Observations & commentaries on your study:

An ancient Arabian zodiac.
The constellations in the Safaitic inscriptions

To Ahmed al-Jallad, by Roland Laffitte,
Pantin, Oct. 10, 2015.

* Part I, *Arabian Archelogy and Epigraphy*, 25 (2014), 214–230;
* Part II, (draft)

I. About the names of the Safaitic zodiac

I give you in a first part, my commentaries and observations on the Safaitic zodiacal signs. As I do it in relation with my publications on the antique zodiacs, I take the opportunity to give you a (non-exhaustive) bibliography of these studies on this subject[1]. I don't need to return on both articles which you quote in reference in your study[2]. Maybe you know these other articles where I comment the names, as given below in a footnote[3]. All these texts exempt me from many general and particular comments on most of the names of the zodiacal names. By the way, I prefer to speak about signs than constellations. Indeed, the constellations are groups of stars, the spaces of which are quite uneven, whereas the zodiacal signs result from the division of ecliptics in 12 aliquote parts, even if they get formally the name of the closer constellation.[4]

Let us now examine the Safaitic ones:

---

[1] For further details, see my website URANOS, www.uranos.fr (essentially the French part, more complete), in particular the chapter « Études originales consultables en ligne », http://www.uranos.fr/ETUDES_00_FR.htm.

[2] « Les Noms sémitiques des signes du zodiaque, de Babylone à Baghdad », *Comptes Rendus du GLECS* (Groupe Linguistique d'Études Chamito-Sémitiques), XXXIV, 2003; and « Sur le zodiaque sudarabique », *Arabia*, IREMAM (Aix-en-Provence) & IIAO (Roma), I (2003), 75-87 and 214-216.

[3] « Les Noms du zodiaque dans l'espace turco-arabo-persan », dans le cadre du III[è] colloque international *Emprunt linguistique dans l'espace turco-arabo-persan et méditerranéen*, organisé par l'ERISM et l'INALCO, avec le concours de l'IFPO, l'Université de Damas et l'AUF, les 18-19 décembre 2005, Centre Rida Saïd, Damas (not yet published, but online on at: http://www.uranos.fr/PDF/SOM_FR_15_T1.pdf) ; and « Précisions sur l'origine des noms des signes du zodiaque », *Bulletin de la SELEFA* n° 7, 1er semestre 2006, 1-10. (on line at : http://www.selefa.asso.fr/files_pdf/Instit07_T12.pdf).

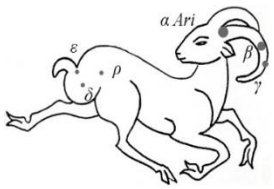
[4] I confess that it was not so clear in my first articles. See on this point « Naissance du zodiaque en Mésopotamie, in *Les Cahiers Clairaut*, Bulletin du CLEA (Comité de Liaison Enseignants et Astronomes), n° 135, automne 2011, 19-21, cf. http://www.uranos.fr/PDF/SOM_FR_44_T1.pdf; *Naissance des constellations et du zodiaque en Mésopotamie*, http://www.uranos.fr/PDF/ETUDES_01_T01_FR.pdf; and « Naissance et diffusion du zodiaque mésopotamien », in *Étoiles dans la nuit des temps* [*Eurasia* n° 18], Paris : L'Harmattan, 2008, 113-133.

1. *ḏkr* ≈ *Aries*. This form corresponds indeed to West Aramaic zodiacs (Qumran, West Syriac). For more details, see may article on the Babylonian *Aries*[5].

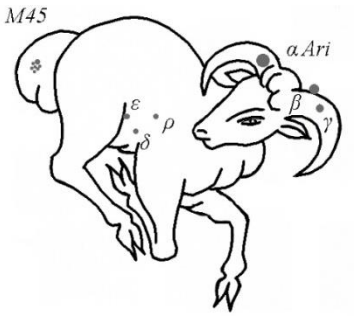
2. *''ly* ≈ *Taurus*. Of course it looks at the first regard like the Akkadian *alû*, *i.e.* the name of GU_4.ANNA, "the Celestial Bull". The link you make with Arabic √'LY is very interesting. A you quote it, the Arabs of the later centuries confirm it because they might give to *Pleiades*, the Late Babylonian MUL[.MUL] which communicated its name to the second zodiacal sign in concurrence with GU_4, the name of *Alya(t) al-Ḥamal*. See the figures above.

In fact, almost the names of the Safaitic zodiacal calendars are calques of Aramaic ones, oriental or occidental, which may lead us to suppose that, as you do it, this name can result of "an oral transmission". The Akkadian word *alû* had possibly an inertia in the local Semitic languages of that time, but its very meaning was surely forgotten. On may thus imagine that it was interpreted as a usual form deriving from Arabic √'LY. (cf. Syriac *alyta*, "the Tail [of the Sheep]"). In that case, the image of the great Lamb of the Arabs would be elaborated very soon, and we fond possibly here a missing link between the Babylonian figure and the Arabic one.

Manāzil I & II : *al-Ḥamal*, « the Lamb »[6]



al-Kabš, the greek « Ram »
by al-Ṣūfī



& *al-Ḥamal*, the Arab « Superlamb »

both put to the same scale

M 45 (Pleiades)	*Alyat al-Ḥamal*	"the Tail of the Lamb"	Ibn Qutayba

Then, your remark on a possible Semitic origin of the Standard Babylonian name *alû* is really interesting.

3. *gml* ≈ *Gemini*

Because the Safaitic zodiac drifts of the Babylonian one, we think inevitably of the name GAM = *gamlu*. Except that the right ascension of the star to which this name corresponds in the Babylonian texts, *i.e.* *α Aur*[7], is clearly belonging of the zodiacal space of *''ly* ≈ *Taurus*.

---

[5] « Le Point sur l'origine mésopotamienne du signe zodiacal du Bélier », in *Centre et périphérie*, Actes du Colloque Collège de France – Société asiatique – CNRS sur le thème, Paris, 31 mai-1er juin 2006 [*Cahiers de l'Institut de l'Orient ancien du Collège de France*, I], 101-108, cf. http://uranos.fr/PDF/SOM_FR_01_T3.pdf.

[6] See my book : *Le Ciel des Arabes : Apport de l'uranographie arabe*, Paris : Geuthner, 2012, 85.

[7] You find this identification in several Mesopotamian astronomical texts issued on my website URANOS: http://uranos.fr/PDF/ETUDES_01_N21_FR.pdf; http://uranos.fr/PDF/ETUDES_01_N22_FR.pdf; and http://uranos.fr/PDF/ETUDES_01_N29_FR.pdf.

On another side, it is little likely that we can read in the Safaitic word *gml* an influence of the Latin *Gemini*. Up to now, no Semitic zodiacal list known has revealed the slightest Greek influence[8]. Then, as for a Latin influence, we get really very few chances.

We have thus to conclude that *gml* it is a native name. In this case, it was existing before the adoption of the Babylonian zodiac. It will be the same in a later period for the Arabic zodiac which will take back, as loans or calques, the Aramaic names, except for *al-ǧawzā'* which also corresponds to the *Gemini*. If it was the case, it would be nothing surprising. The star couple *γξ Gem*, which is probably at the origin of the name *al-ǧawzā'*, holds its importance of its astronomical situation[9]. We may think that its prestige was such when the common zodiacal computus in this region was adopted, that its name was not able to be uprooted of this celestial space and kept so its native appellation. It is not impossible that we have the same phenomenon for le Safaitic *gml*, which could probably mean in this case « camel ».

4. s^{1}rṭ ≈ *Cancer*. Because of the letters correspondences between Aramaic and Arabic, I suppose that, like in classical Arabic, we have here a loanword from an Aramaic form rather than a calque. No other comment.

5. *h-'s^{1}d* ≈ *Leo*. The calque is here so common than no remark is useful.

6. *(h-)ngm* ≈ *Virgo*. Sure, it is an eastern name. Actually, we have in Akkadian many variations on the « ear of barley », as far as ABSÍN took, by the play of the metonymies, a range of meanings, to say nothing of synonyms[10]. Greenfield thought to detect Qumran Aramaic *betūltā* "the only concrete sign of western influence among the zodiacal names in the Jewish tradition." [11] And you mention that, according to Jacobus, "*Virgo* is the only sign-name in the Qurman zodiac that cannot be derived from the Mesopotamian tradition" (Part II, 16). We can say much more and I bring at this point to your attention on my article on the origin of this name: it seems to me that I gave sufficient proves that this appellation has nothing to see with any Greek, or Latin influence, and is of pure Semitic origin[12].

7. *'mt* ≈ *Libra*. *Libra* can be named of multiple manners, by a designation of the scales, a particular part of this object or the action it allows[13]. At this regard, if the Qumran Aramaic is *mōznayā*, which corresponds to a part of the instrument, the Syriac *māsātā* (√NS') can be explained as an "examining instrument". In this particular case, if we link this name, as you do it, to the Arabic meaning of √'MT, we would possibly have a generic name of the scale as

---

[8] On this point, see above, *s.v.* "6. *(h-)ngm* ≈ *Virgo*".

[9] *Le Ciel des Arabes*, *op. cit.*, 30, see Excerpt pages 25-61, in the ANNEXE.

[10] See for example *šur-ši* ABSIN in BM 46803, cf. http://uranos.fr/PDF/ETUDES_01_N35_FR.pdf; and ŠE.BAR, cf. W 22646 (SBTU II 43), in VON WEIHER, Egbert, *Spätbabylonische Texte aus Uruk*, Teil II, *Ausgrabungen der Deutschen Forschungsgemeinschaft in Uruk-Warka*, Band X, Berlin : Gebrüder Mann Verlag, 1985, 178-179 (Nr 43).

[11] GREENFIELD, Jonas, C, "The Names of the Zodiacal Signs in Aramaic and Hebrew", in *Au Carrefour des religions. Mélanges offerts à Philippe Gignoux* [*Res orientales* vol. VII (1995)], 99.

[12] « Sur l'origine du nom de la constellation de la Vierge », *Journal asiatique*, t. 292, n° 1 & 2, 2004 (http://www.uranos.fr/PDF/ETUDES_01B_T01_FR.pdf).

[13] « De Babylone aux Latins et aux Arabes : les noms de la constellation de la Balance », *D'un Orient à l'autre*, *Actes des troisièmes journées de L'Orient*, Bordeaux, 2-4 octobre 2002, Paris–Louvain : Peeters, 2005, 323-338 (on line at : https://books.google.fr/books?id=rOq0r7LEuygC&pg=PA323&lpg=PA323&dq=De+Babylone+aux+Latins+et+aux+Arabes+:+les+noms+de+la+constellation+de+la+Balance&source=bl&ots=F6reY-SF8S&sig=HytR5jCZrdeHOGAnsqDkIKJRRDE&hl=fr&sa=X&ved=0CCEQ6AEwAGoVChMIl578nr6jyAIVAgsaCh3kUwfX#v=onepage&q=De%20Babylone%20aux%20Latins%20et%20aux%20Arabes%20%3A%20les%20noms%20de%20la%20constellation%20de%20la%20Balance&f=false).

a “measuring instrument”. But it is true that David Cohen gives – I don’t know from where, because I find nothing of the sort in the *CAD* –, an Akkadian word, *amitt-*, “tige de Roseau (?)” (*DRS, s.v.* “’MT”), very close of the East Aramaic names *qanyā*, *qaynā* and *qenšalmā…*

8. *ᶜaqbt* ≈ *Scorpio*. No special comment: it is a particular form of the common West Semitic calque for the Akkadian word *zuqaqīpu* (cf. another particular form, the Mandaic word *arqabā*).

9. *h-rmy* ≈ *Sagittarius*. If the eastern list generally present object, cf. *qeštā*, *al-qaws*, and even *hīṭyā* and *haẓyan*, the western ones give an archer, adaptation of the image of PA.BÍL.SAG of the Uruk seals impressions[14].

10. *y’mr* ≈ *Capricornus*. If we follow your interpretation, this name means “goat-fish” corresponds quite close of the Akkadian name *suḫurmāšu*. Such a term could be the description of the image we find on the Late Babylonian seals[15] rather than the Akkadian *urīṣu*, “the male goat”, we find for example on a Late Babylonian zodiacal calendar as symbol of the month of AB[16] and of which the Aramaic *gadyā* is an adaptation.

11. *mlḥ* ≈ *Aquarius*. In fact, it is difficult after this transliteration to determine if we have here an object in the eastern tradition, or a man in the eastern one. But just a little consideration: if the Uruk seals give us the figure of a man[17], the general name in the West Semitic lists (the western as the eastern ones) is an object, the correspondent of the Akkadian word *dālû*, however not documented up to now by Akkadian documents. Thus, if the Safaitic word were corresponding to a man, it would be an exception in the West Semitic horizon.

12. *ḏl* ≈ *Pisces*. We have here a calque very close from the Akkakian *zibbātu*. As for *h-rmy* and *y’mr*, it would find origin in the description of the Babylonian figure we find on Late Babylonian seals[18]

Overall, on 12 signs: 1. 5 names (*s¹rṭ*, *h-’s¹d*, *’mt*, *ᶜaqbt* and probably *mlḥ*) are common to all Semitic zodiacs and consist in loanwords, calques or adaptations of Aramaic dialects, without we can say if there are occidental or oriental; 2. 2 names (*ḏkr* and *h-rmy*) are rather derived from West Aramaic names; 3. 1 name (*h-ngm*) is obviously in the East Aramaic tradition; 4. 2 names (*’’aly* and *gml*) seem to be pure local adaptations; and 5. 2 names (*y’mr* and *ḏl*) are very closes of the Babylonian names, whether as loanwords borrowed to Late Babylonian restes or as descriptions of classical images of the correspondent signs diffused in the region. The least we can say is that the linguistic data confirm the geographical ones: we are here in a crossroads of influences and it is difficult, in my opinion, to say those which are dominating.

---

[14] WALLENFELS, Ronald, “Zodiacal signs among the seal impressions from Hellenistic Uruk”, in COHEN, Mark E., SNELL, Danial C, & WEISBERG, David, B, *The Tablet and the Scroll, Near Eastern Studies in Honor of William W. Hallo*, Betheda (Marylang): CDL press, 1993, 286. For more details on the seals impressions of Uruk R, see WALLENFELS, Ronald, *Uruk Hellenistic Seal Impressions in the Yale Babylonian Collection.* I. *Cuneiform Tablets*, Deutsches Archäologisches Institut, Abteilung Baghdad, Mainz am Rhein : Philipp von Zabern, 1994 [*Ausgrabungen in Uruk-Warka Endberichte*, XIX].

[15] WALLENFELS, “Zodiacal signs”, *loc. cit*., 286.

[16] VON WEIHER, *loc. cit.*, 178-179 (Nr 43).

[17] WALLENFELS, “Zodiacal signs”, *loc. cit*., 286.

[18] *Ibid*., 287.

II. About the Safaitic calendar

You have surely realized that my approach of the zodiac and the stars in Antiquity is above all of philological, not of astronomical nature in its mathematical aspects. I have nevertheless entered by force of circumstance on the ground of the astronomical systems and their history. So my commentaries and observations in this field will not overstep my limited experience.

1. Zodiac and calendars in Mesopotamia

You write: "The zodiac calendars of Antiquity comprised an ideal 360-day year, consisting of twelve 30-day months. The movement of the moon across the zodiac belt reckoned the days and months, while the sun reckoned years." (Your Part II, 2). The simple expression "zodiac calendar" suggests to me the following considerations.

The link between the 12 months of the Standard Babylonian calendar and the 12 zodiac signs is obvious from the beginning. Both lists result of a division of the time elapsed between two moments where the sun assumes the same position on the sky at its rising, but from observations which can be diverse, and with purposes sometimes different. If the aims of the luni-solar calendar are multiples, the one of the zodiac is, at least at first, very specialized: to give the position of the sun, moon and the planets on the ecliptic, a notion which supposes precise developments in the knowledge and the configuration of the sky. It is in Mesopotamia a direct product of the rationalization of the computus of the *kakkabū minâti* usually named "normal stars" used to the elaboration of what Abraham Sachs and Herman Hunger name "Astronomical diaries" [19].

Using the zodiacal sign for measuring the progress of the moon on the ecliptic is so contained in the very nature of the zodiacal computus. Now, given that in Mesopotamia the year is of 360 days and that the daily progress of the sun on the ecliptic corresponds to one degree, it is not difficult to establish an one-to-one relation between months and the zodiacal signs. A transition to this complete homothetic transformation may be found in the tablet W 22646 studied by von Weiher[20]. This document actually presents for each month what Daniel Foxvogt understands as the symbol of the zodiacal sign corresponding to the month[21]: so, whereas *Aries* is indicated in the text by te.LÚ, the term placed in the table aside the month of itu.BARÁ is UDU.NIT[Á].

2. Others zodiacal calendars in the Middle East region.

You write: "Zodiac calendars were rather common in the Ancient Near East, from 3rd century BCE to the 2nd c. CE" [22] and you refer to Helen Jacobus[23].

---

[19] SACHS, Abraham, HUNGER, Hermann & *al.*, *Astronomical Diaries*, & related Texts, 6 vol., Wien: Verflag de Österreichischen Akademie der Wissenschaften, 1988-2007.

[20] VON WEIHER, Egbert, *ibid.*

[21] FOXVOGT, Daniel, "Astral Dumuzi", in M.E. Cohen et al., *The Tablet and the Scroll. Near Eastern Studies in Honor of William W. Hallo* , (Bethesda, 1993), 107.

[22] Your article "An Ancient Arabian Zodiac. The Constellations in the Safaitic Inscriptions, Part II (draft), 2.

[23] You wrote then: "see, most recently, Jacobus 2014 for references", *idem*. You give at this point two references: I already red the first reference, *i.e.* JACOBUS, Helen, "Greco-Roman Zodiac Sundials and Their Links to a Qumran Calendar (4Q208-4Q209)", M*editerranean Archaeology and Archaeometry* 14 (3), 67–81;

There is no doubt that the Qumran text 4Q318 gives us a zodiacal calendar[24]. But, as you quote it, the zodiacs of Palmyra and Doura Europos do not have relation with any calendar. In fact the zodiac may be used in many purposes. As for the zodiac of the temple of Bēl in Palmyra, unfortunely possibly destroyed at this day, seems to be a metaphoric representation of the sky ruled by the gods. On another side, the zodiac of Bagdad in 762 had an horoscopic aim.

Now, the relief of Ḫirbat al-Tannūr named zodiac is probably, in my opinion, a zodiacal calendar, *i.e.* a computus that zodiacal signs divisions of the year. A surprising particularity of this Nabatean object is the division of the circle into two parts: the first six signs, signs, *i.e. Aries* to *Virgo* arranged anticlockwise, the six others clockwise, what induces a division of the year into two seasons, the first one from Mars to September, the second from September to Mars.

Now, without entering into the explanations which lead to it, I take notice of your assertion that "the Arabian zodiac as a system is not directly comparable to any of the attested zodiac calendars known from Antiquity, nor can it be interpreted as a luni-solar or lunar calendar where the zodiac names simply substitute for month names." (Your Part II, 6).

3. The Safaitic zodiacal calendar and the *anwā'* tradition.

The relation you establish between the Safaitic zodiac calendar and the Pre-Islamic parapegmata is for me of greatest interest. Il have myself worked on this field. I was in fact puzzled by this remark of Charles Pellat : "les auteurs du moyen âge, dans leurs exposés, s'en sont tenus à ce nombre [*i.e.* 28] en négligeant peut-être d'anciens *anwā'* qui, situés trope loin du zodiaque, n'avaient pas été conservés »[25]. After him, Daniel Varisco studied this question, presenting the lists of *anwā'* of Abū Zayd and Quṭrub[26], and quoted that several Arab authors felt the obligation to explain why a star like *al-Šiʿrā* , quite distant form the ecliptic, has a *naw*[27].

So, resting on these remarks, I tried to deepen this question and I displayed my conclusions on my book *Le Ciel des Arabes*[28]. There are strong reasons to believe that the system of the *manāzil* was built up itself from ancient Arabian sidereal computuses using the rising, the culmination and the setting of the significant stars for their brightness or their location, which could look like the Greek parapegma. We had the same phenomenon in India where some *nakṣatrāṇi*, as *ahijit* ≈ *αεζ Lyr*, are quite very distant from the ecliptic. That leads to the establishment of this stages: 1. The most ancient sidereal computuses take as markers a certain number of stars for their brightness or their location; 2. Transformation in an ecliptic computus – I prefer this term to "zodiacal" that is too much extensible and thus very vague – with two consequences: a. utilization of ecliptic paranatellonta for the ancient markers located out of the ecliptic; and b. rationalization of the stations by division of the ecliptic in aliquote

---

but no yet the second, *i.e.* "*Zodiac Calendars in the Dead Sea Scrolls and Their Reception: Ancient Astronomy and Astrology in Early Judaism"* [*IJS* 14], Leiden-Boston: Brill, Dec. 2014.

[24] JACOBUS, Helen, "The Zodiac Sign Names in the Dead Sea Scrolls (4Q318): Features and Questions", *ARAM* 24 -2012): 311–331.

[25] PELLAT, Charles, "Dictons rimés, *anwā'* et mansions lunaires chez les Arabes", *Arabica*, II, (1955), 19.

[26] VARISCO, Daniel Martin, "The Rain Periods in Pre-Islamic Arabia", *Arabica*, 34, Fasc. 2 (Jul., 1987), 255.

[27] VARISCO, Daniel Martin, "The Origin of the *Anwā'* in Arab Tradition", *Studia Islamica* 74 (1991), 17.

[28] See *Le ciel des Arabes*, *op. cit.*, 25-35.

parts[29]. So we obtain by the Arabs the *manāzil al-qamar*. By the way, I do not agree with the idea that they borrowed the lunar stations to the Indians. At the difference with Daniel Varisco, such a conclusion is not for me "inescapable"[30]. On the contrary, I think to have demonstrated the Arabs did not need to borrow the notion from the Indians, and that on the contrary they had all the elements to elaborate it on an autonomous way[31].

Now, an interrogation: I do not understand why your table of the Safaitic Year (Part I, 23) begins with *ḏl* when you write that "the zodiac sequence begins with *mlḥ*" (Part II, 6).

Your comparative study of the zodiacal Safaitic calendar with the ancient *anwā'* is particularly instructive. You are showing that the range of the human activities like migrations and perhaps pilgrimages, which the Safaitic zodiacal calendar tied to the various signs, is more limited than those of the ancient *anwā'* calendars, of which we know only the more recent developments and still in versions transformed by the system of the *manāzil al-qamar*. By restricting us to this only aspect, we could be tempted to infer that the Safaitic calendar is a precursor of the ancient *anwā'* system. Except that its astronomical concept is quitter different. As it is already pointed out, the first one is based on a division of the ecliptic in 12 aliquote parts, whereas the second is a sidereal calendar, and sets as markers of stars outside the ecliptic. There so no astronomical filiation between them.

Anyway, the Safaitic calendar is a precious discovery, with an particular cutting up of the seasons. , we have to add to the various calendars we already known, which at this time, were coming from the south of the Arabian Peninsula. It is surely a point which enriches greatly the astronomical heritage of the early Arabic-speaking communities and, incidentally, the developments I made in my book on "Le ciel arabe antique".

[29] What is different in China with the *xiu*, *i.e.* asterisms choosen with no care of equidistance.

[30] Varisco, "The Origin of the *Anwā'* in Arab Tradition", *loc. cit.*, 7.

[31] See *Le ciel des Arabes*, *op. cit.*, 25-35.