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THE *KUDURRUS* AND THE SKY. ANALYSIS AND INTERPRETATION OF THE DOG-SCORPION-LAMP ASTRAL PATTERN AS REPRESENTED IN KASSITE *KUDURRUS* RELIEFS

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ABSTRACT

Men have always been fascinated by the vault of heaven. The stars have been synonymous with immortality with their continuous and cyclical presence. Because of their immortality stars and planets were considered heavenly images of gods. With the rise of the Kassite dynasty, in the second half of the 2nd millennium BC, a transformation happened in the religious thought and in the representation of the gods. A gradual but continuous transformation in their depiction could be noticed, with the introduction of the symbolic representation that substituted the anthropomorphic one. Symbolic divine representations are the main subject of the decoration of the *kudurrus*, the Babylonian boundary stones. Between them the crescent, the eight pointed star and the sun-disk take a prominent place, always being placed in the upper part of the *kudurrus*. Analyzing each symbol represented it is thus possible to note an iconographical change and some differences in their relative positions. The aim of this paper is to identify recurring symbolic patterns on Kassite *kudurru* reliefs, and to understand their meaning. Reconstructing the heavenly vault of the Kassite period, it is possible to make a comparison between the patterns identified and astral conjunctions. These patterns represent not only divine symbols, but also a probable time image of the sky, with its own specific meaning.

KEYWORDS: Kudurru, Symbols, Mesopotamian Astronomy, Late Bronze Age Mesopotamia, Kassite Culture

1. INTRODUCTION

Since the 3rd millennium BC, Mesopotamians observed the sky. The stars had an important role, having a good or an evil influence in ritual intents, and the Mesopotamians thought that what happened in the sky was reflected in the earth. Looking at the texts, the main core of the mulAPIN, the first Babylonian astronomical compendium, belongs to the end of the 3rd millennium BC (2048 BC according to Weidner's [1915] and Tuman's [1993] interpretations, though Shaefer suggested in 2007 that the epoch for the observation is 1370 +/- 100 BC [Shaefer 2007]).

Moreover, because of their immortality, stars and planets were considered heavenly images of the gods, being invoked with the epithet of "Gods of the night", as testified by a prayer of the first half of the 2nd millennium BC (Foster, 2005: 207-208). This strong connection between heavenly bodies and deities is also supported by the Astrolabe Pinches, where astronomical names are immediately followed by names of divinities or by their epithets (Walker, Hunger, 1977: 27-34).

The 2nd millennium BC in Mesopotamia is characterized by the appearance and increasing numbers of symbols in artistic representations, corresponding to a gradual transition from an anthropomorphic to a symbolic representation of deities. This change in deities' depiction becomes more evident in the second half of the 2nd millennium BC, with the Mitannian, Kassite and Middle Assyrian cultures (Pizzimenti, 2013; Pizzimenti, in press).

The Kassite *kudurrus*, the Babylonian boundary stones, are strong evidence of the symbolic representation of deities, both freely represented in the space and placed over altars[1], but they are also proof of the strong relationship between symbols and stars[2], although the analysis of connection between symbols and their astral corresponding shows some issues to be solved:

1. Mesopotamians always started from the direct view, assuming a real correspondence between astral symbols, heavenly bodies and heavenly vault (Pizzimenti, 2014: 152).
2. A realistic representation of the sky, with stars, constellations and planets could be very complicated, due to the difference in dimension and proportion of the real stars and the symbols they are connected with.

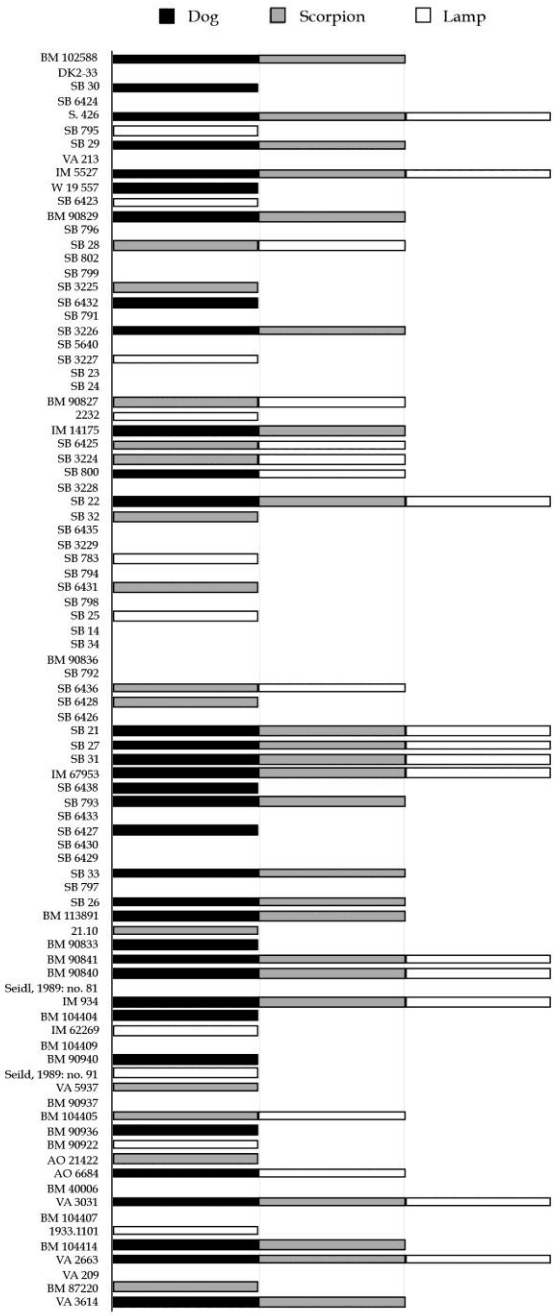

Figure 1. Dog, scorpion and lamp in Kassite kudurrus.

3. In the analysis of the relationship between symbols it is possible to talk only about "relative" positions, following the simple spatial coordinates of "up", "down", "on the right", "on the left", "up on the right", "up on the left", "down on the right" and "down on the left". This thwarts any attempt to use the position of the symbols to make a precise dating (day-month-year), but allows more generic dating, like part of the year[3].

2. ANALYSIS

[1] An accurate analysis of the decoration of *kudurrus* has been done by Ursula Seidl in 1989 (Seidl, 1989), followed by Michael Herles in 2006 (Herles, 2006).

[2] For an analysis of the symbols of Sun, Moon and Venus on the *kudurrus* see Pizzimenti, 2014.

[3] Some constellations are visible only for part of the year.

According to the considerations listed in § 1, only the *kudurrus* bearing symbols freely represented in their carving will be analyzed. The representations of symbols on altars and organized in registers, in fact, exclude any connections with the sky and therefore will not be part of this study. Each symbol has been individually analyzed, and then its relationship with the other symbols depicted has also been analyzed, in order to individuate recurrent patterns in the entire corpus.

The corpus of this study is composed of 88 *kudurrus* (*Figure 1*). Among the patterns identified most frequently are the dog, the scorpion and the lamp. These symbols in fact appear most frequently on the *kudurrus* (58), sometimes alone (9 *kudurrus* bear only the dog symbol; 8 *kudurrus* bear only the scorpion symbol; 10 *kudurrus* bear only the lamp symbol) sometimes in connection (2 *kudurrus* bear the dog-lamp association, 11 *kudurrus* bear the dog-scorpion association, 6 *kudurrus* bear the scorpion-lamp association), but always, when all three are represented (12), they occupy the vertices of a triangle (*Figure 2*).

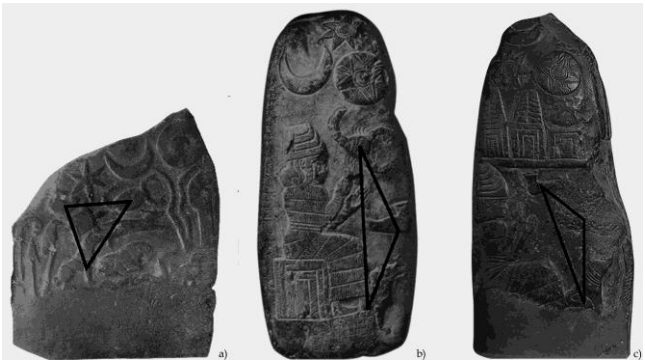

Figure 2. a) IM 5527 (Seidl, 1989: Fig. 2); b) SB 21 (Seidl, 1989: Pl. 19b); c) SB 27 (Seidl, 1989: Pl. 19a).

Looking at their astral meaning: the dog should correspond to the Mesopotamian constellation of the Dog (^{mul}UR.KU), placed on the path of Enlil and identified with the southern part of the actual *Hercules* constellation (Hunger, Pingree, 1989: 137), while the scorpion should correspond to the Mesopotamian Scorpion constellation (^{mul}GÍR.TAB) -the actual *Scorpio* constellation- placed on the path of Ea (Hunger, Pingree, 1989: 138), and finally the lamp, astral symbol of the god Nusku (Herles, 2006: 248-249; Seild, 1989: 128-130)[4], corresponds to the planet Mercury (Lewy, Lewy, 1948; Koch-Westenolz, 1995: 127)[5].

Dog and Scorpion are two constellations, fixed stars that cyclically appear in the sky, while Mercury is a planet, with a more complicated cycle of visibility, well known by the Mesopotamians[6], as testified by the *omina*[7], and by the astronomical compendia (Hunger, Pingree, 1989; Pingree, Reiner, 1975). Mercury has an orbital period of about 88 days, and seen from the Earth it appears to move around its orbit in about 116 days. Due to its extreme proximity to the Sun, and being lost in the Sun's glare for much of the time, observation of Mercury is very complicated, nevertheless when visible, it is a quite bright "star". Furthermore, like the Moon and Venus it has phases as seen from the Earth, and, being always very near to the Sun, it could be observed only for a brief period during dawn or twilight. Mercury is never far from the ecliptic, hence, if its greatest elongation occurs when the ecliptic makes a steep angle to the horizon, the altitude of the planet shortly after the sunset, for example, will be greater than when the ecliptic makes a small angle with the horizon. In mid-northern latitudes, the ecliptic is most steeply inclined when the vernal equinox is setting and the autumnal equinox is rising. This effect makes Mercury best seen in the evening in eastern elongation for about two weeks around the date of vernal equinox and in the morning sky at the greatest western elongation for a similar period around the autumnal equinox (Northcott, 1965: 29).

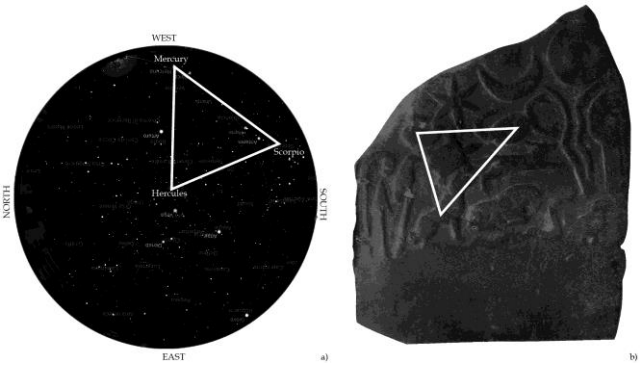

Figure 3. a) The constellations of Hercules and Scorpio and the planet Mercury. Sky reconstruction of the end of August – beginning of September, 14th cent. BC, sunset (Stellarium v. 0.13.1); b) IM 5527 (Seidl, 1989: Fig. 2)

Making a reconstruction of the sky of southern Mesopotamia from the 14th to the 12th cent. BC, by using Stellarium (v. 0.13.1), it is possible to highlight that the constellations of *Hercules* (the Dog) and

[4] The lamp of the *kudurrus* SB 3224 (Seidl, 1989: Pls. 12c, 13a-d) and SB 783 (Seidl, 1989: Pl. 16c) bring the caption ^{d}Nusku (Seidl, 1989: 130).

[5] The planet Mercury is also associated to the god Ninurta. The ^{mul}APIN, in fact, states: "Mercury, whose name is Ninurta" (Hunger, Pingree, 1989: 77), while in a solar omen Van Soldt identifies Ninurta (^{d}NIN.URTA) explicitly as the planet Mercury (Van Soldt, 2000: 423).

[6] Mercury was called "the jumping planet" (Hunger, Pingree, 1989: 146).

[7] See for example Hunger, 1992: nos 2, 50, 51, 70, 73, 74, 76, 83, 93, 113, 146, 157, 158, 190, 217, 220, 245, 249, 253, 258).

Scorpio (the Scorpion), and the planet Mercury (the Lamp) were visible at the same time from the end of August and the beginning of September, quite near to the autumn greatest elongation, at the sunset (*Figure 3*).

The comparison between the reconstructed position of those constellations and planet in the Late Bronze Age sky and their depiction on kudurrus shows that their relative positions are quite identical, being displayed as the vertices of a triangle. Moreover the positions assumed by the sun disk, eight pointed star and crescent in the upper part of some of the *kudurrus* analyzed confirm the sunset. In fact, those three astral symbols, together represented, appear to be an astral pattern present on all the *kudurrus*, and always in the upper part of their decoration. As for the dog-scorpion-lamp pattern, we can assume that the sun-moon-star pattern could have a precise correspondence with the sky and the position that these three main heavenly bodies occupy in various periods of the day. In fact, Sun, Moon and Venus could be viewed together only at the sunrise or at the sunset, depending on the course of Venus - 584.4 days divided into four different phases[8]. As morning star, Venus is placed at the right of the Sun, while as evening star, it is placed at the left. On the *kudurrus*, the star is placed on the left of the sun-disk, so it is possible to assume that a sunset is represented.

Finally, it is possible to suppose that the *kudurrus* analyzed are a carved representation of the Mesopotamian sky during the months of August and September.

In order to find a meaning in the Mesopotamian mindset for this precise span of time, it is necessary to move from analysis of the carved decoration of the *kudurrus* to analysis of their function and inscription. Placed in temples, the *kudurrus* commemorated acquisition of perpetual income (Slanski, 2000: 96-98; Brinckmann, 1981)[9]. In the majority of the corpus, the source of income is agricultural land, acquired through grant or purchase (Slanski, 2000: 98), but they were not legal documents (Brinkmann, 2006: 8-9). In fact, legal texts usually have a precise date – at least month and regnal year -, while in the inscription of the *kudurrus* dates are attested only from the Isin II dynasty on[10] – earliest attestation slightly after 1140 BC (Brinkmann, 2006: 12-13).

Furthermore, looking at the agriculture - mostly cereals - it is possible to identify different stages during the year: harrowing, ploughing, sowing, land survey before harvest, harvest-delivery, and lastly, disbursement of just-cropper barley (Yamamoto, 1979: 86). Between those, the sowing for the new harvest should be mainly performed in the autumn (Mauer, 1983:73), probably during the months of August and September (Yamamoto, 1979: 85-86), when the constellations and the planet that are the object of this study should appear in the southern Mesopotamian sky in the Late Bronze Age[11].

3. CONCLUSIONS

The identified dog-scorpion-lamp pattern on the *kudurrus* analyzed could correspond to the representation of the constellations of *Scorpio*, *Hercules* and the planet Mercury. Those astral bodies and asterims were present in the sky at the same time, during the Late Bronze Age period, at the end of August-beginning of September. Therefore, it is possible to suppose that the symbols of dog, scorpion and lamp, when represented on the carving of the *kudurrus*, could indicate the moment of the year during which the royal land grant recorded by the *kudurru* itself were performed, when the crop-land granted should be prepared for new seeding and a new productive season.

[8] Venus is the 'morning star', visible at the sunrise for some 263 days; afterwards it remains invisible for nearly 50 days; then Venus become the 'evening star', visible at the sunset for another 263 days; and a last "darkness" phase during which Venus is not visible for about 8 days, before appearing again as the 'morning star'.

[9] For *kudurrus* in general, see Steinmetzer, 1922; Seidl, 1989; Brinkmann, 1981; Seidl, 1981; Slanski, 2003; Brinkmann, 2006.

[10] With the exception of a text IM 49991, dating to Nazi-Maruttash year 5 (1303 BC) (Seidl, 1989: Pl. 1a).

[11] The influence of astronomy in Mesopotamian agriculture is testified in a Sumerian agricultural manual: "Once the sky constellations are right, do not be reluctant to take the oxen force to the field many times" (Civil, 1994: 31).

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