Martín, 1746. Print.
- Calderón de la Barca, Pedro. *Entremeses, jácaras y mojigangas*. Ed. Evangelina Rodríguez and Antonio Tordera. Madrid: Castalia, 1982. Print.
- Campbell, Scott S. “Circadian Rhythms and Human Temporal Experience.” *Cognitive Models of Psychological Time*. Ed. Richard A. Block. Hillsdale: Lawrence Erlbaum, 1990. 101-18. Print.
- Cejador y Frauca, Julio. *Diccionario fraseológico del Siglo de Oro (Fraseología o estilística castellana)*. Ed. Abraham Madroñal and Delfín Carbonell. Barcelona: Ediciones del Serbal, 2008. Print.
- Cervantes, Miguel de. *Entremeses*. Ed. Eugenio Asensio. Madrid: Castalia, 1987. Print.
- Chevalier, Maxime. “Cuentecillos y chistes tradicionales en la obra de Quevedo.” *Centro Virtual de Cervantes*. n.d. Web. 8 Apr. 2015.
- Covarrubias, Sebastián de. *Tesoro de la lengua castellana o española*. Ed. Martín de Riquer. Barcelona: Ad Litteram, 2003. Print.

- Cummins, Genevieve. *How the Watch Was Worn: A Fashion for 500 Years*. Woodridge, Suffolk, UK: Antique Collectors' Club, 2010. Print.
- Dohrm-van Rossum, Gerhard. *History of the Hour: Clocks and Modern Temporal Orders*. Trans. Thomas Dunlap. Chicago: U of Chicago P, 1996. Print.
- Fernández (Fernández Rivera), Enrique. *Anxieties of Interiority and Dissection in Early Modern Spain*. Toronto: U of Toronto P, 2015.
- . "El reloj, la hora y la economía del tiempo en *La Celestina*." *Celestinesca* 34 (2010): 31-40. Print.
- Heiple, Daniel L. *Mechanical Imagery in Spanish Golden Age Poetry*. Potomac: José Porrúa Tarrazas, 1983. Print.
- Herrero García, Miguel. *El reloj en la vida española*. Madrid: Roberto Carbonell Blasco, 1955. Print.
- Karasek, M., M. Pawlikowski, B. Nowakowska-Jankiewicz, H. Kolodziej-Maciejewska, J. Zielenewski, D. Cieslak, and F. Leidenberger. "Circadian Variations in Plasma Melatonin, FSH, LH, and Prolactin and Testosterone Levels in Infertile Men." *Journal of Pineal Research* 9.2 (1990): 149-57. *Wiley Online Library*. Web. 27 Apr. 2015.
- Le Goff, Jacques. *Time Work and Culture in the Middle Ages*. Trans. Arthur Goldhammer. Chicago: U of Chicago P, 1980. Print.
- López de Úbeda, Francisco. *La pícara Justina*. Ed. Bruno Mario Damiani. Potomac: Studia Humanitatis, 1982. Print.
- Macey, Samuel L. *The Dynamics of Progress: Time, Method, and Measure*. Athens: U of Georgia P, 1989. Print.
- Mancing, Howard. "Embodied Cognition and Autopoiesis in *Don Quixote*." *Cognitive Approaches to Early Modern Spanish Literature*. Ed. Isabel Jaén and Julien Jacques Simon. Oxford: Oxford UP, 2016. 39-51. Print.
- . "Embodied Cognitive Science and the Study of Literature." *Cognitive Cervantes*. Ed. Julien J. Simon, Barbara Simerka, and Howard Mancing. Spec. cluster of essays of *Cervantes: Bulletin of the Cervantes Society of America* 32.1 (2012): 25-69. Print.
- Martín, Adrienne Laskier. *An Erotic Philology of Golden Age Spain*. Nashville: Vanderbilt UP, 2008. Print.
- Mayr, Otto. *Authority, Liberty, and Automatic Machinery in Early Modern Europe*. Baltimore: Johns Hopkins UP, 1986. Print.
- Montañés Fontenla, Luis. *Museo español de antigüedades*. Madrid: Roberto Carbonell Blasco, 1964. Print.

- Morales Gómez, Juan José, and María Jesús Torreblanca Gaspar. "Tiempo y relojes en Teruel en el siglo XV." *Aragón en la Edad Media* 8 (1989): 449-74. Print.
- Mumford, Lewis. *Technics and Civilization*. New York: Harcourt, Brace and World, 1963. Print.
- Quevedo, Francisco de. *Poesía original completa*. Ed. José Manuel Blecua. Madrid: Planeta, 1981. Print.
- Quiñones de Benavente, Luis. *Nuevos entremeses atribuidos a Luis Quiñones de Benavente*. Ed. Abraham Madroñal Durán. Kassel: Edition Reichenberger, 1996. Print.
- Rojas, Fernando de. *La Celestina: Tragicomedia de Calisto y Melibea*. Ed. Francisco J. Lobera, Guillermo Serés, Paloma Díaz-Mas, Carlos Mota, Íñigo Ruiz Arzálluz, and Francisco Rico. Barcelona: Crítica, 2000. Print.
- Russo, Kimberly A., Janet L. La, Shannon B. Z. Stephens, Matthew C. Polking, Namita A. Padgaonkar, Kimberly J. Jennings, David J. Piekarski, Alexander S. Kauffman, and Lance J. Kriegsfield. "Circadian Control of the Female Reproductive Axis Through Gated Responsiveness of the RFRP-3 System to VIP Signaling." *Endocrinology* 156.7 (July 2015): 2608-18. *Endocrine Society*. Web. 27 Apr. 2015.
- Santa Cruz de Dueñas, Melchor. *Floresta española*. Ed. María Pilar Cuartero and Maxime Chevalier. Barcelona: Crítica, 1997. Print.
- Shipley, George A. "A Case of Functional Obscurity: The Master Tambourine Painter of *Lazarillo*, Tratado VI." *MLN* 97.2 (Mar. 1982): 225-53. *JSTOR*. Web. 30 Apr. 2015.
- Suárez de Figueroa, Cristóbal. *El pasajero*. 2 vols. Ed. María Isabel López Bascuñana. Barcelona: PPU, 1988. Print.
- Zúñiga, Francés de. *Crónica burlesca del Emperador Carlos V*. Ed. José Antonio Sánchez Paso. Salamanca: Universidad de Salamanca, 1989. Print.