UIGUR AND TIBETAN LISTS OF THE INDIAN LUNAR MANSIONS

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The paper procures evidence for the strong influence of Indian culture upon the astronomical (and, at the same time, astrological) teachings in medieval Central Asia. Among those fragmentary texts in Uigur language, which have been preserved in the oasis of Turfan and edited by the Academy of Sciences in Berlin, there are two lists of the lunar mansions. One list was enumerating 27 *nakṣatras* of equal length and the respective signs of the zodiac, while the other one gives different durations of the moon's passage through 28 *nakṣatras*. Both are paralleled and exemplified by hitherto unpublished Tibetan texts. Evaluation of a synoptic table leads to the conclusion that the relationship of Tibetan and of Uigur data to al-Biruni's is about the same, but Tibetan seems a little closer to direct Hindu tradition, as summed up by W. Kirfel. Finally, some remarks are made about another Uigur fragment dealing with the sidereal month and an asterism of seven stars.

During the first millennium C.E., the influence of Indian astronomy extended far north and east into Central Asia and China. The mediators of cultural relations in those days have been mostly Buddhist monks: Indian missionaries to Tibet and China and Tibetan and Chinese pilgrims to the sacred places of India. Precious literary documents of spiritual life in the heart of Asia have been preserved in the oasis of Turfan (Eastern, Chinese Turkestan). They tell us about the religious teachings of various peoples—Iranian, Turkish, Chinese and others—professing different creeds, notably Buddhism and Manichaeism.

The edition of 'Turfan Fragments' has been a fascinating task of the (then 'Prussian') Academy of Sciences in Berlin, Germany, in pre-war days. Although mostly of interest to scholars specialized in linguistics or in the religious history of Central Asia, there are some documents which should not be overlooked by the historians of science. In 1930 and 1932 Rachmati[1] has published two papers on Uigur medicine. The present paper deals with two lists of the lunar mansions, first edited—together with some other astrological texts—in 1936 by Rachmati.[2] The edition comprises the Uigur text in

transliteration and (partly) photographs, its German translation, notes by the editor/translator and by the Sinologist, Dr. W. Eberhard.

The first fragmentary list (T. II S. 131 = Rachmati No. 2)[3] enumerates 20 lunar mansions and the corresponding signs of the zodiac. The names of the asterisms are given in Sanskrit of simplified spelling. At the beginning, *Aśvinī* is missing and at the end *Śravaṇa* through *Revatī* as well as *Makara*, *Kumbha* and *Mīna* are lost. Between the columns of *nakṣatras* and *rāśis*, special symbols which look like fans or nine-legged spiders indicate how much of a *nakṣatra* belongs to a *rāśi*. The underlying proportionality $4:9 = \frac{12\ \text{(zodiacal signs)}}{27\ \text{(lunar mansions)}}$ makes it obvious that the list did not contain *Abhijit*, the 28th *nakṣatra*.

In addition to the Sanskrit names of asterisms, the fragment lists numbers, mostly written by Uigur numerical symbols. Some of them are still visible, but their meaning is not quite clear. Probably they were intended to tell the number of stars of each *nakṣatra* and the times of rising (*udayāsavas*) of the *rāśiṣ*. In two cases at least (*hastā* and *jyeṣṭhā*) the number of stars appears correct; and the order-of-magnitude of the presumed ascension times might fit a *liptā* $\left(\frac{1}{3600}\ \text{day}\right)$ scale. Ample allowance is to be made for accumulated errors of different scribes. Moreover, different units of time may have been used promiscuously, as in the Tibetan astronomical encyclopedia, *Vaiḍūrya dkar-po*, which uses units of *ghaṭikā*, fractions of *ghaṭikā* and *liptā* in the same context (fol. 36*b*, discussed by the present author in a hitherto-unpublished book on Indo-Tibetan Astronomy, 1966).

The equivalence of 27 (not 28!) *nakṣatras* to the 12 *rāśis* is stated explicitly in an earlier (X./XI. sec. C.E.?) Indo-Tibetan text: *Kālacakrāvatāra* = *dpal-dus-kyi 'k'or-lo-la' ǰug-pa* (Petri,[4] *unpublished*). It says that the lunar mansions are divided by the celestial equator at the boundary between *Revatī* and *Aśvinī* and through the midst of *Citrā*. Then it goes on: 'In this way, $2\frac{1}{4}$ lunar mansions are equal to 1 zodiacal sign':

eṣveva sapādanakṣatradvayam ekarāśiḥ =
de-rnams k'o-na-la rkaṅ-pa daṅ bčas-pa'i rgyu-skar-gñis-la k'yim-gčig-ñid-do.

The reverse of the list T. II S. 131 dealt with the (apparent) motion of the moon, in Uigur language, but no translation is possible because the legible text is very scanty.

The second list (T. II Y. 29 = Rachmati No. 3; *see* the table with the present paper) enumerates, beginning with *Kṛttikā*, 28 lunar mansions by their Sanskrit names. It gives the duration of the moon's passage (lit.: staying, Uig. root: tur-) through each *nakṣatra* in units of 12 hours, called

either 'day' (*kün*) or 'night' (*tün*). Regarding *Abhijit*, no duration is given. The list contains some errors which will be discussed later on.

Very interesting are the accompanying sketches of the stellar configurations. They show simplified geometrical patterns, like equilateral triangles, squares and rectangular broken lines, of all about the same size. The number of stars of each *nakṣatra* is not stated explicitly (with the only exception of *Kṛttikā*, *see* below). In our table it has been derived from those sketches.

Before going into details, attention may be called to a Tibetan treatise on the lunar mansions. Volume 143 of the Peking edition of the *Tibetan Tripiṭaka* (as reprinted in Japan) contains a textbook on *Omina* (*akṣanimittakṛtinirdeśa* = *ltas-kyi rnam-pa bstan-pa*) of 25 chapters, ascribed to the *Mahāmuni Ṛṣi* (*t'ub-pa č'en-po draṅ-sroṅ*) *Garga*. Chapters 1–15 (serial No. 5815 of the Japanese edition) treat mainly meteorological phenomena. Chapter 16 (here begins serial No. 5816) is entitled:

āryavyākaraṇāntarodbhavagrahanakṣatraprakṛtinirdeśa =
'ārya byakaraṇa'i naṅ-nas 'byuṅ-ba gza' daṅ rgyu-skar-gyi raṅbžin bšad-pa.

This heading holds strictly to chapters 16–18, whereas the remaining chapters, 19–25, speak, under individual short headings, of, amongst others, shooting stars, haloes and earthquakes.

In chapter 16, 28 lunar mansions (tib.: *rgyu-skar*) are enumerated in the same order, beginning with smin-drug (*Kṛttikā*), as in the second Uigur list. The Tibetan text gives successively name, number of component stars, shape (*dbyibs*), duration $\left(yud\text{-}c'am = \frac{1}{30}\,\text{day}\right)$, 'parts' (*č'a*; mostly seven parts constitute one *nakṣatra*), and, additionally, the astrologically pertinent food, deity and family (*k'a-zas*, *lha*, *rus* = *gotra*). Pending further investigation of these latter items, in our table we have listed for comparison only the durations, star-numbers, and Tibetan names. Moreover, the table contains the durations and star-numbers according to direct Hindu tradition[5] and the numbers of stars as reported by al-Biruni in his famous book on India.[6]

The Uigur transcriptions of the Sanskrit names are given in their most common spelling and vocalization. The only substantial deviation from original Sanskrit is *Sušak* for *Viśākhā*. In Tibetan *rgyu-skar* names there is a notable disagreement concerning the 'twin' asterisms. The discriminating words *pūrva-* and *uttara-* are translated by *stod* and *smad*, lit.: 'upper' and 'lower'; i.e. preceding and following on the celestial sphere. But only the *Bhadrapadās* have always a Tibetan twin equivalent. The *Sādhās* are not always and the *Phālgunīs* apparently never given Tibetan twin names, whereas *Punarvasu* and *Puṣyā* are identical with Tibetan *rgyal stod* and *rgyal smad*,

respectively, and *Maghā* and *Pūrvaphālgunī* are *rta č'en* and *rta čuṅ*, i.e. the Big and the Small Horse. This topic needs further study in connection with the *dbyibs* data and comparative astrothetic folklore.

The duration of the moon's staying in each mansion is not always correctly given in the Uigur list. Not only the alternation of night and day is not strictly maintained, but, moreover, the duration itself is somewhat corrupt, e.g. at *Rohiṇī* we expect to read:

bir kün bir tün yana bir kün turur =

'stays one day, one night, and again one day'. But our text has the sequence 'night, day, day'; and a second *turur* 'stays' has been shifted to the next mansion, *Mṛgaśiras*, where *turur* appears twice. At *Uttaraphālgunī*, 'one night and one day' are missing. *Uttaraṣāḍhā* and *Uttarabhadrapadā* lack 'one day' each.

On the other hand, *Bharaṇī* has in the Uigur text double the duration than in Hindu tradition. Interestingly, the Tibetan shows here the same variation, a fact which may hint to a closer connection with the Uigur source. At *Dhaniṣṭhā*, Rachmati reads:

bir tün bir kün turup. bičin öd (indä . . . . .) =

'stays one night (and) one day, at the monkey hour', which disturbs the context badly since nowhere else such an additional remark is to be found.

In the Tibetan, the duration-of-staying data are in accordance with Hindu teachings, except *Bharaṇī* (just mentioned), and *Anurādhā* where the *yud-c'am* erroneously are missing. At *Abhijit*, 6 *yud-c'am* are equivalent to $6\times\frac{1}{30}$ day $=\frac{1}{5}$ day. All the $54\times15+6$ *yud-c'am* summed up give 27·2 days —still somewhat less than the true duration of the sidereal month: 27·32 days. A better approximation effectuates the Jaina tradition[7] where a total of $54\times1005+630$ units $\left(\frac{1}{305}\text{ degree each}\right)$ is equivalent to 27·3 days. The Uigur data result in the raw value of 27·0 days as though no additional lunar mansion existed to make up for the exceeding 0·32 days.

The well-known secondary character of *Abhijit* is illustrated by a Tibetan square-shaped diagram[8] of 4×7 *rgyu-skar* in the *Vaiḍūrya dkar-po*, fol. 62*b*/63*a*. Here each asterism is given a serial number, starting with 0 at *t'a-skar* = *Aśvinī*, and ending with 26 at *nam-gru* = *Revatī*. The total of 28 *nakṣatras* is obtained by writing the number 21 twice: for *gro-žun* (al.: *gro-bžin*) = *Śravaṇa* and for *byi-ha-žin* (al.: *byi-žin*) = *Abhijit*, which has been inserted here after *Śravaṇa*, instead of before it as usual.

The individual numbers of component stars as indicated by the Uigur sketches of the asterisms differ somewhat from Indian and Tibetan tradition (*see* our table). The most obvious disagreement shows *Uttaraphālgunī* and

Hastā. It may easily be eliminated if we assume that the Uigur numbers (or sketches) have been exchanged there by a copyist's error. Taking this for granted, then a thorough agreement between Uigur, Tibetan and (both) Indian lists of numbers of stars exists in 17 cases. Total disagreement occurs only once: at *Śatabhiṣaj*. At *Mūlā* the Uigur manuscript is fragmentary.

A study of the remaining nine cases reveals: 1. When Uigur and Tibetan are identical, then they agree with Sanskrit either according to Kirfel or according to al-Biruni in two cases. 2. When they are not identical, then (a) Uigur as well as Tibetan agree with al-Biruni in two cases; (b) Uigur agrees with Sanskrit according to Kirfel in one case only, whereas Tibetan agrees with it in three cases.

If we take this—admittedly weak—evidence seriously, then we may conclude: The relationship of Tibetan and of Uigur tradition to al-Biruni's is about the same, but Tibetan seems to be closer related to direct Sanskrit tradition as evaluated by Kirfel. This result is not surprising if we consider that al-Biruni was about contemporary with the earlier Uigur text, and that the cultural influence of India into Tibet was well established since long at that time.

One point needs special consideration. The number of stars which constitute a lunar mansion is never stated verbally by the Uigur list—except at *Kṛttikā*. There the sketch indicates clearly six individual stars in perfect agreement with Indian and Tibetan tradition. The Tibetan name, *smin-drug*, means explicitly: 'six girls'.

The immediately preceding text in the Uigur manuscript, T. II Y. 29 = Rachmati No. 19, enumerates the dwelling places of the human spirit (?) in the different members of the body during each of the twelve days of the Chinese cycle of animals. Then the manuscript reads, according to Rachmati:

kirḍik yultuz-lar a(l) ḍī yultuz.

Rachmati translates: '*Kṛttikā* consists of six stars'. Literally it is: '*Kṛttikā*/stars (or asterisms)/six/star'. Uigur *yultuz* or *yulduz* means 'star' as well as 'asterism' and even 'planet' (*see*, e.g. Rachmati's glossary where, however, just this passage is missing). Rachmati did not translate '*yultuzlar*'. It is tempting to presume that (as we conjected in the case of *turur* at *Rohiṇī*/*Mṛgaśirās*, *vide supra*) this word had been shifted from an upper line. In this way, *yultuzlar* should be translated by 'The Asterisms' or 'The Lunar Mansions', as a heading of the whole following list.

Anyway, the text tells us: '*Kṛttikā*—six (individual) stars'. Really six? The manuscript writing, as reproduced in the printed edition, Table IV, is not quite clear. It seems possible to read:

y(i)ḍi = seven!

This would explain why here—and only here—a verbal remark on the number of stars occurs. The author wanted to point out that the Pleiades consist of seven stars, in spite of the common Indian tradition as represented even by the sketch in the list itself.

In India, when hearing of an asterism of seven stars, one thinks inevitably of the *Saptarṣi* (*Ursa Major*), the best-known extra-zodiacal sign in India and Tibet. But in China as well as in—say—Germany, the open star cluster of the Pleiades is traditionally considered to consist of seven stars. The German word 'Siebengestirn' means literally 'Asterism of Seven'. The Chinese lunar mansion Mao (No. 18 according to Chinese reckoning) comprises invariably seven stars (Needham[9] and the encyclopedic dictionaries[10, 11] kindly looked up for the present author by Dr. Rolf Trauzettel, Munich).

The Turkish languages possess a name of the Pleiades: *ülkar* or *ölkär*,[12, 13] whose etymology is unknown. May there be a connection with *ülgar* or *ölkär*[14] = 'fluff, fine hairs on woollen fabrics or fruits'? The diffuse appearance of the star cluster leads to this guess.

On the other hand, there exists a word *yitikän* or *yätigän* (Uigur: A. von Gabain[15]; Radloff III 361: Jagatay dialect) which is derived from *yiti qan*—'seven kings' (Rachmati, p. 77) and usually identified with *Ursa Major* (Radloff, l.c., says: *Ursa Major* and *Minor*, which is too much!). Of course, it is obvious to think here at once of the Seven *Ṛṣis*. But there is one difficulty which seems to have escaped hitherto any notice.

The Uigur composite fragment Rachmati No. 40 speaks at length of a Buddhist *yitikän-sūtra* and its blessings. One of those blessings is '(re) birth under (the asterisms of) *yitikän*' (l. 79/80). Astrologically, this does not make much sense if *yitikän* is a circumpolar asterism. We would expect an ecliptical one, i.e. a *nakṣatra* or a *rāśi*. The text concludes with an enumeration of the days 'when the torch is being lighted to *yitikän*' (l. 98 sq.):

Month No.	Day No.	Difference (days)
1	7	
2	4	27
3	2	28
4	27	55 (= 27+28)
5	25	28
6	23	28
7	20	27
8	7	17 (= 27−10)
9	20	43 (= 27+16)
10	18	28
11	15	27
12	8	23

Synoptic Table of the Lunar Mansions

Names				Duration[1]			Number of stars[2]			
Sanskrit	Uigur translit.	Tibetan	Tib. variant	India	Uig.	Tib.	Ki.	alB.	Uig.	Tib.
Kṛttikā	*kirtik*	*smin drug*		dn	dn	30	6	6	6	6
Rohiṇī	*urugini*	*snar ma*	*be rji*	dnd	ndd	45	5	5	5	5
Mṛgaśiras	*mrgašir*	*mgo*	*smal po*	nd	nd	30	3	3	3	3
Ārdrā	*ardir*	*lag*		n	n	15	1	1	1	1
Punarvasu	*punarbasu*	*nabs so*	*rgyal stod*	dnd	dnd	45	4	2	2	2
Puṣyā	*puš*	*rgyal*	*rgyal smad*	nd	dn	30	3	1	5	3
Aśleṣa	*ašliš*	*skag*	*wa*	n	d	15	6	6	6	6
Maghā	*mag*	*mč'u*	*rta č'en*	dn	dn	30	5	6	7	6
Pūrvaphālgunī	*purvapalguni*	*gre*	*rta čuṅ*	dn	dn	30	2	2	2	2
Uttaraphālgunī	*utrapalguni*	*dbo*	*k'ra*	dnd	d	45	1	2	5	2
Hastā	*xast*	*me bži*	*bya ma*	nd	dn	30	5	5	1	5
Citrā	*čaitir*	*nag pa*	*bya'u*	nd	dn	30	1	1	1	1
Svātī	*suvadi*	*sa ri*		n	n	15	1	1	1	1
Viśākhā	*sušak*	*sa ga*		dnd	dnd	45	4	2	2	4
Anurādhā	*anurat*	*lha mc'ams*	*lag sor*	nd	dn	[30]	4	4	4	4
Jyeṣṭhā	*čišt*	*snron*	*lde'u*	n	n	15	3	3	3	3
Mūla	*mul*	*snrubs*	*sog pa*	dn	dn	30	1	2	[–]	9
Pūrvāṣāḍhā	*purvašat*	*č'u stod*		dn	dn	30	1	4	4	4
Uttarāṣāḍhā	*utrašat*	*č'u smad*	*p'ul*	dnd	dn	45	4	4	4	4
Abhijit	*abiči*	*byi zin*		—	—	6	3	3	3	3
Śravaṇa	*širavan*	*gro žin*		nd	dn	30	3	3	3	3
Dhaniṣṭhā	*daniš*	*mon gre*	*mon dre*	nd	nd	30	4	5	4	4
Śatabhiṣaj	*satabiš*	*mon gru*	*sgrog*	n	nd	15	100	1	5	8
Pūrvabhadrapadā	*purvabadrabat*	*k'rums stod*		dn	nd	30	2	2	2	2
Uttarabhadrapadā	*utrabadrabat*	*k'runs smad*		dnd	nd	45	2	2	2	2
Revatī	*rivadi*	*nam gru*	*še sa*	nd	nd	30	32	1	1	32
Aśvinī	*ašvini*	*t'a-skar*	*dbyug gu*	nd	dn	30	3	2	3	3
Bharaṇī	*barani*	*bra ñe*		n	dn	30	3	3	3	3

[1] d = day, n = night; Tibetan data: *yud-c'cam* = $\frac{1}{30}$ d.

[2] Ki. = Hindu tradition according to W. Kirfel (*see* text); al-B = according to al-Biruni.

The 'Differences' have been calculated under the assumption that every month comprises of 30 days; they are not part of the Uigur text. We see at once that—although slightly corrupted—a regular interval of 27-28 days between the events of torch-lighting to *yitikän* is implied. That is the sidereal month and, obviously, this event must be the passing of the moon through an asterism of the ecliptic. Therefore, at least here, *yitikän* can hardly be *Ursa Major!*

The torch, of course, is the moon. Radloff (l.c. III 553) cites s.v. *yula* = torch—the same word is used by our Uigur text—a saying from the Old Turkish Kudatku Bilig: 'shining like a torch, bright like the moon'. and Rachmati himself cites (p. 78, in a note to No. 40, 1.51) an Osman-Turkish astrological rule that a similar blessing, as allegedly bestowed by the *yitikän-sūtra*, is granted by writing a charm 'when the moon reaches the zodiacal sign Taurus'. Well—*Kṛttikā* is the first lunar mansion which belongs to Taurus.

The Uigur fragment T. III M. 190 (Rachmati No. 14) speaks of the astrological characteristics of nine stars (*yultuz*), which are, according to Rachmati, the seven stars of *Ursa Major*, plus two unidentified ones. This is rather puzzling. Anyway, the seven-star-problem in Indo-Chinese interdependent astronomy needs a final solution.

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