Chaucer's Dantean Presentation of Time in *The Canterbury Tales*: Libra and the Moon

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Abstract: In the last of his several *chronographiæ* — astronomically expressed descriptions of time — contained in *The Canterbury Tales*, Chaucer uses language that has led modern readers to believe that he is making elementary errors about the altitude of the Sun above the horizon and about the astrological relationship between Libra and the Moon. In this essay, I argue that the errors are ours, not his. If one reads the altitude of the Sun by means of Chaucer's observing instrument, the astrolabe, and — forgetting astrology — perceives the Moon's relationship to the sign/constellation of Libra as a real one much like Dante's similar image at the end of *The Divine Comedy*, both the astronomical and spiritual meanings of the passage in the *Tales* become clearer.

1. INTRODUCTION

This paper is part of a larger argument that Chaucer used his astrolabe (see Figs. 1 and 3 below; Skeat's (1872) reconstruction) or skills associated with that instrument to design a single metaphorical day for his pilgrimage, a day impossible in terms of a real story-telling trip to Canterbury which might take three or four days, but realistic in terms of the sky to which he refers and useful as a "container" for his tales as a whole. I will assume throughout that the arc of one dawn-to-dusk day is the image he is invoking, the 18th of April mentioned early on the journey, with the constellated sky turning overhead and carrying the Sun in the sign of Taurus. I will consider here only that day's closing chronographia, leading to a suggestion that Chaucer got from Dante the idea of timing the journey by the sky. My main purpose, however, is to clear up two apparent mistakes that scholars ascribe to Chaucer, some using these errors to dismiss any coherent time frame. Lines 2–11 of the "Prologue" to *The Parson's Tale* are central to the discussion:

> The sonne fro the south lyne was descended
> So lowe that he nas nat, to my sighte,
> Degreës nyne and twenty as in highte.
> Foure of the clokke it was tho, as I gesse,
> For ellevene foot, or litel moore or lesse,
> My shadwe was at thilke tyme, as there
> Of swiche feet as my lengthe parted were

In sixe feet equal of proporcioun.
Therwith the moones exaltacioun -
I meene Libra - alwey gan ascende...
[As we were entryng at a thropes ende.]
                                      (Benson, 1987; p.287) [1]

In the quoted passage Chaucer draws attention first to the apparently-less-than-29° of the sun's angular height above the horizon (the so-called *altitude*). He then "confirms" this angle by vague reference to the length of his own shadow. Finally, he associates four o'clock with the ascent of Libra above the eastern horizon, connecting that sign, it would seem mistakenly, with the "exaltation" of the Moon. He offers in these ten lines a range of literal and symbolic meanings as the pilgrims approach Canterbury. By reading this final *chronographia* "astrolabically" rather than astrologically, one finds not only that Chaucer's supposed mistakes about the Sun and Libra vanish, but that he is also transforming his pilgrims' secular skies with spiritual meaning. I will discuss these lines in order, first giving brief attention to the altitude angle of the Sun above the horizon and the shadow, then concentrating on the more complex matter of Libra: its physical presence (in terms of sky space), its multiple symbolism, and what it has to do with the Moon.

2. THE SUN'S ALTITUDE AND THE SHADOW

Chaucer's reading of the Sun's height above the western horizon as "not" 29° has been taken by several recent commentators to mean that the Sun is, impossibly, in an earlier degree on the ecliptic at the end of the pilgrimage than it was near the beginning. This is exactly like saying that 4 p.m. precedes 10 a.m. on a particular day: it makes no sense. Such a reading of the Sun's altitude in turn leads some to conclude that Chaucer was not concerned with accuracy so much as with symbolism. But this is the poet who wrote the first treatise in English on a scientific instrument, and who made radical changes in his sources to accommodate a real sky in *The Knight's Tale* (Osborn, 1989). Such evidence suggests that it is Chaucer's pleasure to discover the sites where symbolism and reality meet. I believe this is what he is doing here.

The problem about the Sun's angle can be eased if the situation is considered "astrolabically." When observing the altitude of the Sun with an astrolabe as with a sextant (a "folded" astrolabe), one measures the vertical angle subtended between the Sun and horizon. Having taken this measurement on the back (see Fig. 3), on the right side since it was afternoon, and having discovered the degree of the sign corresponding to the day's date (*i.e.*, Taurus 6° — at the 6th degree of the sign of Taurus — for 18 April), Chaucer would have turned his astrolabe around and lined up the numbers, as seen in Fig. 2; I use a modern astrolabe here because it is easier to read than Chaucer's more attractive instrument. It may help to think of this figure in clock terms. The grid represents the sky above the horizon, with east on the left and west on the right. Compare this arrangement to your wristwatch: like the hour hand, the Sun travels left to right across the sky when you are facing south. The south line is the vertical, or "local meridian," line that intersects the Roman numeral "XII" at the top of the astrolabe, *i.e.*, marking the (local) noon position of the Sun. The thin line slanting up from the lower-left to
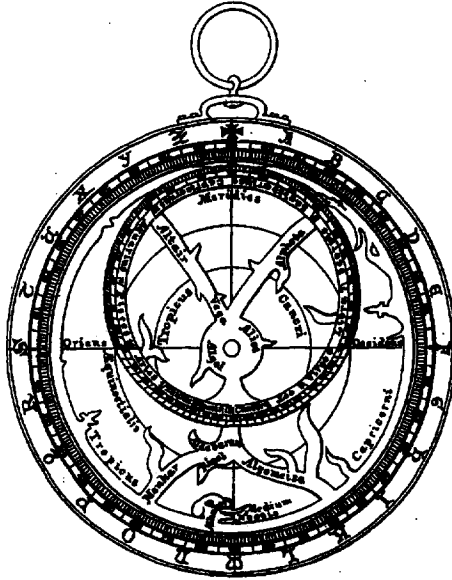
Fig. 1. The rete, or star map, of the astrolabe in Chaucer's "Treatise."

the upper-right is the so-called "rule". In the course of a single day, the rule may be rotated to follow the Sun to the right just as the hour hand of a modern clock moves, descending from the south line, as Chaucer says, from noon into the afternoon. When laid across where the degree of the day Taurus 6.42° (Eisner, 1980; 83) meets the *almucantar*[1] corresponding to the Sun's measured altitude, the rule points to the four o'clock mark ("IIII"), or 4 p.m.; as seen in Fig. 2 the rule's fiducial line has been placed over this mark, which indicates the hour angle of the Sun, *i.e.*, the local time.

Read this way, like clocks, as the hours *increase* numerically, the degrees marking the afternoon altitude of the Sun on the outside rim of the astrolabe *decrease* numerically. With the word "quite" understood, Chaucer says the Sun is not (quite) at 29°; that is, it has not gone that far down below 30°. The *Kalendarium* of his friend Nicholas of Lynn gives us the exact altitude we should expect for the Sun at 4 p.m. on 18 April : 29°11′ (Eisner, 1980; 86). The problem arises for us because Chaucer is not reading these afternoon degrees, as we would assume, "up" from the horizon, but instead clockwise, or down, from noon. We must simplify rather than complicate the issue. So why does he not simply say the Sun is just past the obvious 30° mark? One answer is that he wants to refer to that lunar number "29," making symbolism and reality meet.

Another answer is that he is not really doing this calculation from the Sun at all, but using the *Kalendarium*. Nicholas of Lynn's table for 18 April gives us the source for the next five lines of the passage, about the shadow. At 4 p.m., when the Sun is at 29°11′, the length of a man's

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[1] Almucantars are (imaginary) lines of equal altitude; hence, they are all parallel to the horizon. In Fig. 2, the rule has slipped slightly in the process of photographing the astrolabe, which places the sun slightly after Taurus 7°, *i.e.*, about a day later. This will make Libra rise a bit later, showing only one degree above the eastern horizon. The presence of the setting error, while unfortunate, does not hinder the demonstration of how the astrolabe is used to indicate the daily rising and setting of the zodical signs' ecliptic longitude, changing as the year progresses.

Fig. 2. The author's own modern astrolabe, with its rule set for 4 p.m.: the sun at Taurus
7° is sinking from 30° to 29° in the West (to the right in the plate), and Libra is rising in
the East (left).

shadow is 10.45 parts to 6.0, *i.e.*, the shadow of a man six feet tall would be 10.45 feet long.
These figures stand next to each other in adjacent columns in the *Kalendarium*. Skipping over
the next pair of columns one comes on the same line to the 45° of the Sun's altitude and the 6
to 6 (*i.e.*, equal) shadows at 10 a.m., bearings on the same day given in the "Introduction" to
The Man of Law's Tale. Chaucer's use of these tables is not news. [1] I am only arguing that he
might have meant the figures to be understood imaginatively as if worked out on an astrolabe,

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[1] In his edition of the *Kalendarium*, Eisner (1980; 34) sums up his discussion of the matter thus: "Chaucer does
use the *Kalendarium* of Nicholas of Lynn, not in the *Treatise on the Astrolabe*, where he mentions it, but in *The
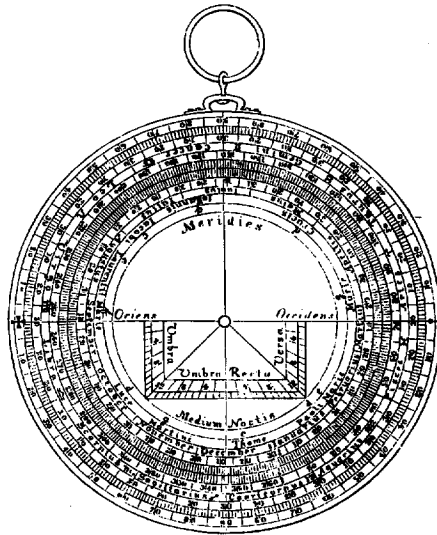Canterbury Tales*."

Fig. 3. The reverse side of the astrolabe discussed in Chaucer's "Treatise."

and that this fiction, along with the handy symbolism of "nine and twenty," accounts for his peculiar phrasing. [1]

3. THE SIGNIFICANCE OF LIBRA

The conjoining of symbolism and reality is clearer in connection with Libra. Medieval astronomers calculated the position of the Sun with reference to the twelve zodiacal signs along its annual path, each sign covering 30° of (ecliptic) longitude, and taking the name of the constellation originally occupying that longitude interval at the time the method was invented, *i.e.*, ignoring the effects of the so-called "general precession." [2] When the sun rises in Taurus 6° (the sixth degree of the sign of Taurus, *i.e.*, 36° eastwards along the zodiacal band from the first point in Aries), as it does on 18 April according to both astrolabe and the *Kalendarium* (p. 83), the sign of Libra will actually be there upon the horizon at 4 p.m. The astrolabe shown in Fig. 4 indicates slightly over 3° of Libra above the eastern horizon at this

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[1] North (1988) remarks that an astrolabist working on the open road would never calculate in fractions of a degree. In fact, the over-exactitude of referring to portions of degrees undercuts the "authenticating realism" of the fiction to alert us, as well as certain technologically adept friends in Chaucer's circle (such as Nicholas himself, or the interested patron, John of Gaunt — whom Chaucer shares with Nicholas) to the very fact that this is a textual allusion.

[2] Over the two millenia since its discovery (in the West) by the Attic astronomer, Hipparchus, the general precession (the algebraic sum of the luni-solar and the planetary precessions) has caused a discrepancy in their ecliptic longitudes between the astrological "signs," or "houses," and the astronomical "constellations." The "first point in Aries", the vernal equinox, which marks the intersection point of the ecliptic and equatorial circles as the Sun travels northwards in its "annual path" through it, had slipped 26° back (Westwards) from the beginning of the actual constellation of Aries in Chaucer's time; today it is close to 33° (Eisner, 1994; 331). Thus, it is important to make the distinction between "signs" and "constellations:" the zodiacal band on the astrolabe refers to the "signs," while the stars marked by the *rete* are indicators of the actual constellations.

astrolabe shown in Fig. 4 indicates slightly over 3° of Libra above the eastern horizon at this hour. Having previously presented the ten o'clock sun at 45° and the shadows equal to their objects, Chaucer now gives us a 4 o'clock bearing on his arc of day with the altitude of the Sun not quite down to 29° and Libra rising. However, that is not a sufficient reason to refer to Libra, because mere realism of this kind could have been preserved by having the pilgrims arrive later in the day, with the Parson beginning his tale under Scorpio in the evening (a sign having spiritual connotations). So we may expect the references to Libra, the equal or clock hour, and the Moon to be simultaneously a practical if elaborate method of telling us the time and a symbolic method of saying something further about the pilgrimage.

Several scholars have discussed the symbolic relationship of the sign Libra (the Scales) to Judgment.[1] Thompson (1983) adduces patristic sources for this symbolism, especially traditional seasonal imagery ("Autumn signifies the Day of Judgment," *etc.*). However, Chaucer is not using Libra as a seasonal metaphor here; quite the contrary: he is wrenching the allusion to the sign out of its expected seasonal context. He sets Libra the Scales, signifying eschatological closure, into the context of his overarching day, closing that day itself. Moreover, the symbolism is more diverse than Thompson would allow; although Chaucer is using the sign Libra to mark the Parson's hour and suggest the urgency of his message, he is not losing sight of the secular aspect of his day. The Canterbury day as Chaucer presents it begins with the Sun rising with Venus' domicile Taurus and concludes with the rising of Venus' "sovereign mansion," Libra. These two signs flank the arc of this fictional day much as they flank Venus herself in medieval graphic illustrations.

Charlotte Thompson objects to Chaucer's lack of "efficiency" in the way he presents Aries (the Ram) and Libra "as celestial boundaries of the journey"—"the yonge sonne that hath in the Ram his halve course yronne at the beginning and this ascending Libra at the end." "Aries is anachronistic," Thompson says, "and Libra is marred by an astronomical error" (Thompson, 1983; 78). I will argue shortly that the so-called "error" may be attributed to modern misreading rather than Chaucer's carelessness. As for the apparent "anachronism" of mentioning Aries, the astrological sign of journeys, although the day begins with the Sun in Taurus, Chaucer carefully contrives this doubling of signs: Aries for beginnings though the Sun is in Taurus, and Libra for closure though the actual day ends with Scorpio in the ascendant. We may ignore Scorpio since that sign is neither mentioned nor relevant in this case; the pilgrimage frame-tale does not proceed so far. The celestial boundaries Aries to Libra and Taurus to Libra confirm the "two loves" that Hoffman (1954) found introduced in the "General Prologue," secular desire that stirs up the blood and sets folk off on journeys (the Venusian Taurus to Libra), and spiritual desire that draws them as pilgrims to a shrine (the eschatological Aries to Libra). This day beginning with love-cult images of generation like the sprouting plants and warbling birds ends in an entirely different mood, more appropriate to a thoughtful sublunary status, as the Moon-numbered pilgrims, at a moon-numbered angle of the Sun and under a Moon-associated sign (as we shall see), approach not a secular but a spiritual God of Love.

Yet because of his apparent error in calling Libra "the Moon's exaltation," Chaucer's contrivance at the end of the tales does not appear so neat as the trick at the beginning, where Aries is named but the Sun is actually in Taurus. It has long been debated why Chaucer incorrectly refers to the Moon's "exaltacioun" as the sign of Libra when that planet's astrological exaltation is, to be precise, Taurus 3°, and he could so easily have used some other term for the

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[1] Among these are Chauncey Wood (1970), whom I believe to be the first, as well as Rodney Delasanta (1978), and Charlotte Thompson (1983).

of "exaltation" is, the zodiacal degree in which a planet has most influence. He uses the term correctly elsewhere.[1] Therefore, I believe we must have been reading this passage, like that about the Sun's angle, incorrectly. This is J. D. North's opinion also (North, 1988; 127–129). North holds to the astrological meaning of "exaltation" and argues that Chaucer "was saying in effect that the exaltation of the Moon [Taurus 3°] was in the middle [*mene*] of the Sun," that is, the Sun at this hour is located over the position of the Moon's exaltation. But placing the Sun at Taurus 3° creates the same enormous problem as placing the Sun lower than 29°; it makes the date at the end of the journey precede the 18 April date mentioned in the earlier introduction to the *Man of Law's Tale*, when the Sun is at Taurus 6°. The Sun, moving sequentially through the Zodiac just under one degree per day to complete its circuit in a year, cannot go from the sixth degree of a sign back to the third, any more than it can move backward in terms of the degrees on the rim of the astrolabe, up the afternoon sky. Chaucer would not have made a mistake in such a simple matter.

Believing that he meant what he said about 18 April and did not become confused in the throes of later composition (North, 1988; 133), or invent an impossible "retrograde day" (Frese, 1991; 190-191), I prefer the simpler solution that "exaltacioun" in this passage has a non-astrological meaning, functioning as an antonym of "declination." Chaucer does not use the term in a physical, non-technical sense elsewhere, but on the other hand he does like to use borrowed words in their original senses. He himself glosses the past participle of the verb "exalt" in its physical sense in the "Prologue" to the *Wife of Bath's Tale*, equating "is exaltat" with "is reysed" (lines 704-5), and the *Oxford English Dictionary* offers other examples of the usage in relation specifically to astronomy (that is, celestial mechanics). Dolores Frese points out, moreover, Chaucer's insistent tone; he wants us to read this allusion just as it is (Frese, 1991; 190): "I meene Libra;" perhaps emphasizing that he does not mean Taurus. This seems as clear an indication as can be that he is using the term in an unusual though not incomprehensible way, perhaps with reference to the rising of the actual Moon rather than a Moon-associated degree of the zodiac.

Reference to a Moon either full or just past its full at this time of year, as it would be in Libra with the Sun opposite in Taurus, would alert a medieval listener to the possibility of religious significance, because the phase of the Moon was crucial to the computation of Easter. In A.D. 325 the Council of Nicaea decreed that Easter should be celebrated on the first Sunday after, not on, the fourteenth day of the Paschal Moon, "reckoned from the day of the new moon inclusive" (North, 1988; 89). On the fourteenth day of its cycle the Moon is perfectly full. North explains further: "The Paschal moon is the calendar moon whose fourteenth day falls on, or is the next following, the vernal equinox." For this purpose of calculating Easter, the church reckoned the date of the Vernal Equinox as 21 March, even though the actual date of that Equinox in Chaucer's time was 12 March,[2] as is shown by the illustration of the back of the astrolabe in Fig. 3; the line labelled "occidens" passes through the first point of Aries (the Vernal Equinox) and through the 12 March mark, rather than through the 21 March mark with which the first point of Aries is aligned on the back of my modern astrolabe. The lunar-based sequence for calculating Easter was the same then as now.[3] The lunar association with Easter must have led Chaucer to draw attention to the Moon across from the setting Sun; no other celestial sign or named date could announce so clearly to his contemporaries that Easter was soon to follow.

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[1] *E.g.*, the *Wife of Bath's Tale*, 1. 704; the *Merchant's Tale*, 1. 1888; and the *Squire's Tale*, 1. 48.

[2] The need to realign Easter with the Vernal Equinox was the main motivation for the change of the calendar decreed by Pope Gregory in 1582.

[3] The date of Easter may vary from 22 March to 25 April; these variations are cyclic and may be anticipated easily, if not with absolute accuracy, on the basis of the Metonic cycles of the Moon.

Easter must have led Chaucer to draw attention to the Moon across from the setting Sun; no other celestial sign or named date could announce so clearly to his contemporaries that Easter was soon to follow.

But which Easter was it? Since the sign Libra occupies 180° to 210° of ecliptic longitude, it was easy to look in Tuckerman's (1964) tables of solar, lunar and planetary positions for the Moon's positions on 18 April (Julian calendar) for the most relevant years, 1387 to 1394, and discover that only in 1388, 1391 and 1394 was the Moon in or anywhere near Libra. In Nicholas of Lynn's *Kalendarium* (pp. 178–179), it may be seen that Easter fell on 5 April in 1388 and on 26 March in 1391; both dates are long before the 18 April date announced in the text, leaving only 1394. On 18 April 1394, the Moon was beyond Libra, lopsided (gibbous) rather than full, like Dante's "diminished" Moon of *Purgatorio X*, the day after Easter. Chaucer's Moon reaches full-phase on 16 April at 4:44 p.m. (on 17 April, according to the *Kalendarium*) and Easter follows on Sunday, 19 April. [1]

The problem remains, however, that on this date the Moon is not physically in Libra, having slipped past that sign rather quickly following its full phase after that crucial post-equinoctial new Moon. For a solution to Chaucer's calling Libra "the moones exaltacioun," one may disregard the actual rising of the Moon on 18 April, which occurred well after dark in the sign of Sagittarius, to consider instead the lunation itself, the coming to the full of the Paschal Moon, the process that occurs year after year, of necessity, in Libra, opposite to the equinoctial Sun in Aries. One reason Libra symbolizes eschatological closure is for this very reason: whether the Paschal Moon actually attains its maximum fullness in Libra or Scorpio, it always is coming toward the full, being "exalted" or drawn up and magnified, in Libra. Easter occurs when it is over the top, on the wane, as on Chaucer's date, and often beyond Libra. The point is that however much synchronicities may conspire to give us that actual date in 1394, it is not what Chaucer expects us to focus upon when he speaks of Libra as "the moones exaltacioun." He wants to remind us instead, without obtruding a specific date, of the imminence of Easter.

4. DANTE'S INFLUENCE UPON THE CHAUCERIAN VISION

Chaucer's method of expressing time in the passage under scrutiny can be understood as correct, if awkwardly phrased from a scientific point of view, and it corresponds adequately with *chronographiæ* elsewhere in the tales. I should like to conclude with where I believe he got the idea of presenting a Paschal Moon at this point, as well as using celestial mechanics in general (not astrology, but the physical sky) to chart his day. With his evident interest in time as a structuring device and image, he would have been intrigued by the way Dante structures his own "pilgrimage to Paradise" on the model of a week (for a discussion of this point, see Orr, 1956). As an amateur astronomer, Chaucer would have been pleased by Dante's constant references to the rising constellations, the angle of the Sun, and the inequal hours. He would have admired Dante's precision and no doubt compared it to the imprecision of most poets using the *chronographia* figure and astronomical imagery. Indeed, it may have been the example of Dante using for his journey the week based on a theoretical relationship of the planetary spheres that led Chaucer to conceive of the visibly measurable dawn-to-dusk day as a model

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[1] Quite separately from considerations like mine of celestial mechanics, Sigmund Eisner (1992; 37) arrives at the same "Canterbury Day" of Saturday, 18 April 1394, on the basis of "an amalgam of historical, allegorical, and astrological information, all of which was certainly known to Chaucer." We confirm each other's work, and Chaucer's twofold use of the *Kalendarium* also confirms this date derived from the lunar heralding of Easter.
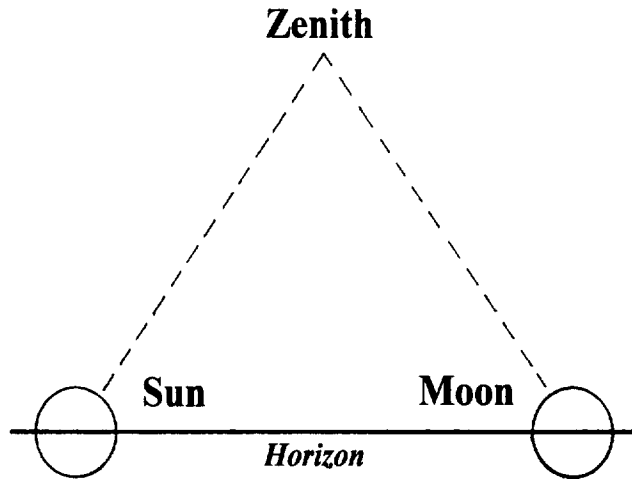
Zenith

Fig. 4. The Sun and the Moon on the Horizon, "hanging in balance" from the Zenith.

the 29th canto of *Paradiso* as the same symbolic arc that Chaucer sees: the Sun in Aries and the full Moon in Libra are held briefly in balance, as on a scale, by the zenith (Sayers and Reynolds, 1962; 309, and note, 313–314), as may be seen in the illustration above (Fig. 4).

This imagined scene could well have suggested to Chaucer the features of Sun associated with Aries (though really in Taurus)[1] and moon in Libra (while really in Sagittarius). But Dante uses this arc as a momentary vision of perfection; Chaucer, to structure his story. He takes possession of the Dantean image of the sky and makes it his own by visualizing it in terms of his astrolabe. This is not realism, but what Morton Bloomfield calls "the authenticating level of a narrative," which, he says, may "be used to shift perspective" (Bloomfield, 1964; 189–190). This is exactly how Chaucer uses his "authentic" pilgrimage sky. By echoing the astronomy of Dante's vision and alluding to Easter's imminence, Chaucer adds spiritual nuance to the more realistic pilgrimage of living souls to the shrine at Canterbury. His skies suggest "thilke parfit glorious pilgrymage / That highte Jerusalem celestial," even before the Parson labels it thus in his "Prologue" (Benson, 1987; 287, lines 50–51). By making careful and elaborate use of synchronicities found in the *Kalendarium* and confirmed on his astrolabe, finding sites where symbolism and reality meet, Chaucer identifies purpose in the cosmos.

Though errors of various kinds occur throughout his text, Chaucer makes few in astronomy, and he did not mistake the angular height of the Sun or the Moon's "exaltation," Libra.

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[1] In an essay published after the presentation of this paper, Professor Eisner (1994; 341) argues persuasively that when Chaucer refers to the Sun in "the Ram" (Aries) at the very beginning of the *Canterbury Tales* (lines 7–8 of its "General Prologue") and to Libra at the end, "both zodical signs and constellations play a part here." In terms of constellations rather than signs, when the pilgrims are gathering at the inn on the day before their pilgrimage begins (17 April), the Sun at noon is very close to the star *v* Arietis: "closest to the halfway point of [the constellation] Aries" (Eisner 1994; 340); this corresponds to the narrator's announcement at the beginning of *The Canterbury Tales* that the young Sun "Hath in the Ram his half cours yronne [run]"(Benson 1987.)

Though errors of various kinds occur throughout his text, Chaucer makes few in astronomy, and he did not mistake the angular height of the Sun or the Moon's "exaltation," Libra.

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