

Historical Notes

Revisiting the Calendar Tradition of Ancient India

B N Narahari Achar*

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Abstract

A recent model for the calendrical tradition of ancient India has been examined with particular reference to *yajña* ritual.

Key words: Calendar tradition, *Caitrādi* scheme, Heliacal rising, *Nakṣatra*, *Pancāṅga*, *Yajña* ritual

1. INTRODUCTION

By the term Calendar, which comes from Latin, *calendarium*, meaning an account book, we understand a system of determining the beginning, length and divisions of a year, and a table of some sort that shows the days, weeks and months of a given year. We then try to fit what is essentially a western concept with something which resembles it in the Indian context and call it the Calendar tradition of India. Thus the problem becomes one of identifying the beginning of the year, its length, its divisions etc. It is pointing the obvious when we say that calendar (i.e., the tables we use the Gregorian calendar, for example), simply lists the beginning of the year as January 1, the months and days of the week. In the US, the calendar is important for April 15, the Tax day. Some holidays are celebrated on fixed dates, Such as the Independence day, or Christmas day, but some are celebrated on fixed day of the week, such as the Thursday celebration of Thanksgiving Day. Except for determining the Easter, New Moons, Full Moons etc. do not matter at all. Most other celebrations are done on Mondays only. But other religious calendars such as the Jewish, or Muslim calendars do consider New Moons, Full moons, some consider intercalary months, others do not.

In the Indian context, there is the *pancāṅga*, a very complex compendium of “five parts”, *tithi*, *vāra*, *nakṣatra*, etc. But this tradition is only about 1500 years old. What was the tradition during the Vedic times? Dikshit (1969) had already addressed the issues connected with the so-called Vedic Calendar, but without attaching a chronology to it.

In a recent article Bag (2015) has expounded on the calendrical tradition of India going back to the Vedic times, giving an overview of the important results and in the process has established a chronology for the Vedic tradition. According to him there are textual traditions belonging to *ṛgveda saṃhitā*, the *yajurveda saṃhitā*, the *brāhmaṇas* and the *vedāṅga-jauṭiṣa* fixed at 6500 BC, 5000 BC, 2500 BC and 1000 BC respectively. The Harappan tradition fixed at c.2000 BC followed the *yajurveda* tradition. It will be interesting to review the evidence presented by him and to examine where the date of the *mahābhārata* war fits in the scheme of things, since Bag appears to draw substantially from Bhatnagar, who gives a date of 1793 BC for the war.

It is indeed surprising that Bag begins with a discussion of the Babylonian system, with

*University of Memphis, Memphis, TN 38152, USA

twenty four (or eighteen, according to some) star systems along the ecliptic on the basis of *Mul-Apin* (c. 700 BC) when it is known that the Indian system is substantially more ancient by several thousand years. It would have been more natural to start with the older system first. But his choice, which is a hangover from the discussions of nearly a hundred years ago, carries with it the whole unnecessary controversy about the origin of the *nakṣatra* system which plagued the literature then.

Bag states that *ṛgveda* “has also reference to a few *nakṣatras* like *āśvayujau* (RV.I.3.1; III.58.1-9), *puṣya* (RV. I.42.1; VI.54.2), *aghā* (or *maghā*), *arjunī* (or *phālguni*) (RV. X.85.13), suggesting that the prominent *nakṣatras* were possibly known (emphasis added by the author) as a part of the zodiacal system during the time of *ṛgveda*.” That the Indians had first recognized only six stars (in *ṛgveda*), then raised to twenty eight or twenty seven *nakṣatras* (definitely in *taittirīya saṃhita*) seems to be the driving hypothesis for his classification into *ṛgveda* and *yajurveda saṃhita* traditions.

2. THE ENTIRE SYSTEM OF NAKṢATRAS IS KNOWN IN ṚGVEDA

It has been shown by the author that such a hypothesis that only six were known in *ṛgveda* but the complete system was known in *taittirīya* is without a basis, but the entire list can be traced to *ṛgveda* (Achar, 2000a, 2002, pp. 361-377; 2003, pp.183-193).

The clue that the entire system is known in *ṛgveda* is provided by the *vedāṅga-jauṭiṣa* (VJ). It is known that each *nakṣatra* is associated with a presiding deity. A *nakṣatra* can be addressed either by its name or by the name of the deity. In VJ, there is one list, where some *nakṣatras* are addressed by the first or the last letter of their name, but some others are addressed by the first or the last letter of the name of the deity. It is very clear in the context which *nakṣatra* is meant. There

is also a second list, where every *nakṣatra* is referred to by a letter of the name of the presiding deity only. Now in *ṛgveda* we do find the actual names of six *nakṣatras*, but as the author has shown, there are lists of deities which actually correspond to the 27/28 *nakṣatras*. The details can be obtained from the author’s papers cited. Thus the entire list of *nakṣatras* is known in *ṛgveda*.

3. HELIACAL RISING AND YEARNING FOR NON-VISIBILITY OF AŚVINĪ

Bag’s central theme is that *ṛgveda* refers to heliacal rising of *āśvayujau* at Winter solstice and he cites :

....putraścarati dakṣiṇāyāḥ

ā dyotanīm vahati śubhrayāmośasaḥ
stomo aśvināvajīgaḥ|| RV III.58.1

‘(*āśvināyujau*), the son of *dakṣiṇāyana*, has entered into the sun, then carries the white dazzled day-maker sun with it, when the reciter of *āśvināyujau* are getting assembled before dawn’.

Bag continues and says that it refers to *āśvinī nakṣatra* (β Arietis) as the son of *dakṣiṇāyana* (South point or Winter solstice) and its heliacal rising with sun at dawn an important event for the reciter(s) who had assembled for observation. It is a special type of ritual connected to a year beginning at the winter solstice. The ritual was to observe the Helical Rising (the first seeing) of *āśvinī*, when they emerge from behind the sun on the eastern horizon before sunrise. The *āśvins* then represented the Winter Solstice.

According to Bag, *ṛgveda* also records yearning by the worshippers for *āśvinī* is no longer being seen at the Winter solstice in the early morning and he cites RV. V. 74.1-2 and refers to the Sky Map given by Bhatnagar for December 7000 BC in support of his hypothesis.

Bag then argues that as time passed, because of precession, Winter solstice no longer

occurred at *aśvinī*, but had moved to *revati* which is rather faint. So the Vedic people then chose a new marker, Summer solstice at *citrā* and chose full moon at *citrā* as a reference point and that is the beginning of *caitrādi* scheme. However all this speculation still leaves why and how the lunar months were restricted to only 12 unclear. In any case, Bag says that the *yajurveda* now contains all the 27 *nakṣatras* and the date when the *caitrādi* scheme became popular is 6000 BC. So he labels this as the *yajurveda saṃhita* period. Bag gives the list of *nakṣatras* and their identification with the modern names in star catalogs made in the Report of the Calendar Reform Committee (Saha and Lahiri, 1955).

Unfortunately the whole thesis seems to be based on a misidentification. He does not identify what exactly is the ritual connected to a year beginning at the winter solstice except to say that it is a special type of ritual. (Perhaps it is the *gavāmayana sattra*). But the *ṛk* RV.III.58.1 he has quoted can be looked up. It is the 58th *sūkta* in the third *maṇḍala*, *viśvāmitra* is the *ṛṣi*, *aśvinau* are the twin *devatas*, and it is in *triṣṭup chandas*. It has nine *ṛks*. Most importantly its *vinīyoga* says that it is to be used for *aśvinaśastra* recitations of *triṣṭup chandas* in connection with *aśvina kratu* at the time of *prātaranuvāka* recitations in connection with the *prātassavana*, morning libations of soma juice pressing on the day of soma juice pressing in a *somayajña* which forms a part of the *sattra*.

We will give a brief outline of the ritual connected with the recitation of this *mantra* and it will then become clear that the whole interpretation of Heliacal rising at winter solstice and yearning for the disappearance of *aśvinis* might not be appropriate.

4. THE INSTITUTION OF SOMAYAJÑA

Yajña in the simplest terms involves the *tyāga* (the giving up) of some *dravya* (material

possession) of the *yajamāna* (the sacrificer) to the *devata* (deity) through the medium of *agni* (fire) to the accompaniment of recitation of *mantras*. This is the outer ritual, but there is a deep inner significance to this ritual, which is not easily understood, as has been emphasized by Aurobindo (1971).

There are three groups of *yajña* s, depending on the type of offering made to fire in the ritual: (a) *haviryajña* (b) *pākayajña* and (c) *somayajña*. Each of these in turn consists of seven subgroups of *yajñas*

agnyādheya, *agnihotra*, *darśapūrṇamāsa*, *āgrayaṇa*, *cāturmāsya*, *dākṣāyaṇayajña*, and *sautrāmaṇi* belong to the first group, *haviryajña* group. The offering consists of “*havis*”, such as milk, clarified butter, food- grains, etc.

aupāsana, *vaiśvadeva*, *pārvaṇa*, *aṣṭaka*, *māsiśrāddha*, *sarpabali*, and *iśānabali* belong to the second group, *pākayajña*. The material offerings include cooked food-grains.

somayajñas in which the offering is the juice of the crushed *soma* plant made to the deity. *Soma* are further divided into

- (i) *aikāha* those that are completed in one single day
- (ii) *ahīna*, those that require from two to twelve days for completion
- (iii) *sattra*, those that require more than twelve days.

The *soma yajña* the most important of all *yajñas*, is further divided into seven types:

agniṣṭoma, *atyagniṣṭoma*, *ukthya*, *śoḍaśin*, *vājapeya*, *atirātra*, and *aptoryāma* .

All these are already well known in the *ṛgveda saṃhita*, for example, RV(I. 20. 7) refers to the twenty one *yajñas* mentioned above:

“*teno ratnāni dhattana trirā sāptāni sunvate*”

“Confer therefore, riches and accomplish the thrice seven-fold sacrifices.”

The details of performance of all the twenty one *yajñas* are described in the *brāhmaṇa* texts.

Our main concern here is the *agniṣṭoma*. *Agniṣṭoma* is considered the basic or the fundamental one, *prakṛti*, and the remaining six are its variants, *vikṛti*. *Agniṣṭoma* forms an integral part of *Jyotiṣṭoma*, which lasts for five days, and sometimes the two are often identified (Kane, 1997). We use these terms inter-changeably when there is no confusion and describe the five day ritual.

In *agniṣṭoma*, there is one *yajamāna* (sacrificer) and sixteen *ṛtviks* (priests). The *ṛtviks* belong to four *vargas* (groups) of four each, specializing different aspects of the *soma yajña*:

- (a) *Hoṭṛ varga*: *hotā*, *maitrāvaruṇā*, *acchāvāka*, and *grāvāstut*, reciters of the *ṛk mantras*.
- (b) *Adhvaryu varga*: *adhvaryu*, *pratiprastotā*, *neṣṭā*, and *unnetā*, the director of the ceremony and his assistants specializing in the *yajus mantras*
- (c) *Udgāṭṛ varga*: *udgāṭṛ*, *prastotā*, *pratihartā*, *subrahmaṇya*, singers of *sāma*
- (d) *Brahma varga*: *brahmā*, *brāhmaṇācchāmsī*, *agnīdhra* and *potā*. *Brahma* with his group oversees the whole ritual to make sure the whole ritual is carried out without a hitch.

5. FIVE DAYS OF JYOTIṢṬOMA

The ceremonies performed during the five days are as follow:

First day – preliminary ceremonies selection and appointing of the *ṛtvigs* (priests), welcoming them with *madhuparka*, *dīkṣāyanīya iṣṭi* and *dīkṣā*.

Second day-The *prāyaṇīya iṣṭi* or the opening *iṣṭi*, the buying of *soma*; *ātithyeṣṭi*, the

ceremony to welcome *soma*, who is treated as a king with all the attendant honors; *pravargya* and *upasad*. These two rituals are to be done twice, once in the forenoon and once in the afternoon. *Pravargya* is an independent ritual and is supposed to grant the *yajamāna* a celestial body. *Upasad* is also a special ritual and both of these rituals are characterized as *apūrva*. There are very strict rules of conduct regarding food, mating etc., to be followed, sometimes for up to a year, by a person who has performed these two rituals. These two are to be performed twice a day until the day previous to *soma* pressing.

Third day – *pravargya* and *upasad* are both repeated twice once in the morning and once in the afternoon.

Fourth day-On this day both *pravargya* and *upasad* are performed twice all in the morning itself and all the paraphernalia connected with these two are discarded in a *udvāsana* ceremony. The next step is *agni praṇayanam*, the ceremony to bring *agni* from the *āhavanīya* to the *uttaravedi*. The original *āhavanīyas* treated as the *gārhapatya* during the *somayāga* ritual. The preparations for *somayāga* begin with the *agni-soma praṇayanam*, *havirdhana praṇayanam* followed by a sacrifice to *agni* and *soma*.

Fifth day- The day of *soma* pressing, is also called *sutyā*. The *soma* squeezing, offering and drinking of *soma* juice at three great libations, *prātassavana* in the morning, *mādhyandina savana*, the midday pressing and *ṛtīya savana*, in the evening. These are followed by the concluding *udayanīya iṣṭi* and the ablution, *avabhṛta*.

6. RECITATIONS ON THE SUTYĀ DAY

The recitations take place at the three times of *soma* squeezing depicted in Table 1.

There are twelve *stotras* (*mantras* from *sāmaveda saṃhita*) sung by the *udgāṭṛ* group on the day of *soma* pressing. For each *stotra*, the *hoṭṛ* group recites a set of *ṛiks* from *ṛgveda* called

Table 1

<i>prātassāvana</i>		<i>mādhyandinasavana</i>		<i>tr̥tīya sāvana</i>	
<i>stotra</i>	<i>śāstra</i>	<i>stotra</i>	<i>śāstra</i>	<i>stotra</i>	<i>śāstra</i>
<i>bahiṣpavamāna</i>	<i>ājya</i>	<i>mādhyandina pavamāna</i>	<i>marutvatīya</i>	<i>arbhava pavamāna</i>	<i>vaiśvadeva</i>
<i>ājya</i>	<i>pra uga</i>	<i>prastha</i>	<i>niṣkaivalya</i>	<i>agniṣṭoma sāman</i> ¹	<i>āgnimāruta</i>
<i>ājya</i>	<i>ājya</i>	<i>prastha</i>	<i>niṣkaivalya</i>		
<i>ājya</i>	<i>ājya</i>	<i>prastha</i>	<i>niṣkaivalya</i>		
<i>ājya</i>	<i>ājya</i>	<i>prastha</i>	<i>niṣkaivalya</i>		

śāstras. Thus there are twelve *śāstras* in *agniṣṭoma*. Of these, there are 4 *ājya śāstras*, 4 *niṣkaivalya śāstras*, *pra uga*, *marutvatīya*, *vaiśvadeva* and *āgnimāruta* making up the required 12 number. *Pra uga śāstra* is recited together with *ājya śāstra* in the morning, *marutvatīya* and *niṣkaivalya* in the afternoon pressing, and the *vaiśvadeva* and *āgnimāruta śāstras* at the time of the evening pressing. The table above gives their distribution at the three libations

The number of *stotras* and *śāstras* increase for the variants of *somayajña*, for example the required number for *atirātra* is 28.

The ceremonies for the *soma* pressing begin immediately after midnight of the fourth day. On the direction of the *adhvaryu*, the *hotṛ* begins reciting the *prātaranuvāka*, *mantras* which are appropriate to be recited for the morning session of *soma* pressing. This ritual is divided into three parts. The first part is called *āgneyakratu* the prayer for *agni*. The *āśvalāyana śrauta sūtra* (4.13.6-4.15.3) gives the details of the particular *sūktas* and individual *ṛks* that have to be recited, containing *mantras* in each of the seven *chandas*: *gāyatri*, *anuṣṭup*, *triṣṭup*, *br̥hatī*, *uṣṇik*, *jagatī*, and *pañkti*, all directed to *agni*. There is a minimum of at least 100 *ṛks* are to be recited. If all the *sūktas* and *ṛks* specified in the *āvalāyana sūtra* are recited, it would amount to reciting a total of 1324 *ṛks* for the *āgneya kratu* part alone with 320 *mantras* in *gāyatrī* and 591 in *triṣṭup*. Only one *sūkta*, RV(V.6) containing 10 *ṛks* is in *pañkti* meter.

The second part is called *uṣasyakratu* and is directed to the deity *uṣas* and the third part is called *āśvina kratu* and is directed to the *āśvinī* deities. Each of these parts in turn consist of *ṛks* again containing *mantras* in the same seven meters described for *āgneya kratu*. For example, *uṣasyakratu* must have 250 *mantras*, whereas *āśvina kratu* requires 407 *mantras* in the same meters. Thus the *prātaranuvāka* alone requires the recitation of some 2000 *ṛks*, roughly the fifth of the contents of the whole of *ṛgveda* (Kane, 1997).

The *prauga śāstra* is the recitation appropriate to the seven deities *vāyu*, *indra-vāyu*, *mitra-varuṇa*, *āśvini*, *indra*, *viśvedevāḥ*, and *sarasvatī*, the so-called *prauga devatas*. The recitation consists of three *ṛks* in *gāyatri chandas* for each of the seven deities for a total of 27 separate *mantras*. After some associated activities, the *soma* juice is pressed and filled into cups, and offerings are made, all done to the accompaniment of recitation of required *mantras*.

The mid-day libations, *madhyāhnikā sāvana* is directed to *Indra* and the recitations involve *ṛks* of *triṣṭup chandas* exclusively. The recitations of *marutvatīya śāstra* followed by four *niṣkaivalya śāstras* are done according to the prescriptions laid down for example in the *aitareya brāhmaṇa*.

The evening libations are directed to *viśvedevāḥ* and are in *jagatī chandas*. The recitations include the *vaiśvadeva śāstra* and the *āgnimāruta śāstra* which follows the *sāma stotra*, *agniṣṭoma*, because of which the entire *soma-*

¹ It is because of this *sāman*, the *yajña* is called *agniṣṭoma*

yajña itself is named. The entire ritual is concluded by performing the *udayancya iṣṭi* and finally the ablution, *avabhr̥ta*.

The important point to note is the complexity of the ritual and the staggering number of *ṛks* required for recitation during the ritual. It is no exaggeration to say that when all the different variations of the *somayajña* are taken into account, most of the *ṛks* of *ṛgveda*, if not all, are recited during the performance of this most important of the *yajñas*.

7. THE ṚKS QUOTED BY BAG

The *mantras* quoted by Bag, RV (III.58.1) and RV(V.74.1-2) are among the 407 *mantras* to be recited before the sunrise as part of the *aśvinakratu*, recitations directed towards *aśvinī* deities in the *prātaranuvāka* ritual at the morning time pressing of the *soma* juice. This has nothing to do with observing Heliacal Rising of β Arietis at Winter solstice. For, the *agniṣṭoma somayajña* is to be performed in Spring season every year after the New Moon or Full Moon. RV(V.74.1-2) are simply prayers imploring *aśvinis* to come to the ritual. A simple translation of these two verses is given below:

“Divine *aśvinis*, affluent in praise, descend this day from heaven upon earth, hear that laudation which Atri ever addresses to you, who liberally shower benefits.”

“The divine *nāsatyās*, where are they? Where are they heard of in heaven? To which worshipper do you come? Who may be the associate helping in creating your praises?”

As can be seen these are simply prayers urging the *aśvinis* to come to the ritual.

Dakṣiṇāyāḥ putraḥ in the *mantra* RV(III.58.1) does not refer to *aśvayujau* as son of *dakṣiṇāyana*(South point). (Note the dual number *aśvayujau*, the *putraḥ* should have been *putrau* if *aśvinī* was meant.) The son of the south point refers to the Sun. The whole interpretation in terms

of Heliacal rising at Winter solstice is not warranted in this context.

8. YAJURVEDIC SAṂHITA TRADITION AND THE CAITRĀDI SCHEME

The hypothesis that the *caitrādi* scheme of naming months is tied to the Yajurveda is based on the assumptions that *aśvinī* disappeared and a new marker had to be found as the Full Moon at *citrā* and that it is *taittirīya saṁhita* that contains the complete list of 27 *nakṣatras*. It has been just demonstrated that both of these assumptions are without a basis. Furthermore, the author has discussed (Achar, 2000) the origin of the *caitrādi* as tied to the concept of *yajña* and the entire list of *nakṣatras* are to be found in *ṛgveda* already.

9. THE LIST OF NAKṢATRA IDENTIFICATIONS OF THE CALENDAR REFORM COMMITTEE

The list of identification of Vedic *nakṣatras* with the stars in a modern catalog, by Indian scholars was first done by the Saha Committee and has been promptly ignored by the Western scholarship led by Pingree and others. While this list has been lauded by Indian scholars, it has been noted by several scholars including the present author that some half-a-dozen identification of stars are completely off, such as Arcturus for *svāti*, which is almost 40° away from the ecliptic. Attempts have been made by Abhyankar, Balakrishna and the present author to find a more compatible set of identifications (Achar, 2002).

A dramatic illustration of why the identifications by the Calendar Committee have to be modified is given by the representation of the so-called *nakṣatriya prajāpati* described in *taittirīya brāhmaṇa*.

10. NAKṢATRIYA PRAJĀPATTI

The passage in Taittirīya Brāhmaṇa (1.5.2.2) depicts the figure of *Prajāpati* constituting certain *nakṣatras* :

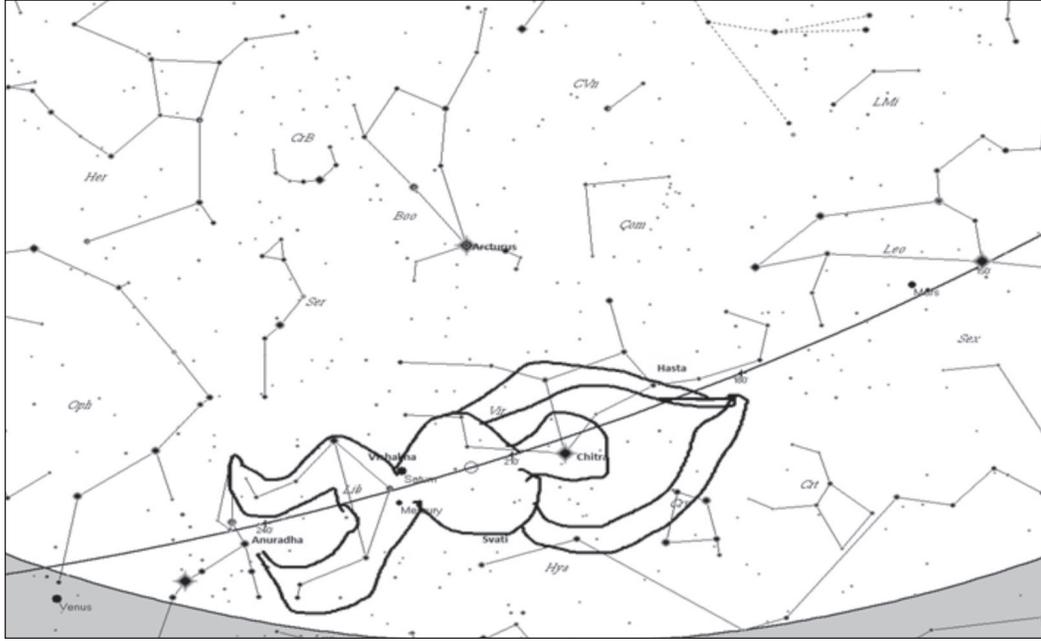


Fig. 1. nakṣatriya prajāpati

*yo vai nakṣatriyaṃ veda| ubhayoreṇaṃ
lokayorviduḥ| hasta evāsya hastaḥ| citrā śirah
niṣṭyā hrdayaṃ ūrū viśākhē | pratiṣṭhānūrādhāḥ|
eṣa vai nakṣatriyaḥ prajāpatiḥ |*

According to this picture, the *nakṣatra* hasta represents the hand, *citrā* the head, and *niṣṭyā* (*svāti*) the heart; the dual *viśākhās* represent his thighs and *anūrādhā* represents his feet.

A free-hand sketch of this figure is shown in the fig.1² below in the background of stars and along the ecliptic.

The figure is a classic yoga posture with the folded hands above the head, the *nakṣatras* as identified in (Achar, 2000c) match the description very well. It also shows that the commonly accepted identification of Arcturus (alpha Bootes) for *svāti* is to be rejected as it is too far from the ecliptic to represent the heart of *nakṣatra prajāpati*.

11. VJ TRADITION

Finally, the date of VJ.

As Bag himself quotes, the date of the *vedāṅga jautiṣa* may be determined from the position of Winter solstice at *śraviṣṭha* (*Dhaniṣṭha*)

*prapadyete śraviṣṭhādaḥ sūryācandramāsāyudak|
sārpārdhe dakṣiārkaḥ tu māghas-ravaṇayoḥ sadāḥ
||RJ6; VJ7||*

As discussed by Bag in detail, various dates from 1200BC-1400BC have been proposed, but Bag chooses the figure of 1000 BC.

Again the dates from 1200- 1400 BC are based on the identifications of the Calendar Reform committee. If the modifications as has been suggested are accepted then the date of VJ turns out to be about 1800 BC. All this has been discussed in detail by the author (Achar, 2000b).

12. CONCLUSIONS

It has been demonstrated that the particular chronology arrived at by Bag for *ṛgveda saṃhita*, *yajurveda saṃhita*, *brāhmanic* and *vedāṅga jautiṣa* traditions as fixed at 6500 BC, 5000BC, 2500 BC and 1000BC is not founded on a firm

² The sky-view pictures have been produced using the Planetarium Software, SkyMap Pro, www.skymap.com.

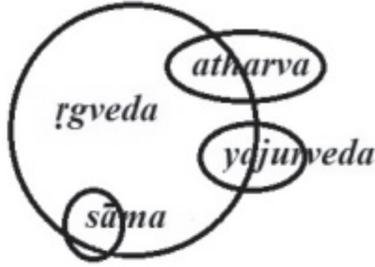


Fig. 2. *ṛks* in all the Vedas. The overlapping regions indicate *ṛks* common to *ṛgveda*

basis. It is not that the Vedic tradition is not that ancient. The Vedic tradition is in fact ancient and the dates arrived at on the basis of astronomical data by Tilak, Jacobi, Dixit, and more recently by Frawley do point to high chronology. What is objected to is in part to a compartmentalization into *ṛgveda* and *yajurveda* traditions, the latter appearing some 1500 years later based on a model of alleged heliacal risings. *Ṛgveda* contains only *ṛks*, but the other three also contain *ṛks*, in addition to *yajus* and *sāma mantras*. Some of the *ṛks* in other Vedas are also the same as the ones in *ṛgveda*, but other *ṛks* are not found in *ṛgveda*. The diagram in Fig. 2 represents this sharing of *ṛks* among the four Vedas. Of course, the *ṛks* themselves may belong to much different times.

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