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Art. X.—Notes on the Early History of Modern India. Part V. On the Succession of the Hindu Priesthood. the Brigus, Añgiras, and Atharvans, and the Historical Evidence thence derived, followed by the History of the Year

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ART. X. — *Notes on the Early History of Modern India.*

Part V. *On the Succession of the Hindu Priesthood. the Bṛigus, Añgiras, and Atharvans, and the Historical Evidence thence derived, followed by the History of the Year.* By J. F. HEWITT, Esq., M.R.A.S.

I CLOSED the Appendix to the last Essay of this series, published in April, 1890, by adducing proof that Māghada and Bhārata were derived from the roots Mag and Bhṛi, both of which mean "to bring forth," and that they both meant "the sons of the great mother who brings forth all mankind."

But there is another name of a tribe in which the root Bhṛi appears, which seems to me to prove conclusively that Bhārata in its original form was not an Aryan word, but one formed according to Dravidian rules, and that the tribe so called must originally have been of Dravidian race. In the hymns telling of the war of the ten kings, Vashishtha describes how the Tṛtsus drove the weak Bhāratas before them like oxen,¹ but in his great song of triumph celebrating the victory of Sudas, he does not name the Bhāratas among the tribes opposed to the Tṛtsus. But among these tribes he names the Bṛigus as following the Turvaṣu and Matsya across the river to attack the Aryans.² In this word Bhṛi-gu the root "bhṛi," from which Bhārata is derived, appears in its naked form. This is not usual in Aryan words derived from verbal roots, nor is "gu" a usual ending of Aryan nouns formed from such roots. But in Tamil "gu" is one of the commonest suffixes added to verbal roots to form nouns,³ and Bhṛi-gu is therefore a noun regularly formed according to Tamil rules from the root "bhṛi." This root

¹ Rg. vii 33. 1-6.

² Rg. vii. 18. 6.

³ Caldwell, *Comparative Grammar of Dravidian Languages*, p. 468.

“bhṛi” appears in modern Tamil in the roots “poṛu” to bear,¹ and “peru” to bring forth;² and the name would thus signify “the bringer forth,” or, as the name of a tribe, the sons of The Mother, which must be, like Magha, the mother earth. The form Bhrigu, which is thus shown to be rich in historical instruction, must be a fossil word surviving from the time when the people of Northern India were trying to assimilate the Northern roots³ and forms of speech of their Assyrian teachers with those of a Dravidian people, and this earlier form was, as Aryan influence increased, altered into Bharga. It was the Bhargas who are named in the Mahābhārata as having been conquered by Bhima.⁴ Finally, the “g” of the original ending was dropped, and the people became known as Bhārata. But the original name still lingered in the sacrificial ritual, the repository of the oldest traditions, and we thus find the wise Bhrigus spoken of in the Rigveda as the finders and creators of Agni.⁵ In the Satapatha Brāhmaṇa they are named with the Aṅgiras as two tribes of priests.⁶ The Aṅgiras are also named in the ritual of the Soma sacrifice as the priests who used to perform the Soma sacrifice before the Adityas, or sun-worshippers, and it is said that when they offered the sacrifice for the new comers, the sons of Saro (speech), who worshipped “Vāch” speech as well as the sun, they received from them a white horse as a sacrificial fee.⁷ In the numerous versions of the story of the release of the cows, or the gods of light, from the prison where they were kept by the trading Paṇis, the worshipper of the gods of darkness, whether they are said to be released by Indra, Agni, and Sarama,⁸ by Sarama alone,⁹ or by Brihaspati,¹⁰ they are always spoken of as in charge of

¹ *Ib.* p. 473.

² *Ib.* p. 486.

³ The root “bhṛi” is so widely disseminated among Aryan nations that it must, if originally Dravidian, have been adopted at a very early time. Its Dravidian form would, as Penka shows, have been unaspirated, as *ber* or *per*, Penka, *Origines Ariacæ*, chap. vi. p. 158, where he shows that the *tenuēs* preceded the *aspirates*.

⁴ Sabha (Digvijaya) Parva, xxx. p. 85.

⁵ *Rg.* x. 46. 2 and 9.

⁶ Śat. Brāh. i. 2. 1. 13, vol. xii. p. 38, note 1.

⁷ Śat. Brāh. iii. 13–19, vol. xxvi. pp. 113–115.

⁸ *Rg.* v. 45. 6–11.

⁹ *Rg.* x. 108. 8 and 10.

¹⁰ *Rg.* x. 67. 1–7.

the Aṅgiras, and it was the offerings and songs of the Aṅgiras which helped Indra to free the cows.¹ It was they who by their sanctity attained immortality, and it was in the realms of the immortals that they learnt the order of the months.² These citations, to which others might be added, prove that they were the priests of the old gods and of the tribes who learnt how to measure time and arranged the course of the lunar year. But they were not the priests of the earliest ritualists, and in the Mahābhārata we find Uṣana, who is called also Sukra, and Bhargava represented as the Daitya priest of the Asuras or Danavas. He is the father of Devayani, the goddess-mother, the wife of Yayāti, the son of Nahusha, who bore to him Yadu and Turvasu. He is also the god Indra, or Sukra, for he says, "It is I who pour down rain for the good of creatures, and who nourish the annual plants which sustain all living things."³ Now Bhargava, which is one of the names by which Indra is here called, is exactly equivalent to Maghavat, and both mean the son of the Great Mother, and the Bhrigus or Bhargavas were her sons and priests, and were the ancient bards who are called in the Rigveda the poets who formed Agni,⁴ and who were the first thinkers who believed in a common mother for all mankind. They were first of the three lines of priests who successively framed the Hindu ritual, and were succeeded by the Aṅgiras, who again were succeeded by the Atharvans, or fire-priests, the sons of Atri, while the Bhrigus are always spoken of as the wise men of old, whose memory is almost lost in the mists of half-forgotten tradition. There are very definite statements made in the Rigveda, Brāhmaṇas, and the Laws of Manu as to the position and tenets of the Aṅgiras. They were the priests of the old gods of darkness, who retained the gods of light in bondage till they were released by Sarama, the mythological prototype of Atri of the Rigveda, or Ātar of the Zendavesta,⁵ who was the Adar of the Assyrians, the god of glowing fire.

¹ Rg. iii. 31. 11.

² Rg. iii. 31. 9.

³ Ādi (Sambhava) Parva, lxxx. p. 245. See the whole legend, Ādi (Sambhava) Parva, lxxvi.-lxxxiii. pp. 232-255.

⁴ Rg. i. 127. 7, x. 46. 2.

⁵ Darmesteter's Zendavesta, Sīrōzah i. 9, Sacred Books of the East, vol. xxiii. pp. 7-8.

In Rigveda i. 83. 4 and 5, we find it stated that "the Aṅgiras first began the (sacred) task as they kindled the fire with zeal and pious works. They thus united with themselves (made their own) all the possessions of the Paṇis (traders), both men and herds rich in cattle and horses." But "the Atharvans first made the road by offering, and then was the beautiful sun born as protector of light." The connection of the Aṅgiras or priests of the old gods with the Paṇis or trading races is still further illustrated in the Satapātha Brāhmaṇa, in the concluding ceremonies prescribed for the new and full moon sacrifices. It will be recollected that in the directions for kindling the fire on the altar for these sacrifices, the sacred fire was ordered to be inclosed in a triangle formed of the "paridhis" or sacred sticks representing the gods of the early triad. The two sticks forming the angle pointing eastward represented the universal father and mother, while the middle stick, or the west side, represented the productive power animating them both. When the sacrifice is concluded, the priest is ordered to throw these inclosing sticks into the fire. "The middle inclosing stick he throws first with the text (Vajasaneya Śaṇhita, 11. 17a), 'The stick which thou laidest around thee, O divine Agni, when thou wert concealed by the Paṇis, I bring thee for thy pleasure; may it not prove faithless to thee!' With the text (*ib.* b), 'Approach ye the place beloved of Agni,' he throws the two others after it."¹ Thus the gods of the Paṇis, whose priests the Aṅgiras were, are made one with their successor and conqueror the fire-god, whose ministers were the Atharvans of the Rigveda, the Āthravans or fire-priests of the Zendavesta.²

But the best and clearest statement of the succession of the fire-priests to the Aṅgiras is that derived from the account in the Aitareya Brāhmaṇa of the services of the sixth day of the Dvādāsaha sacrifice and the story of Nābhānedishṭha connected with it. Nābhānedishṭha, which

¹ Sat. Brāh. i. 8. 3. 22, Sacred Books of the East, vol. xii. p. 245.

² Darmesteter's Zendavesta, Introduction, iii. 15, Sacred Books of the East, vol. iv. p. 1.

means nearest to the navel (nabha),¹ was a son of Manu (the thinker), who was deprived of his share in the family property by his brethren. When he asked them for it, they told him to go to their father. When his father heard his complaint, he said to him, "Your brethren are the Aṅgirasah, who are holding their sacrificial session which is to take them to heaven, but they are puzzled as to what ceremonies are necessary on the sixth day. You tell them to recite Rg. x. 61 and 62, and they will then go to heaven and give you the thousand due to you. When by this recitation they became aware of the heaven-world and went to heaven, they left him the thousand, but it was at once claimed by Rudra, the phallic god, but Rudra gave it back to Nābhānedishṭha, who said he had received it from the Aṅgirasah, when he acknowledged that it was Rudra to whom it had first belonged, that is to say, that the vital creative power was first ascribed to Rudra."²

What is proved in this story is that the Aṅgirasah were the priests of the earth-born deities, and that it was by the help of Nābhānedishṭha that they learnt that it is in heaven that the real creative power resides, and that, as the impartor of this knowledge, Nābhānedishṭha took the place among the gods which had previously been assigned to Rudra the earthly father.

But in order to understand the story perfectly, it must first be shown who Nābhānedishṭha is. Of the two hymns named in the myth, the first, Rg. x. 61, is called the Nābhānedishṭha hymn. It tells of the union or marriage of heaven (Prajapati) and earth (his daughter). From this union the seed of all life, called Nābhānedishṭha, is born. In the eighteenth and nineteenth stanzas of this hymn, which are translated as follows by Haug, Nābhānedishṭha defines his mission and his power :

"v. 18. His relative the wealthy Nābhānedishṭha, who, directing his thoughts towards thee, speaks on looking forward [Grassmann translates "in heaven"] (as follows) :

¹ This means the fire-god. See Ait. Brāh. i. 5. 28, Haug's translation, vol. ii. p. 62, where the Hotar is ordered to address the sacred fire on the altar in the words of Rg. iii. 29. 4, "We place thee, O Jātavedas (Agni), in the place of Idā, in the centre (nābhi, i.e. navel), on the earth to carry up our offerings.

² Ait. Brāh. v. 2. 14, Haug's translation, vol. ii. pp. 341-42. Rudra is named as the claimant of Nābhānedishṭha's share in Tait. Saṁ. iii. 1. 9. 4-6.

'This our navel (that is, heaven) is the highest, as often as required I was behind him (the Nābhānedishṭha on earth).

"v. 19. This is my navel, here is what resides with me; these gods are mine, I am everything." ¹

The next hymn, Rg. x. 62, is addressed to the Aṅgiras, who are asked in the refrain of the first four verses to "receive the son of Manu." But the son of Manu in this hymn is not Nābhānedishṭha, but is said in the Aitareya Brāhmaṇa to be Narāsaṁsa, who is said to be the son born from the seed Nābhānedishṭha,² who is endowed with the faculty of speech. It was this Narāsaṁsa who was shown, in the account of the seasonal sacrifices in Part IV., to be, jointly with Tanūnapāt, the self-created one, the representative of the vital creative power, which, in the symbol of the old triad, bound heaven and earth together,³ and formed the middle stick of the sacred triangle.

But it is in the Zendavesta that the whole series of ideas connected with Nābhānedishṭha or the vital power "nearest to the navel" and Narāsaṁsa is most clearly explained. In the Zendavesta⁴ we find in the Vendidad the word "Nabazdīstanam," which is the Zend form of the plural of Nābhānedishṭha, used to denote the lineal descendants (who are nearest to the navel) of an offender, and the word is also used as an epithet of the Fravashis, or holy mothers, in Yasna i. 18, and Fravardin Yašt, 156, in the meaning of next-of-kin.⁵ But it is as the angel Nairyā-sangha, the Zend form of Narāsaṁsa, the Yazad or god of royal lineage, that the Zoroastrian Nābhānedishṭha assumes a personal form and appears as the guardian of all seeds, and the fountain of all life. It is he who guarded the seed of Zarathustra from whence the three prophets of the future, Hūshēdar, Māh, and Sōshyans, are to spring, and committed it to the care of Anāhid, who is the "Ardvī Sūra Anāhita" of the Ābān Yašt, the

¹ Ait. Brāh., Haug's translation, Introduction, vol. i. p. 24.

² Ait. Brāh. vi. 5. 27, Haug's translation, vol. ii. p. 424.

³ Part IV. J.R.A.S. April, 1890, pp. 339-343.

⁴ Darmesteter's Zendavesta, Farg. iv. 11. 5-10, Sacred Books of the East, vol. iv. pp. 36-37.

⁵ Mill's Yasna, i. 28, Sacred Books of the East, vol. xxxi. p. 231; Darmesteter's Zendavesta, Fravardin Yašt, Sacred Books of the East, vol. xxiii. p. 230.

goddess of the fertilizing waters.¹ In the *Sirōzahs* he is described as the "god Nairyō-Sangha who dwells in the navel of kings."²

But his exact position in the sacred hierarchy and the historical succession represented by the five days' sacrifice of the *Añgirasah* and the advent of *Nābhānedishtha* is best shown in the lists of the sacred fires given in the *Yasnas* and *Bundahiṣ*. In the *Yasna* list the sacred fires are named as follows.³ 1. The fire *Berezi-savangha* of lofty use before *Ahura Mazda* and kings. 2. The fire *Vohu-Fryāna* (animal heat of men and beasts). 3. The fire *Ur-vāzišta* (the fire of life in plants). 4. The fire *Vāzišta* (the lightning). 5. The fire *Speništa* (the most bountiful, that used in the world). 6. The fire *Nairya-sangha*, the *Yazad* of royal lineage (that used in temples). 7. The household fire.

Of these seven sacred fires the first five appear in the *Bundahiṣ* in the same order as in the *Yasna*,⁴ and there the first fire, *Berezi-Savang*, is explained to be the fire in the earth and mountains, or, in other words, the vital power in the mother-earth. The word *Savangha* or *Savang* is the same which appears in the name of *Savangha-vāch*, one of the wives of the great snake *Aži-Dahāka*, who afterwards married *Thraētaona*, the *Zend Indra*, who slew the great snake.⁵ It would appear to be connected with the Eastern region called in the *Bundahiṣ* *Savah*, over which the holy star *Tiṣtrya*, who brings the waters, presides, and which lies east of the sacred central land called *Khvanīras* in the *Bundahiṣ*, and *Hvārizm*, *Khvārizm* and *Hvaniratha* in the *Zendavesta*.⁶ This would appear to be the country known as *Sogdiana*, through which the *Oxus* flows, and which lies

¹ Darmesteter's *Zendavesta*, *Fravardin Yašt*, 62, *Sacred Books of the East*, vol. xxiii. p. 195, note 2; West's *Bundahiṣ*, xxxii. 8, *Sacred Books of the East*, vol. v. p. 144.

² Darmesteter's *Zendavesta*, *Sirōzah*, i. 9, *Sacred Books of the East*, vol. xxiii. p. 8.

³ Mill's *Yasnas*, xvii. *Sacred Books of the East*, vol. xxxi. p. 258.

⁴ West's *Bundahiṣ*, xvii. 1-4, *Sacred Books of the East*, vol. v. pp. 61-62.

⁵ Darmesteter's *Zendavesta*, *Ābān Yašt*, 33-34, *Sacred Books of the East*, vol. xxiii. pp. 61-62.

⁶ West's *Bundahiṣ*, xi. 1-3; Darmesteter's *Zendavesta*, *Mihir Yašt*, xiv. and xv., *Sacred Books of the East*, vol. v. p. 33, vol. xxiii. p. 123.

east of Khorasan, the modern name of Khvārizm, the central land of the Zend tribal confederacy.

It was in this country that the sacred mountain Ushidarena, the home of Zamyād, the spirit of the mother-earth, and the hallowed symbol of the pregnant mother, was situated.¹ And from this it would appear that the worship of the mother-earth originated in the East, and it was thence that the ancient Magi, or priests of the divine mother Magha, whose name is preserved in Margiana, the ancient name of the western part of Sogdiana, first made their way to the Persian Gulf as the Akkadian Highlanders, and thence as the Maghas to India.

But while Berezi-Savangha means the mother-earth, it is in the name of the second fire, Vohu-Fryāna, that we find the idea of generation as the especial function of the gods, which underlies the myth of Nābhānedishṭha, most clearly expressed. This name must refer to the tribe called Fryāna, named in the Gātha Uṣtāvaiti as the Turanian tribe who "shall further on the settlements of piety with zeal," that is, act as the intimate allies of the Mazdeans.² But this word cannot be the actual Turanian name of this tribe, as the Turanian languages do not use aspirated labials, and the nearest sound to *f* they possess is the semi-vowel *v*. In a Turanian language the nearest sound to the Zend *Fry* would be *Viru*, and *Viru-an* would be the god *Viru*. This, as we have already seen in the account of the Hindu *Virātā*,³ means masculine energy, and is the distinctive title of the phallic god. This *Viru* turned into the Aryan *Fry* points to *Fria*, the moon-god of the Scandinavians and Old High Germans,⁴ and in both these languages the moon is masculine.⁵ This word would also seem to be connected with the Norse *Frió*, *fœ*, Swedish and Danish *fro* 'seed,'⁶ and *Fryāno*

¹ West's *Bundahis*, xii. 15, *Sacred Books of the East*, vol. v. pp. 37-38.

² Mill's *Yasnas*, *Yasna* xlvi. 12, *Sacred Books of the East*, vol. xxxi. p. 141.

³ Part IV. *J.R.A.S.* April, 1890, pp. 402-404.

⁴ See Max Müller's *Essay on False Analogies in Comparative Theology*, Introduction to the Science of Religion, p. 313, where *Frya-dag*, or *Fri-day*, is shown to be sacred to the moon both in Norse and Old High German.

⁵ Mallet's *Northern Antiquities*, Bohn's edition, p. 465, note.

⁶ *Ib.* Glossary to *Prose Edda*, s.v. *Freyr*, p. 551.

or Viruano would thus mean the seed-sower, and this coincides with the translation of Vohu-Fryāno given by West in the Bundahis, who interprets it as the fire of the good diffuser within the bodies of men.¹ Thus Vohu-Fryāno would mean the phallic god, the universal father.

We now come to the third fire, Ur-Vaziṣṭa. Here Vaziṣṭa is evidently the same word as the Sanskrit Vashishtha, who was one of the two fire-sticks, while his wife Arundhati² was the second, in which the fire was kindled by the friction of the first stick, and Ur-Vaziṣṭa means the ancient form of the vital energy which made the original pair capable of production before this power was ascribed to the divine heat. This power was, as I have shown, represented as Androgynous or Hermaphrodite.³

The fourth fire, Vaziṣṭa, was the male form of the fire-stick represented in later mythology when the gods were looked for in heaven as the lightning, while the fifth fire Speniṣṭa (the most bountiful), is the female member of the pair.

Thus these five fires represent first the ancient triad of the father, mother, and creative and productive force, while the last two of the group represent what was originally the earliest form of worship of the creative energy, that of the universal father and mother, who became in later theology the pair of fire-sticks, the Swastika.

We now come to the sixth fire, Nairya-sangha, Nābhāne-dishṭha, or Narāṣaṁsa. This is the sacred fire of the temples, the Vāhrām fire, which is represented in the Bundahis as the Frōbak fire established by Yima on Gadman-hōmand (the glorious mountain) in Khvārizm, Khorasan.⁴ This is the fire of the kings in their character as priests.⁵ It is the continual and perpetual worship of the sacred fire as

¹ West's Bundahis, xvii. Sacred Books of the East, vol. v. p. 61, note 3.

² Mahābhārata, Adī (Chaitra-ratha) Parva, clxxvi. p. 500. Arāṇi means the fire-stick.

³ Part IV. J.R.A.S. April, 1890, p. 351.

⁴ West's Bundahis, xvii. 5, Sacred Books of the East, vol. v. p. 63; Mill's Yasnas, Yasna xvii. Sacred Books of the East, p. 258, note 7.

⁵ Darmesteter's Zendavesta, Sirōzah i. 9, Sacred Books of the East, vol. xxiii. p. 7, note 2; also p. 294, note 2.

the highest form of the creative power which is represented by the addition to the ritual made by Nābhānedishṭha, who thus became the first of the Athārvans, or fire-priests, while the Aṅgirasah were clearly the priests of the older race of worshippers of the sacred pair and the triad.

But there is still another myth, that of the sacrifice of Ṣuṇaḥṣepa, the story of which is told both in the Rigveda and the Aitareya Brāhmaṇa, which illustrates very clearly the historical position occupied by the Aṅgirasah.

Ṣuṇaḥṣepa was the son of Ajigarta of the race of the Aṅgirasah. King Harischandra of the Ikshvāku race had obtained from Varuṇa (the heaven of night)¹ a son called Rohita, whom he had promised to sacrifice to the god. He delayed fulfilling his promise on various pretexts, and finally allowed him to go and wander in the forests. Varuṇa then afflicted Harischandra with dropsy, and Rohita, having wandered six years in the forest by the advice of Indra, who hinted to him that by so doing he might save his father, met Ajigarta the Rishi, who was starving. Rohita wanted to take one of Ajigarta's three sons, Ṣuṇaḥpuccha, Ṣuṇaḥṣepa, or Ṣuṇolangula, to be sacrificed to Varuṇa as his ransom, and offered to give him one hundred cows as his price. The father refused the eldest of the three, and the mother the youngest; but they allowed him to take the middle son. Rohita then took Ṣuṇaḥṣepa to his father, and presented him to Varuṇa, who accepted the sacrifice. On the day appointed Visvāmitra was Hotar, the Zaoṭar of the Zoroastrians, the priest who addressed the gods. Jamadagni, or the pair of fire-sticks, the Adhvaryu, or offering priest, the Zend Rathviskar,² while Vasishṭha was the Brahmā or later addition to the priesthood. When it was necessary to bind Ṣuṇaḥṣepa to the sacrificial post, Ajigarta offered to do it for another hundred cows; and he was bound, as we are told in the Rigveda, to three "drupadas" or sacrificial posts,³ that is

¹ Rg. i. 24. 9, where the stars are said to show Varuṇa at night.

² Haug's Ait. Brāh. vol. i. Introduction, p. 13; Darmesteter's Zendavesta, Fargard, v. 57-58, Sacred Books of the East, vol. iv. pp. 63-64, show these to be the original names of the priests called by Haug Zota and Rathwi.

³ Rg. i. 24. 13. See also Rg. iv. 32. 23, where the marriage post is called drupada." As the sacrificial post was phallic (see Part IV. J.R.A.S. April,

to say, he was to be sacrificed to the triad of which Varuṇa was the chief god. When Ajigarta offered for another hundred cows to kill his son and complete the sacrifice, Śunaḥsepa called on Prajāpati, who sent him to Agni. He then went to Savitar, the sun (but this is evidently a later addition of the sun-worshippers, like that of Ushas further on), who sent him to Varuṇa. Varuṇa referred him back again to Agni, who promised to release him if he praised the Viṣve Devah or gods of the country. They said Indra was the most powerful god, and Indra told him to praise the Aśvins or heavenly twins, and they finally released him on his praising Ushas. The verses he recited are all taken from the group of hymns, Rg. i. 24 to 30, which are dedicated to Śunaḥsepa, and evidently written to preserve the legend.

When Śunaḥsepa was freed, Harischandra recovered. Ajigarta then asked that his son might be restored to him; but Visvāmitra refused, and adopted him as the eldest of his hundred sons,¹ though he was an Aṅgirasah.

In this story we see that the Aṅgirasah were the priests of the old gods to whom human sacrifices were offered, and that these offerings were made before the sacrifices were burnt with fire; but when the ritual prescribed the tying of the victim by the neck to the sacrificial post, and then killing it by stabbing it in such a way that the blood spurted over the phallic sacrificial post, and vitalized it, as well as the earth in which it was fixed. The story evidently marks the period when human sacrifices ceased, according to the ritual of the Kuśikas, at least; for Visvāmitra was the prince of the

1890, p. 377, note 4, and p. 378), it was, according to this passage, the phallus that the bride and bridegroom used to walk round seven times as they now go round the sacred mango-tree. This reference to Drupada also throws light on the story of the Mahābhārata. The king of the Panchālas was Drupada, but his son Dhrishtādyumna and his daughter Drūpadī, or Krishnā, were not begotten naturally, but were born from the sacrificial flame by the prayers of Yāja, an impure Brahmin, Ādi (Chitrā-ratha) Parva, clxix. pp. 479-483. This miraculous birth represented the change in the sacrifice made when the victim was burnt instead of being fastened to the sacrificial post (drupada) by the neck, and stabbed, so that the blood vitalized both the phallic post and the earth, and also foreshadowed a new era, as Drūpadī became the bride of the Pāṇḍavas, the seasons of the new epoch, and Dhrishtādyumna, their generalissimo in their great war against the Kauravyas. See Part IV. J.R.A.S. April, 1890, pp. 425-438.

¹ Ait. Brāh. Haug's translation, vii. 3. 13-18, vol. ii. pp. 460-471.

Kuṣikas, and was also the moon-god, as I have shown in speaking of his Zend counterpart Mithra.¹ It was the Kuṣikas who introduced the full lunar year, and it was this race of handicraftsmen who brought in fire-worship, and with whom also the Aṣvins, or heavenly twins, were especially connected.² It will be seen in the story of Śunaḥṣepa that Agni and the Aṣvins were the principal agents in his release, and it was the people who first introduced into the ritual these mythological conceptions who completed the computation of time by months, which is ascribed in the Rigveda to the Aṅgirasah,³ by adding two to the sacred period of eleven months dedicated to the gods of generation by their special priests, who were the predecessors of the Atharvans, or fire-priests. But this change in the ritual did not cause the elimination of the Aṅgiras, who were retained in an honoured place with their predecessors the Bṛigus, and they became also the priests of the moon-god Visvāmitra, and are described in the Rigveda as among his most zealous followers. Thus in Rg. iii. 53. 7, "The generous Aṅgiras and Virūpas (worshippers of the bi-formed, bi-sexual, god), sons of heaven, men of the Asuras," are said by "giving treasures to Visvāmitra, to have wished to lengthen his days."

But there is another line of descent by which we can gauge the historical sequence of the Aṅgiras. One of the titles of Uṣana, or Sukra, the great Bṛigu priest of the Daityas or mother-worshippers, and of the Dānavas or Asuras, the snake and phallus-worshippers of the Mahābhārata, is Kāvya, meaning the son or of the race of Kavi.⁴ Kavi is in the Laws of Manu said to be the son of Angiras,⁵ and Kāvya is one of the seven Rishis included in the Great Bear, the Hapto-iringas of the Zendavesta.⁶ Furthermore, the Kavi kings are a most important dynasty in the fragments of history

¹ Part IV. J.R.A.S. April, 1890, p. 366, note 2.

² Part IV. J.R.A.S. April, 1890, pp. 407-410, where I have shown that the Aṣvins probably represent the two months added to the sacred eleven by the Kuṣikas to make the full lunar year of thirteen months.

³ Rg. iii. 31. 9, "It is the Angirasah who attained the order of the months."

⁴ Mahābhārata, Adi (Sambhava) Parva, lxxvi. pp. 233, 236.

⁵ Bühler's Manu ii. 151, Sacred Books of the East, vol. xxv. p. 58.

⁶ Alberuni's India, Sachau's translation, vol. i. p. 394.

recorded in the *Zendavesta*. They ruled over the country described in the *Zamyād Yašt* as that "where lies Lake Kāsava" (the present Zarah or Hamun sea in Seistān, the Sogdiana of the Greeks), along with the Haētumaṇṭ river (the Helمند), where there stands Mount Ushidhan (Ushidarena).¹ This was the country now forming the west of Afghanistan, the ancient home of the Kuşikas, or sons of Kuş. The kings of this dynasty as named in the *Zamyād* and *Fravardin Yašts* are—1. Kavi Kavāta, 2. Kavi Aipivōhu, or Aipivanghu, and Kavi Usadha, or Usadhan. Kavi Usadha, who is the Kai Kāûs, or king of the Kauşikas of the Bundahiş, had four sons, of whom I need now only notice Syāvarshan.² Syāvarshan, being exiled by his father, took refuge with the Turanian Frangrasiyan, who was king of Tūrān for two hundred years, and seems to have ruled in the country of the Kavis, for in the Bundahiş it is said that Frāsiyāv (Frangrasyan) brought a thousand springs into the sea Kyānsih, the lake Kāsava of the sons of Kuş, or Kayans, and to have brought the Hētumaṇṭ, or Helمند, into the same sea, into which it flows at the present day.³

But Frangrasyan seems also to have ruled India, and to represent the snake and phallus-worshippers there, for Syāvakhshan in his exile founded the fortress of the holy Kangha in Kang-desh, whither, according to the *Bahman Yašt*, he went from the good Chakāḍ-i-dāitīk, or the country of the mother river Daitya.⁴ Now Kangdesh is clearly India, and may possibly be the modern Kandesh, for it is described in the Bundahiş as lying "in the direction of the East, at many leagues from the bed of the wide-formed ocean towards that side."⁵ In the *Dīnā-i Mainōg-i-khīrad*, which, though a late work, is founded on old traditions, Kang-desh is said to "be intrusted with the Eastern quarter near to Satavāyes,

¹ Darmesteter's *Zendavesta*, *Zamyād Yašt*, x. 66; also Introduction to *Āstād Yašt*, *Sacred Books of the East*, vol. xxiii. pp. 302 and 283, also p. 33, note 1.

² Darmesteter's *Zendavesta*, *Zamyād Yašt*, xi. 71; *Fravardin Yašt*, 132, *Sacred Books of the East*, vol. xxiii. pp. 303, 222, also p. 64, note 1; West's *Bundahiş*, xxxi. 25, *Sacred Books of the East*, vol. v. p. 136.

³ West's *Bundahiş*, xx. 34, *Sacred Books of the East*, vol. v. p. 82.

⁴ West's *Bahman Yašt*, iii. 26, *Sacred Books of the East*, vol. v. p. 226.

⁵ West's *Bundahiş*, xxix. 10; *Sacred Books of the East*, vol. v. pp. 119-120.

on the frontier of Airān Vējō.”¹ Now Satavaesa is, as I have shown, the southern constellation of Argo, which ruled the ocean to the south of the Persian Gulf, and the country lying immediately to the east of its influence would be Kandesh. The Bundahiṣ also states that there is a river in Kang-desh which is called Chatro-miyan, the river of Mocarstan.² Kang-desh is one of the countries outside the sacred region of Khanviras. It is mentioned along with Saukavastān and others. Saukavastān is ruled by Gōpatshah. He is the same as Aghraēratha, the son of Pashang and brother of Frangrasiyan, who killed him. His name, which means the king (badshah) of the cows (Gōs), shows why he was called the semi or bull-man in the Gōs Yašt.³ The other outside countries named are Tāzikān, the plain of the Arabs, the plain of Pēšyānsai, the plain of Nāiv tāk, Airan Vēj, the inclosure formed by Yim, and Kashmir in India. In identifying these countries, there can be no doubt that Saukavastān is the country of the Sākas, the Sakastānē of the Greeks, and the Sakasthāna, or Sakadwipa, the place or island of the Sākas of the Hindus. It is Seistan Sogdiana, lying, as is said in the Bundahiṣ, on the way from Turkistān to Chinistān or China. It is the country of the Oxus.⁴ The country of the Arabs lies to the west. The plain of Pēšyānsai is Kabul.⁵ Airān-vēj is in Ātaro-pātakan.⁶ The inclosure formed by Yim is in the middle of Pars (Persia), answering to Khorasan. Now Kang-desh appears to be quite outside this country. It was there that Pēshyōtanu, the son of Vishtasp, ruled, and took his name, Chitrō-Mainō, from the Kang-desh river Chitro-Miyan.⁷ This name Chitrō-Mainō may be, as West suggests, derived from “mainyu” spirit, or “maunghō” the moon; and as I have shown that the name of the Indus

¹ West's translation, lxii. 12-14, Sacred Books of the East, vol. xxiv. p. 109.

² West's Bundahiṣ, xx. 7 and 31, Sacred Books of the East, vol. v. pp. 77, 82. Mocarstan may mean the country of the Mugh, which must have been in ancient times, when the Mugh or mother-worshippers ruled India, the name of the country.

³ Darmesteter's Zendavesta, Gōs Yašt, 18 and 22, Sacred Books of the East, vol. xxiii. pp. 114-115.

⁴ West's Bundahiṣ, xxi. 4. 5. and 13, Sacred Books of the East, vol. v. pp. 116, 117, 120.

⁵ *Ib.* p. 120; Bundahiṣ, xxix. 11.

⁶ *Ib.* xxix. 12.

⁷ *Ib.* xxix. 5. p. 117.

(Sindhu) was probably derived from Sin, the moon, it would appear that the last derivation is the most probable.¹ In short, this river "of the moon" appears to be either the Indus or, if the Kang-desh of the Zendavesta and Bundahiṣ is the same as the modern Kandesh, the Tapti. This river was anciently called the Payoshni river, and afterwards the Tapti, a name of the sun. It may have been originally the moon-river. - This country of Kang-desh was conquered by Tusa, the son of Naotara (the new star, probably Tiṣṭrya),² from the sons of Vaēsaka, the Satavāesa, or the snake-worshippers of the Persian Gulf, and this conquest is probably another version of the invasion of the Northern Kuṣikas which is commemorated in the conquest of Syāvakhshana and the tale of Pēshyōtanu, and it must have been this country which was conquered by Husrava, the son of Syāvarshan, when he avenged his father by killing Frangra-siyan.³ Whether the identification of Kang-desh with the modern Kandesh is tenable or not, one thing is certain, that the Kavi kings, the sons of Kuṣ, ruled the whole of Northern India, and established their capital at Kaṣi (Benares), and that, according to Manu and the other proofs I have adduced here and elsewhere in this series of essays, they were the founders of the lunar year. Whether the kingdom of Anga, which was situated to the south of Māgadha, in the country now known as Bhagulpore, and which is mentioned in the Atharvaveda,⁴ takes its name from the Aṅgiras, or they from it, I cannot say; but the two countries, Māgadha, the country of the Maghas or Bṛigus, and Anga, are very close together, and the two tribes of Bṛigus and Aṅgiras are historically most closely connected together, and both were in intimate alliance and united in their ritual before the Kuṣikas entered India.

But the country of Anga immediately adjoins, if it did not anciently form part of Vanga or Banga, the modern

¹ *Id.* xxix. p. 117, note 2.

² Darmesteter's Zendavesta, *Ābān Yast*, 53. 55.

³ Darmesteter's Zendavesta, *Sis Yast*, v. 21. 22, *Sacred Books of the East*, xxiv. p. 115.

⁴ Part IV. J.R.A.S. April, 1890, p. 477; *Atharva-veda*, v. 22. 14.

Bengal. The union between Māgadha and Anga was not by any means indissoluble, for Bimbisāro, king of Māgadha, the contemporary of the Buddha, conquered Anga. Now Vanga bears a very strong resemblance to the name of Ashi Vanguhi, the Zend goddess, who, in the Zendavesta, is described as the patroness of married women,¹ to whom Husrava, the son of Syāvarhan and the conqueror of Frangrasyan, sacrificed. But this name Vanguhi also seems to have something to do with the Veh river, considering that all rivers were looked on as mothers and fathers from the days of the Indra-worshippers. This river, described in Bundahis̄ as made up of the Arak (Araxes), Āmi (Oxus), the river of Misr Egypt, the Indus, and the Frāt or Euphrates,² appears to be the circular river which surrounded the sacred land of Iran. But when the sons of Iran came to the south-east, and settled on the Guñga, it is possible that they would have been inclined to extend the boundary of their sacred land to its banks, and to call it also the Vanga or mother-country, after the name of their goddess Ashi Vanguhi, the goddess of the Vanga or circle of the Veh. It was almost certainly these northern immigrants who introduced the family life of the household and the household fire in place of the tribal life of the Turanian nations.

A great deal of this last dissertation is conjectural, but the conclusions at all events fit in with the historical proofs, and show, I would submit, with a very near approach to certainty, that in the successive lines of the priesthood, the Bhrigus are the priests of the mother-worshippers, the Añgiras of the snake and phallus-worshippers, and the Atharvans of the northern fire-worshippers, and that it was they who, as the sons of Kuṣ or the Kavi kings, conquered Northern India and substituted their rule for that of their Turanian predecessors, who, as is shown in the present instance by the account of the irrigation works of Frangras-

¹ Darmesteter's Zendavesta, Ashi Yašt, 41-43, 54, Sacred Books of the East, pp. 278 and 280.

² West's Bundahis̄, vii. 15-17, xxi. 7. 8. 9. 10, Sacred Books of the East, vol. v. pp. 29, 76, 77, note 4, and 78.

yan, were already a highly civilized people, and represented the Virātas and Kaurāvyas of the Mahābhārata.

In addition to the foregoing proofs connecting Anga with the Aṅgiras, and showing that the latter were accredited priests of the Kuṣikas of Kaśi who also ruled Anga, I must point out that the Mahābhārata proves that two of the principal opponents of Krishna, or Vishṇu, and the Pāṇḍavas were Karṇa the charioteer, or Kuṣika king of Anga, and Vāsudeva king of the adjoining Vanga or Bengal, if indeed the two were not the same country. Karṇa was the miraculously born son of Prithā (Prithivī), the mother-earth, who was also the mother of the three elder Pāṇḍavas. His father was the Sun, and his mother, on his birth in the Kuntibhoja capital, on the river Aśva, placed him in a basket and committed him to that river. He was thence floated down the Charmanvati (Chambal), the Jumna, and the Ganges, till he reached Champa, the capital of Anga. He was then saved by Radhā, the wife of Adiratha, the chief of the charioteers or Kuṣikas.¹ He was made king of Anga by the Kaurāvyas, and was their most conspicuous military leader in the great war with the Pāṇḍavas; but before that he had, in the interests of the Kaurāvyas, annexed to their rule a long list of kingdoms, recorded in the Mahābhārata as his conquests.² The religious opposition to the reform personified in Vishṇu as its chief god, is proved by the speech of Krishna, where he denounces Vāsudeva, king of Vanga, as "that wicked wretch among the Chediś who represents himself as a divine personage, who has become known as such, and who always bears from foolishness the signs which distinguish me, that king of Vanga, Pundra and the Kirātas, who is known upon earth by the name of Pandraka and Vāsudeva."³ This saying and the opposition of Karṇa, king of Anga, fully prove that the Eastern country was, long before the advent of the Vishṇu-ites, or religious reformers from the West, the seat of a powerful monarchy ruled by the Kuṣikas, and possessing a

¹ *Ādi (Sambhava) Parva*, cxi. pp. 330-331, *Vana (Kandala-harana) Parva*, cccv.-cccviii. pp. 901-907; *J.R.A.S.* April, 1889, p. 277.

² *Vana (Ghosha-harana) Parva*, cclii.

³ *Sabha (Rajasuyarambha) Parva*, xiv. p. 45.

strongly organized religious system, with a priesthood which must have included the Aṅgiras in its ranks. This religious organization must have been based on the sacrificial ritual which was upheld by the predecessors of the Vishnuite reform, and the Aṅgiras, as the old sacrificial priests, must have been powerful members of this Eastern hierarchy.¹

But it was these successive lines of priests, whose history I have tried to discuss, who first, in order to secure the due observance of the sacrifices at the proper times and seasons, undertook the task of measuring the sequence of time.

The History of the Year. — As the whole of the sacrificial system of all the ancient nations who adopted a fixed ritual rests upon the year, it is evident that the history of the year is of the greatest possible chronological and historical importance. For when it is understood, it becomes plain that the sequence of the sacrifices recorded in ritualistic manuals gives most valuable evidence as to the dates which are partly denoted by changes in the ritual. This we see in the seasonal sacrifices, where in one place five seasons are invoked, while in another there are only three seasonal festivals prescribed, and in other places six seasons are mentioned. It is only by learning the history of the year that changes such as these can be explained, and as the change to three seasons denotes, as I have shown, a racial and dynastic revolution, under which the rule of the Northern tribes worshipping the god of the sacred water, and of their allies the Sākas and Aryans, was substituted for that of their Dravidian predecessors, the explanation brings out most valuable historical information.

¹ Stanzas 15-19 of Rg. x. 27 give a noteworthy description of the successive orders of Aṅgiras, or sacrificial priests; v. 15 speaks of the seven men who came from the South (the priests of the pentad, the old phallic fire-god and Indra, god of the waters). They were joined by eight from the North (those who looked on eight as the symbol of the heavenly fire), while nine came from the West laden with coin (the Vishnuites, whose sacred number was nine), and ten from the East (the mother-worshippers of Eastern India, to whom the ten months of gestation were sacred). In v. 17 they are all said to have disputed as to whether the offering should be cooked or not—that is to say, whether it is to be a burnt offering or one in which the blood of the victim is to be poured on the ground. In v. 19 they are all said to disappear before the sun, who destroys the phallus worshippers (Śiṣṇa, the phallus, for Śiṣṇa deva, phallic gods). See Grassmann's *Rigveda*, vol. ii. p. 469.

The year was originally calculated for sacrificial purposes, and as the prosperity of the country was thought to depend upon the absolutely correct performance of sacrificial ceremonies at the times ordained for each rite, the preparation of the official calendar marking the dates of each separate festival and solemn sacrifice in the annual round of sacrificial observances must have been from the earliest times regarded as one of the most important duties of the priests. I have shown, in the account I have given of some of the principal sacrifices in the Hindu ritual, to what a remote period in the past the ritualistic system extends, and the history of the year must begin with the time when the first altar was consecrated, and the first victim sacrificed to celebrate the recurrence of one of the annual epochs of seasonal change.

In the later Hindu ritual, as we learn from the *Mahābhārata*, *Rigveda*, and *Brāhmaṇas*, the gods of time who ruled the sacrificial year were thought to be thirty-three in number. I have shown that there were certainly three recognized methods of distributing them over the sacrificial year. The first was that of the *Rigveda*, which divides the gods into three groups of eleven each. But this division is entirely based on the three Aryan seasons introduced by the *Sākas* and *Aryans*, and the eleven gods consecrated as the rulers of the period of generation, regarded as sacred by the *linga-worshippers*, who added one month, dedicated to the earthly father, to the ten months of the mother's year. Thus the work of generation required eleven gods, and these eleven begot the three seasons, which are the number recognized by some of the writers of the *Rigveda*, and which are still reckoned as the number of seasons in the Northern Punjab, where the *Vedas* were written.¹ In the *Brāhmaṇas* *Vashatkāra*, the god who makes the seasons, is reckoned among the thirty-three gods, and this proves that they must include the seasons; but, as the whole sacrificial system is based upon a year of five seasons, it is clear that the division of the thirty-three gods of time, which depends upon only

¹ Zimmer, *Altindisches Leben*, chap. xiii. p. 373.

three seasons, cannot be that which was contemplated by those who first fixed on the number thirty-three as representing the official year. The second mode of distribution was that of the Vishṇu-worshippers, which can only be understood by explaining the third method, which is that recognized by the authors of the Brāhmaṇas. According to them the thirty-three gods were made up of eleven Rudras, eight Vasus, and twelve Adityas, to which were added Prajāpati, the son of Manu, and Vashatkāra, the god who makes the seasons. Now the twelve Adityas are admitted to be the twelve months of the solar year, of the eight Vasus seven represent the seven sacred days of the week, the Amesha Spenta of the Zendavesta, and the eighth Vasu I have proved to be the god Dyū, called Bhishma in the Mahābhārata, and who is the son of Visvāmitra of Vedic tradition, the old moon-god, son of Gādhi, the father of the Kaśyapas or Kuśikas; the eleven Rudras were the eleven sacred months of generation. When dealing with this subject before,¹ I attempted to explain this division by pleading that it was based on Brahmin ignorance of the methods and intentions of their predecessors. I now see that the explanation is totally wrong, and that this division of the gods of time is really a complete synopsis of the previous methods of calculating time, and a new and wonderful proof of the great learning and eclectic toleration of the Brahmin ritualists. Thus the Rudras are the eleven sacred months of generation, and these, with Prajāpati and Vashatkāra, make the full lunar year of thirteen months, which was the year of the Turanian or Dravidian people, who were the descendants of Manu the thinker, who was also the father of Prajāpati. Vashatkāra, which means the god who makes the Vashat call, is the god of the linga, the Rudra who was summoned to the sacrifice by the cry Svāhu, which is named as the Vashat call, and means that he is asked to bear it to the gods. In this arrangement the sacred eleven months of generation are placed first as the oldest ritualistic division, and the whole sacrificial year is concluded by the two months

¹ J.R.A.S. April, 1889, pp. 302-306, and 318-324.

which were, as will be shown later on, added to the eleven by the Takshakas or sons of Kaśyapa, to make up the full year of thirteen months. Within these two inclosing limits, which represented the complete lunar sacrificial year, were placed the divisions of time sacred to the Northern immigrants and the Semite Akkadian sun-worshippers. These are the seven sacred days of the week, the eighth day sacred to the sun-god, added in the Zoroastrian calendar to the last two weeks of the month, to make thirty days instead of twenty-eight in the month, and the twelve months of the solar year.

What the exact division made by the Vishnu-worshippers was I have found no evidence to show, beyond the fact that they only reckoned nine Rudras, and it is useless to conjecture how the other numbers on the list were allotted. But at any rate none of these methods of distributing the thirty-three gods can be looked on as that which was originally made.

That this number thirty-three was held to be sacred from very ancient times is proved by its persistent use, both in the Hindu sacred writings and in the *Zendavesta*,¹ and as it is based upon the seasons of the year, it must have originally included the number recognized in the original sacrificial ritual. This was, as I have conclusively shown, five, and therefore the remaining twenty-eight must mean twenty-eight sacred divisions of time, and these must be the twenty-eight days of the lunar month, and the original year must have consisted of months of twenty-eight days each, and have been divided into five seasons. But in the explanation in the *Mahābhārata*, which originally led me to look on the *Nakshatras* as among the thirty-three gods, the *Nakshatras* or wives of Soma are said to be only twenty-seven, and to make up thirty-three I showed, on the authority of the *Aitareya*

¹ Mills, *Gāthas and Yasnas*, *Yasna i. 10*, *Sacred Books of the East*, vol. xxxi. p. 198, and many other places. A passage quoted by Max Müller, Preface to vol. iv. of the *Rigveda*, p. 53, from the *Taittiriya Sanhita*, ii. 3. 5. 1, in which the daughters of *Prajāpati* are said to be thirty-three in number, gives undoubted proof of the antiquity of the sanctity attached to the number, as *Prajāpati* is the chief of the old lunar gods.

Brāhmaṇa, that six seasons must be added,¹ as Vashatkāra, the last of the thirty-three gods, is there called the god who makes the six seasons. This is the number which is said in the Satapatha Brāhmaṇa to have been reckoned by the fathers, and was the number of ṛitu or seasons of two months reckoned in the solar year, and in the sacrificial year of the Jyotishah, which is the official year of the Brāhmaṇas.² Therefore the six seasons points to the use of a year later than that on which the sacrificial ritual was based.

But in the passage of the Mahābhārata where twenty-seven Nakshatra are mentioned, they are distinctly stated to be parts of the year, as "they are employed in indicating time," and therefore these twenty-seven Nakshatra must mean a year, and not the twenty-eight days of the month; and this Nakshatra year must have been specially adapted to the sacrificial annual cycle, and it is this year which is recorded in the official lists in the Taittiriya Brāhmaṇa. But these twenty-seven Nakshatra constituting the year form the lunar section of the cycle of five years formed to unite the lunar and solar years, and in this arrangement all the months except three are divided into two Nakshatra, each Nakshatra representing a phase of the moon. To each of the remaining three months three Nakshatra are allotted to make the lunar year of thirteen months correspond with the solar year of twelve, and even then there is one Nakshatra over. But this monthly allotment does not mean that there are ever three phases of the moon in any month, but the Nakshatras are in this cycle only nominal divisions, the real agreement between solar and lunar time being made by shortening the lunar day called "tithi." Thus in the five years' cycle 1860 lunar "tithis" are reckoned as equal to 1830 nukthemera or solar days of twenty-four hours each. It is quite clear that the twenty-seven Nakshatra used in a calendar thus formed could never have been originally calculated for this purpose, but that they must have come

¹ Aitareya Brāhmaṇa, iii. 6, Haug's translation, vol. ii. p. 177; see Part II. J.R.A.S. April, 1889, pp. 318-321.

² Max Muller, Preface to vol. iv. of edition to the Rigveda, pp. 34-35.

from some earlier arrangement. If their first use had been to describe the number of phases of the moon in the lunar year of thirteen months, they must have been twenty-six in number; but we never find twenty-six Nakshatra, and the number is always twenty-seven or twenty-eight. The twenty-seven Nakshatra are only found in connection with this sacrificial cycle, whereas the Arabians and Persians, who are, besides the Hindus, the only people who used Nakshatras, always reckoned twenty-eight,¹ and the Hindus themselves allowed that there was also an additional or twenty-eighth Nakshatra, which they called Abhijit.² But these twenty-eight Nakshatra could never have been used to represent the number of phases of the moon in the lunar or any other year, and the question is, which did they represent? In order to clear up all the difficulties arising from these conflicting numbers, it is necessary to consider the following questions.

1. What divisions of the year were originally represented by the Nakshatras, and what was their original number?

2. Did they first receive names as representing divisions of the year or of some smaller unit?

3. How was the original year reckoned, what number of months did it contain, and what was the number of days in the month of the first and subsequent collocations of months used to measure time exceeding one month?

4. When did the original year begin?

As these questions cannot be satisfactorily solved without the help of the Zendavesta, I wish to say a few words as to the historical value of the evidence thence deduced. The great object of Zarathustra and those who, under his name, expounded the Mazdean religion, was the promotion of righteousness. Religion was not in their eyes merely a debtor and creditor account between God and man, represented by sacrifices and offerings on one side and benefits paid on the other, nor was it a system of generating prosperity, wealth, children, flocks and

¹ Alberuni's India, Sachau's edition, chap. lvi. vol. ii. pp. 81-82.

² Bundahis, chap. ii. West's translation, Sacred Books of the East, vol. v. p. 11.

herds, by feeding with sacrifices the higher powers, whose duty it was to produce these benefits for their worshippers. The whole system of Mazdeism represents a phase of religious development much later than those shown in these crude conclusions. This change arose when a recorded moral law was looked on as a necessary supplement to the sacrificial law of debtor and creditor. From this time the observance of the law was looked on as the best sacrifice, and the account opened between God and man was one in which not the sacrifices offered, but the good deeds of those who obeyed the law were placed to their credit. In the religion of Zarathustra, which was in some points analogous to both those of the Jewish prophets and priests, what was required was that each of the servants of Ahura Mazda should dedicate their whole time to his service, and make their life a perpetual worship, in which the sacrifice that was offered was the life and powers of those who believed. In the Zoroastrian ritual little or no change was made in the modes of reckoning time, on which the previous sacrificial code of Irān had been based;¹ but instead of the sacrifices of horses, oxen, and lambs, which had been offered by the national heroes of the past,² Zarathustra prescribed a pure sacrifice of "Haoma (Soma) and meat, offered with the holy wood (for fire), the baresma (the sacred twig cut from a tree without thorns), the holy mortar (to crush the Haoma or Soma), the wisdom of the tongue, with the holy spells, with the speech, with the deeds, with the libations, and the rightly spoken words."³ These sacrifices were those instituted at the beginning of the last reform in the sacrificial ritual, when burnt offerings of slain animals were beginning to be discredited, and were being gradually replaced by the fruits of the earth, hallowed, like

¹ There was one change made as to the Gāhs, which, as I have shown, were formerly the five seasons, but under Zarathustra's reform became the five periods of the day, each devoted to its special religious exercises.

² See the sacrifices of Haoshyanga, Yimakshaeta, and other heroes, in the Abān Yašt, each of whom offered a hundred stallions, a thousand oxen, and ten thousand lambs, Darmesteter's *Zendavesta*, *Sacred Books of the East*, vol. xxiii. pp. 52-58.

³ Vendidad, Fargard iii. 1, note 2, also Fargard xix. 18, and Abān Yašt, xxiv. 104; Darmesteter's *Zendavesta*, *Sacred Books of the East*, vol. iv. pp. 22 and 209, and vol. xxiii. p. 78.

the burnt offerings, by heat and fire. But it was not sacrifices which Zarathustra regarded as the truest and best holy offerings; what he insisted on was religious conduct, and the life-long devotion of true believers to the service of Ahura Mazda. To insure this, each day was divided into five periods called *Gāhs*, in each of which a separate form of belief must be recited. It also required the devotion of every day to some power representing a form of the Supreme Being. In the lists of these days, called *Sirōzahs*, the heavenly powers to whom each of the thirty days of the month were to be devoted are named. But besides this list of thirty heavenly powers, we find another in the earlier section of the *Zendavesta* called the *Yasna* or rules for sacrifice. In this there are thirty-three gods, who are called in the section beginning these rules, and in many other places throughout the ritual, "the thirty-three lords of the ritual order."¹ This list is followed by a statement that the sacrifices that are to be offered are the monthly offerings "to the month, lords of the ritual order, to the new moon and the later moon," and the yearly festival to the seasons.² Thus showing that the gods to be worshipped are the gods of time, the moon-god who makes the months, the *Prajāpati* of the *Brāhmaṇas*, and the year-god who makes the seasons, the Hindu *Vashatkāra*, who is, as I have shown, the god of the *linga*, the earthly father. These thirty-three gods must have been originally exactly the same as the thirty-three gods of the Hindu year, and both must represent the days of the lunar month and the seasons. Any other hypothesis than that they sprang from one common source is impossible, as no two nations so widely separated as the early moon-worshippers of *Irān* and the Southern Hindus could both have separately developed a reckoning of time based on thirty-three divisions. This method of reckoning time must have come from the same country as that from which the name of Ahura Mazda is derived. Ahura is, as Professor Darmesteter shows, merely

¹ Mills, translation of the *Yasnas*, *Yasna* i. 10, iv. 15. vi. 9, and many other places, *Sacred Books of the East*, vol. xxxi. pp. 198, 216, 220.

² *Yasna* i. 8. 9, iv. 13. 14, vol. xxxi. *Sacred Books of the East*, pp. 198, 216.

another form of Asura.¹ Asura is derived from the Akkadian *Asari*, the chief, and the Asuras were, as we know from the Hindu *Brāhmaṇas*, worshippers of the snake-gods headed by the great snake *Nahusha*, who came from the Euphrates valley. Further and almost conclusive evidence of the Euphratean origin of the Zoroastrian gods of time is given by the finding in the library of Assurbanipal of a list of the days of the month, with the gods to which each was dedicated. This is referred to by Prof. Darmesteter, on the authority of Prof. Halévy.² From these considerations it is clear that in the *Zendavesta* we find most valuable and trustworthy evidence as to the original Akkadian chronometry, from which that of the Hindus and of the ancient inhabitants of Irān was derived.

I will now proceed to consider the first question I have proposed for solution. *What divisions of the year were originally represented by the Nakshatra, and what was their original number?* The Hindu astronomers quoted by Max Müller, in the essay to which I have so often referred, namely, *Kamalākara Bhaṭṭa*, who gives *Mādhava*, an ancient astronomical writer, as his authority, and *Garga*, both tell us that the monthly passage of the moon through the heavens was regarded as a circle, that the *Nakshatras* were stages in that circle, and that a *Nakshatra* month consists of one passage of the moon through all the *Nakshatras*. *Patanjali* also says that the passage of the moon through each *Nakshatra* represents a *Nākshatra Ahorātra* (a *Nakshatra* day and night).³ Hence the number of days in a *Nākshatra* month, according to these authors, corresponds with the number of lunar days occupied by the monthly changes of the moon.

¹ Darmesteter's *Zendavesta*, Introduction to *Vendidād*, iv. 3, Sacred Books of the East, vol. iv. p. 58.

² Darmesteter's *Zendavesta*, Introduction to *Sīrōzahs*, Sacred Books of the East, vol. xxiii. p. 3, note 1. The Egyptians also, as Herodotus, ii. 82, tells us, consecrated each day in the month to some god. This must, like the rest of their early ritual and their original gods, be derived from the Euphrates valley. I have already, in Part III. *J.R.A.S.* July, 1889, pp. 540, 542, traced these triads to that source, and have shown that, like the early Akkadians and Hindus, they worshipped the mother earth, *Horus*, the earthly father or phallic god of the new moon, and *Osiris* or *Thoth*, the moon-god.

³ Max Müller, Preface to vol. iv. of the *Rigveda*, pp. 55-58, and note to p. 58.

Alberuni explains very clearly how this Nākshatra month originated. He says that the early astronomers observed that the moon in completing her changes makes the circuit of the heavens, "beginning to be visible in the West," and ceasing "to be visible in the East." This is done in twenty-seven days and three-quarters,¹ or in round numbers in twenty-eight days. Hence the Arabians and early observers who, as Alberuni says, had only their eyes and numbers to rely upon as means of research, fixed the several stations for each day of the moon's journey according to the constellations and fixed stars, with which the moon stands in conjunction, or in the immediate neighbourhood of which she passes. Alberuni, moreover, points out that the stars used by the Arabians and Hindus do not agree, nor do the numbers of Nakshatras, as the Arabians have twenty-eight and the Hindus only twenty-seven. Now the reason why the Hindus have only twenty-seven Nakshatras is shown by Garga and Varāhamihira to arise from the attempt made by Hindu astronomers to combine the solar and lunar years in one measure of time, which they fixed as a cycle of five years.² In doing this they divided the Zodiac into twenty-seven equal parts of $13^{\circ} 20'$ each, to represent the lunar year, and they then dropped the twenty-eighth Nakshatra, which they had hitherto used as a division of the monthly circle.³ Consequently it was impossible for the stars and constellations, which represented the twenty-seven divisions of the Hindu five years' cycle, to correspond with those marking the twenty-eight divisions of the Arabian circle, which merely marked the lunar month.

But no examination of this question can be complete with-

¹ This is the computation given by Alberuni, Alberuni's India, Sachau's edition, chap. lvi. vol. ii. pp. 81, 82. The real computation is 27 dys. 7 hrs. 43 min.

² Max Muller, Preface to vol. iv. of edition of the Rigveda, p. 51; Varāhamihira, Pañchasiddhantikā, chap. ii. 7, p. 11 of translation, Thibaut's edition of 1889.

³ The Arabian astronomers, when they told Alberuni that the Hindus always left out one Nakshatra, because it was always covered by the rays of the sun, explained the absence of the twenty-eighth Nakshatra quite rightly, and not wrongly as he thought. What they meant was that the twenty-eighth Nakshatra would not fit in with their solar reckoning of time, Alberuni's India, Sachau's edition, chap. lvi. vol. ii. p. 82.

out considering the Chinese Sieu. There are twenty-eight single stars described by the great astronomer Biot as single stars near the equator, the intervals of which in time had been carefully observed, by noting in water clocks the instant when they passed the meridian. They refer to these the positions of other stars and planets coming to the meridian between them. These twenty-eight stars thus represented twenty-eight divisions of the heavens by which the motions of all the heavenly bodies, sun, moon, planets, and comets were determined, without being specially devoted to any one of them.¹ The positions of twenty-four of these stars had been determined, according to Biot, more than 2000 years before our era,² and the last four appear to have been added before or about 1100 B.C. These stars are all at different intervals, and hence the divisions of the circle are not, like those of the Hindu Nakshatra, equal. Prof. Whitney, who has carefully studied the subject, says that after the exhibition of the concordances existing among the three systems "of the Hindoos, Chinese, and Arabians, it can enter into the mind of no man to doubt that all have a common origin, and are but different forms of one and the same system."³ Now the original twenty-four stars of the Chinese have been supposed to have some connection with the twenty-four hours; but what is most pertinent to the present inquiry is that they, as well as the twenty-eight finally adopted, represent a circle in the heavens used for astronomical purposes; and the general use of the division of the sky into twenty-eight unequal parts, as among the Arabs, is one among the many proofs that one of the first astronomical divisions of time used was the lunar month of twenty-eight days. This was reckoned as a circle in the heavens, and the passage of time

¹ Max Müller, Preface to vol. iv. edition of Rigveda, pp. 39, 45 and note, 51, and 82.

² But these twenty-four stars were certainly Akkadian. They were the divine judges, twelve north and twelve south of the Zodiac, mentioned by Diodorus ii. 30, and in Akkadian documents (Sayce, Hibbert Lectures for 1887, p. 72, note) they were the twenty-four hours, but they must have been a later invention than the earlier division of time by watches, which is so universally found as the fundamental calculation of the intervals of light and darkness.

³ Surya Siddhanta, edited by Burgess and Whitney, p. 201, quoted by Max Müller, vol. iv. of edition of Rigveda, p. 45.

was computed by the distances of the stars, which were used as the mile-stones of each division.¹ The division of the heavens into twenty-four hours must have been much later than the original astronomical circle, as the ancient Akkadians, like the modern Hindus, used to reckon their time by watches. But the original system of the Hindus must, like that of the Arabs, have been taken from the early Akkadians, and the Hindus must have originally reckoned by junction-stars (Yoga-tārās), as they retain the term in their astronomical vocabulary, and were able to point out twenty to Alberuni which agreed with those used by the Arabs. The others they could not point out, as the use of the cycle had destroyed their old astronomy and converted the twenty-eight unequal divisions of the early computators into the twenty-seven equal divisions of the heavens. The earliest Persians also used the division of twenty-eight stars, as is shown in the list of the twenty-eight subdivisions of the heavenly circle in the Bundahis:² and that this was based on a division of the month into twenty-eight days is proved by an examination of the Sīrōzahs and of the list of the days of the month, with the gods to which they were sacred, found in the bilingual Akkadian and Assyrian documents.

In the Sīrōzahs the thirty days of the month are divided into four weeks—the first two of seven days and the last two of eight days each; but it is the first seven which are especially holy, and are called the Amesha Spenta, or Ameshpendes.³ If the list had been originally solar, the seven Amesha Spenta would, like the Vasus, who occupy the same position in the Hindu ritual, have been turned into eight. But instead of

¹ I have shown later on that this early circle was probably succeeded, when an attempt was made to calculate time by divisions of the circle, by one marked by ten stars. This was used for yearly calculations. The monthly circles only represented daily changes noted by the passage of the moon from one star or constellation to the next. They were afterwards increased to thirty, and were the thirty spheres of the Vedic hymn Rg. x. 109 3 above referred to. It was the circle of ten stars used for the purpose of the general measurement of the passage of time, which was the invention of the sons of Kuṣ, and the instrument used by them in determining the lunar year.

² West's Pehlavi Texts, Bundahis, chap. ii. 2, Sacred Books of the East, vol. v. p. 11.

³ Darmesteter's Zendavesta, Sīrōzahs i. 8, Sacred Books of the East, vol. xxiii. p. 6, note 11.

making the alteration as the Hindus did, the Zoroastrians retained the ancient seven days in the place of honour, and placed the weeks with eight days at the end of the month. That the list of the *Sirōzahs* was originally a stellar list, framed from astronomical observations on a lunar model, is rendered likely by the important position assigned to *Tīr* or *Tistrya*, the dog-star, which was the ruling star of the worshippers of *Arđvi Anāhitā*, the great water goddess, who was the ruling deity of the tenth day, thus recalling the tenth month of the mother's year, while *Tistrya* rules the thirteenth, as the seed of the waters which is the father of the offspring of the waters produced in the full lunar year of thirteen months.

The Assyro-Akkadian calendar also shows similar traces of having been founded on an original month of twenty-eight days, for the first three weeks of the month consist of seven days and the fourth of nine.

I will now proceed, before making further comments on these lists, to place those from the Assyrian tablets, the *Yasna* and *Sirōzahs*, side by side, for purposes of comparison.

I.	II.	III.
Assyrian list showing gods to which each day was sacred. ¹	Yasna list. ²	Sirōzah. ³
No. of day.	No. of day.	No. of day.
1. Anu and Bel	1. Ahura Mazda	1. Ahura Mazda
2. The two Istars	2. Vohu manō (The good mind)	2. Bahman, Vohu- manō
3. Merodach and Zerpanit (a fast day)	3. Asha Vahišta (Righteousness)	3. Ardibehešt Asha Vahišta
4. Nebo, son of Me- rodach, and Tas- nut his wife	4. Khshatra Vairya (Sovereignty)	4. Shahrēvar Khshatra Vairya, Lord of Metals.
5. Mul-lil and Nin-lil (lord and lady of lower firmament)	5. Ārmaiti (Uni- versal weal and immortality)	5. Sapendārmad, Spenta Ārmaiti

¹ Sayce, Hibbert Lectures for 1887, p. 70.

² Mills, *Yasna* i. 1-7, *Sacred Books of the East*, vol. xxxi. pp 195-198.

³ Darmesteter's *Zendavesta*, *Sirōzah* i. *Sacred Books of the East*, vol. xxiii. pp. 3-13.

I.	II.	III.
6. Rimmon and Nin-lil (Rimmon is the beneficent god of the seasons) ¹	6. Haurvitāt (the body of the kine)	6. Khordād, Haurvitāt (the seasons and the years)
7. Fast day to Mero-dach and Zerpanit (Sabbath)	7. Ameritāt (the kine's soul, the fire)	7. Murdād Ameritāt (flocks and herds)
8. Nebo	8. Asnya (the day lords)	8. Dai pa Ādar (the day before Ādar)
9. Ādar and Gula	9. Hāvani	9. Ādar Ātār (the glory of the Aryas)
10. Nin-lil (mistress of the lower firmament and the divine judge)	10. Sāvanghi (lord of cattle) ²	10. Ābān Ardvi Anāhitā (God of the Waters)
11. Tasmit and Zerpanit	11. Viśya (lord of the Viś or people)	11. Korshēd (the well-horsed sun)
12. Bel and Beltis	12. Mithra (of the wide pastures)	12. Māh (that keeps in it the seed of the bull)
13. The Moon (the Supreme God)	13. The Yazad (god) of the spoken name	13. Tīr, Tistrya, Sirius (leader of the Haptoiringas (the great bear))
14. Beltis and Nergul (Sabbath)	14. Rāma Hvāstra	14. Gōs Drvāspa
15. Sin (the Moon God, lady of the house of heaven)	15. Rapithwina	15. Dur pa Mihir (the day before Mihir)
16. Merodach and Zerpanit	16. Fradatshu	16. Mihir Mithra Rāma Hvāstra
17. Nebo and Tasmit	17. Zantuma ³	17. Srōsh Sraosha
18. Sin (the moon goddess), Samas (the sun-god)	18. Uzāheirina	18. Rash, Rashnu Razista Arstāt

¹ Sayce, Hibbert Lectures for 1887, p. 205.

² Mills, Yasna i. 3, Sacred Books of the East, vol. xxxi. p. 196, note 5.

³ Here, in Yasna i. 4, Asha Vahista, Righteousness, and Ameritāt, Ahura's fire, Nos. 3 and 7, are again introduced; but these insertions have been made, as I shall show later on, to increase the original number of twenty-eight sacred days of the month to thirty.

I.	II.	III.
19. Gula (a sabbath)	19. Fradatvira	19. FravardinFravashis
20. Sin and Samas	20. Daḥvyuma	20. Bahrām Vere-thragna
21. Sin and Samas (a sabbath)	21. Ahura Napāt Apām (son of the waters)	21. Rām, Rāma Hvāstra Vayu
22. Sin and Samas	22. Aivisrūthrima	22. Bād (the wind)
23. Samas and Rim-mon	23. Abigaya	23. Dai pa dīn
24. Lord and Mistress of the Palace	24. Zarathustrōtema	24. Dīn Chista (the law)
25. Bel and Beltis	25. Fravashis	25. Ard Ashi Van-guhi
26. Ea or Hea	26. Verethragna	26. Astād Arstād (that makes the world grow)
27. Nergul and Zikum (chaos)	27. The Victorious Ascendency	27. Āsmān (Heaven)
28. Ea or Hea (the day of resting of Nergal)	28. Ushahina	28. Zemyād (the earth)
29. Day of resting of the moon-god	29. Berejya	29. Mahraspand, Mathra Spenta (the holy word)
30. Anu and Bel	30. Nmānya	30. Anirun (the eternal luminous space)
	31. Srosha (obedience)	
	32. Rashnu Razista (the most just)	
	33. Arstāt (who advances the settlements)	

The first thing to be noticed in these lists is—what seems to go far towards proving that the Assyrian lists and that of the Sīrōzah both have come from a common origin—that the ninth day in both is sacred to Adar, who is, as I have

shown, the god of the fire-stick (Svastika), the Akkadian Uras, and the Greek Ares. In that case Gula, who is associated with Adar, is the second of the two sticks which, when rubbed together, produce the fire.

As to other points, as the list in the Yasna contains thirty-three gods, these ought to be the twenty-eight days of the month and the five seasons, but instead of the names of the seasons, as recorded in later lists, it mentions the names of the five Gāhs, 9. Hāvani, 15. Rapithwina, 18. Uzāheirina, 22. Aivisrūthrima, and 28. Ushahina. These Gāhs are also mentioned in the list of the Sīrōzah after No. 7. Ameritāt, or in the same place in which Asnya, the day lords, appear in the Yasna list. So therefore, in the Yasna list, Asnya probably represents the Gāhs, which are the sacred divisions of the day. But as certain Yaṣts, or invocations to special gods, were ordered to be recited at each Gāh, it is probable that these recitations may throw some light on the original meaning of the Gāhs. These are as follows:—

1. Hāvani, Yast No. xxxv. The Mihir Yaṣt to Mithra and Rāma Hvāstra.
2. Rapithwina, Yast No. iii. To Ashi Vahista, and the last Yaṣt to Atār (Ameritāt).
3. Uzāheirina, Yast No. v. The Ābān Yaṣt to Ardvi Sūra Anāhita.
4. Aivisrūthrima, Yast No. xiii. The Fravardin Yaṣt and No. xv., the Bahrām Yaṣt to Verethragna.
5. Ushahina. The Srōsha Yaṣt, No. xi., to Sraosha; the Rashn Yaṣt, No. xii., to Rashnu Razista, and No. xviii., the Astād Yaṣt, No. xvii. to Arštāt.

From this list it appears that there are ten gods to be invoked at the several Gāhs: 1. Mithra, 2. Rāma Hvāstra, 3. Ashi Vahista, 4. Ātar, 5. Ardvi Sūra Anāhita, 6. The Fravardin, 7. Verethragna, 8. Sraosha, 9. Rashnu Razista, 10. Arštāt. These ten appear to be the ten months of gestation, which I have shown to be specially connected with the five Hindu seasons, or ṛitu, of two months each.

Again, the gods invoked at each Gāh give distinct evidence that the Gāhs originally represented the seasons, for in Uzā-

heirina, which corresponds to the *Idah* of the Hindu *Brāhmaṇas*, the rainy season, the god of the waters is invoked.¹ In *Aivisrūthrima*, which corresponds to the *Barhis*, or autumn, the holy mothers, the *Fravashi*, and the male god, the father, are invoked, just as in the Hindu rituals the festival to the fathers and mothers is held in the autumn. In *Ushahina*, which is the winter, or the time when the old year dies out and the new year is waiting to be born, the gods invoked are three in number, answering to the ancient generating triad of the Hindus. This is shown in the passage in the *Ashi Yašt*, which names as the brothers of *Ashi Vanguhi*, the holy mother, the patroness of married pairs, three gods (two of which are the same as those invoked in this *Gāh*) invoked in this *Gāh*, *Sraosha*, *Rashnu*, and *Mithra* of the wide pastures, who has ten thousand spies and a thousand ears. *Mithra*, who was originally the moon-goddess, is here the moon-god, or probably, like the Hindu *Daksha* and *Arṣat*, the physical generative power which is the father of the moon.

If these five *Gāhs* were included in the *Sirōzah* list, as they are included in that of the *Yasna*, the number in the former would be thirty-five, and this would be the number of the *Yasna*, if *Asha Vahista*, righteousness, and *Ameritāt*, Ahura's fire, were repeated twice over, as is done in the *Yasna* list; but when we examine the *Yasna* list still further, we do not find *Ādar* or *Ātar*, the fire-god, directly mentioned. If *Ameritāt*, which is said in the *Yasna* to be the kine's soul and Ahura's fire, was originally a fire-god, the seven sacred days of the week must have anciently included the god of the fire-stick, and the people who invented the days of the week must have been the fire-worshippers who made seven their sacred number.²

¹ This god is again represented in the star *Tistrya* or *Sirius*, who appeared in the early autumn and brought the rains with him. He was also to the Greeks the harbinger of rains and fevers, *Il. xxii.* 26-31, *Il. xvi.* 385. The goddess *Ardvi Sūra Anāhita*, the heavenly spring, from which all the waters on earth flow down, probably became the river-goddess representing the rivers *Tigris* and *Euphrates* as filling in the early autumn; but this goddess, as deified by the *Indra* or *Hea*-worshippers, made the rivers in *Babylonia* and *Assyria*, as well as in *India*, the mother of races. Before that she was the mother earth.

² The week, though a very ancient division of time, must have come into use long after months and years were invented. They could never have been known to the early seafaring mother-worshippers, from whom the Greeks and Romans

But a further examination of the Zendavesta seems to prove that the religion was founded, like that of the Hindus, on a still more archaic basis, in which five was the sacred number. For among the gods who are invoked, there are five who are especially named in the Yaṣts as those to whom the old heroes sacrificed, the heroes and their sacrifices to heroes being mentioned in the Yaṣts dedicated to these gods. These are (1) Ardvi Sūra Anāhita, No. 10 in the Sīrōzah list, to whom the Ābān Yaṣt is addressed. (2) Gōs, No. 14, also called Drvāspa (she who keeps horses in health), and Gōsārūn (the soul (or cow) of the bull).¹ (3) Rām, No. 21, also called Rām Hvāstra, a male god. (4) Ashi Vanguhi, the daughter of Ahura and guardian of married women, No. 25; and (5) Zamyād, the earth, No. 28. To these gods the Ābān, Gōs, Rām, Ashi, and Zamyād Yaṣts are addressed. Of these five gods, who are apparently both the gods of the five seasons and those worshipped by the earliest inhabitants of Irān, four are, strange to say, female gods, and one only is a male god, for the earth is always said to be a goddess. But it is only by a comparison with the Hindu pentad that their full meaning can be understood. Of the five gods of the Hindus Iḍaḥ, the central god, is bisexual, while the first god, the god of the two fire-sticks or Samidhs, is also bisexual, as it is only by the union of the two that the fire is produced, while the last or fifth god is the male father of all beings. In the Zoroastrian pentad, on the other hand, all the gods except Rām, the central god, are females, and are spoken of as females throughout the Zendavesta. On the other hand,

got their calendar, as no people who had ever used weeks as measures of time could have reverted to the cumbrous Roman system of Kalends, Nones, and Ides, while the Greek division of decades could only have been introduced after the solar year was substituted for the original lunar year. With a month of twenty-eight days, a reckoning by periods of ten days was impossible. It must have originated among the fire-worshippers, who removed the gods from earth to heaven, and introduced the custom of burnt offerings, which bore the offerings of the worshippers from earth to heaven by the agency of the sacred fire, and who, in conjunction with the Indra-worshippers, dedicated each period of seven days into which the lunar month was divided to separate gods, giving five days to the gods of the old pentad, the sixth day to the fire-god, as is shown in the myth of Nabhānedishthā, pp. 530-533, and the seventh day to the great Ea, the god of the divine waters. The later dedication of the days of the week to planets must date from a time subsequent to the introduction of sun-worship.

¹ Gōs Yast, Introduction, vol. xxiii. Sacred Books of the East, p. 110.

Rām appears in the *Yāst* in two forms, once in the *Bahrām Yāst*, where he is *Verethragna* the male father, and again in the *Rām Yāst*, where he is *Rāma Hvāstra*, the god who gives good pastures, and *Vayu* the wind. This god, in his male or phallic form, is not said to have been worshipped by the early national heroes, and would thus appear to have been an imported god, while the god who gives good pastures, called by the name *Vayu* the wind, is clearly a form evolved by the *Indra*-worshippers. The name *Rām* must apparently have the same signification as the Sanskrit *Rāma*, which means darkness; and if this is the case, *Rāma* is equivalent to the t'hom or abyss whence all things proceed, a conception which is historically far older than that of the rain-god as the chief creator. Accordingly this pentad seems to represent the ancient creed of *Irān*, which looked on all creation as born from four mothers by the generative power given to them by the spirit of God, which dwelt in the abyss of darkness.

As for these four mothers, the first two represent the mother earth, the *Ardvi Sūra Anāhita*, and the second *Gōs*, the soul of the bull, the moon-goddess, while *Ashi Vanguhi*, the patroness of married women, is, like *Sarasvatī* in the Hindu pentad, the tribal mother, the mother of those who believed in marriage as a higher mode of existence than the tribal concubinage of the Turanians. The later *Sarasvatī* was apparently the mother of the Aryans or Northern Scythian races, who always seem to have made permanent marriage and household life a fundamental rule of their tribal polity.¹ The fourth mother, *Zamyād* or the Mount *Ushidarena*,² is the sacred upland country which gave birth to these Northern tribes, who were, like the Northern Akkadians, all mountaineers, as opposed to the Southern Sumerians the plain country watered by the great rivers. From these considerations it is clear that this pentad, as represented in

¹ *Ashi Vanguhi* refused to accept libations from sterile people, from old men who can have no children, the courtezans, or boys and girls. In other words, she would not receive worship from those who believed in Turanian customs, *Ashi Yāst*, x. 54, Darmesteter's *Zendavesta*, Sacred Books of the East, vol. xxiii. p. 280. See the question further discussed later on.

² *Zamyād Yāst*, Darmesteter's *Zendavesta*, Sacred Books of the East, vol. xxiii. p. 286.

the Yaṣts of the Zendavesta, has been altered from its original form by the innovating races who introduced household life. It could not have been made by the linga-worshippers who made the Hindu pentad; for if so, it would have made the male father Verethragna the central god, or at least have made the male element more conspicuous than it is in the amorphous Rāma the darkness; and as it is, evidently represents a unity divided into five parts from the most ancient times. It must have originally represented the five seasons of the Turanians, which was altered so as to bear a genealogical meaning by the Aryan innovators. It at first represented the mother-year of the mother-worshippers under her five aspects, as shown in the seasons.

Further evidence of the correctness of these deductions, and also of the identical origin of the three lists, is furnished by a comparison of some of the entries in them. Thus Ardvi Sūra Anāhita, No. 10 in the Sirōzah, is Nin-lil, or the lady of the lower firmament, in the Akkadian list, and Savanghi, or the lord of cattle, in that of the Yasna. Now Nin-lil means Nin (the lady) of lil (the cloud of dust).¹ Nin means both lord and lady, but as there is another god of the lil, Mullil, which means the lord (Mul) of the dust, Nin-lil must mean the lady of the dust, or the mother earth. Savanghi, again, is evidently the same as the goddess Savanghavāch, who is mentioned with Erenavāch, in the Ābān and Rām Yaṣts, as the two wives of Aži-Dahāka, the three-mouthed snake, who was slain by Thraētaona, he marrying them after the death of the Great Snake of the phallic triad.² Savanghi means lord of cattle. Savanghavāch must mean lady of cattle, and the lady of the cattle of the pastures purified by the divine waters of heaven, or the Idā, the purified earth, as distinguished from

¹ Sayce, Hibbert Lectures for 1887, pp. 151, note 1, pp. 152, 154.

² Ābān Yast, x. 34, Rām Yast, vi. 24, Darmesteter's Zendavesta, Sacred Books of the East, vol. xxiii. pp. 62, note 2, and 255. Thraētaona is the Trita Aptya of the Rīgveda and the Brāhmaṇas, the god of the sacred waters, the Indra who killed Visvarūpa (having the form (rupa) of human beings (visva),) the three-headed Tvashtar, which clearly mean the anthropomorphic materialistic triad of gods worshipped by the Asuras or snake-worshippers, Śat. Brāh. i. 2. 3. 1. and 2, vol. xii. pp. 47, note 3, and 48.

the earlier mother earth who delighted in libations of blood.¹ In her new form she became Ardvī Anāhita, the heavenly spring from which all the waters on earth flow down.² Similarly in Erenavāch we have a representative of Gōs, or Drvāspa. This goddess, No. 14 in the Sīrōzah, is Rāma Hvāstra in the Yasna, and Beltis and Nergul in the Akkadian calendar. She represented the fourteenth day of the month, or the full-moon day. Now Beltis is merely a Semitic addition to the list of gods, the old Akkadian god being Nergul,³ the great Ner, or hero, who is husband of Beltis. Beltis, again, is properly the wife or counterpart of Bel. Bel the hero is Bel-Merodach, the god armed with the sickle shaped like the crescent moon, who killed Tiamut the dragon.⁴ In short, Nergal is Bel-Merodach the moon-god, and the fourteenth day of the full moon is that on which he completed his conquest and recovered his full form. Rāma Hvāstra, again, "the god of the resting place with good pastures," is in later Mazdeism the clouds; but in the earliest religion he is, as I have already shown, Ramā the darkness, the abyss whence all things are born, who is called in the Rām Yast the god who divides the waters, the firmament of the Biblical narrative. Gōs is Gōsārūn (the soul, or cow) of the bull, and Erenavāch is again connected with the Akkadian Iru, the bull, so that she means the goddess who gives life to the bull, the moon-goddess, or the mother firmament of heaven. Again, while Ahura Napāt Apām, the son of the Waters, No. 21 in the Yasna list, exactly corresponds with the Vayu, the later form of Rāma Hvastra, Sin, the moon in the Akkadian, represents an earlier form of the

¹ But Savanghavāch may be derived from Savah, the Eastern region of the Bundahiṣ (West's Bundahiṣ, xi. 3, Sacred Books of the East, vol. v. p. 33), and if Vāch has the same meaning in Zend as in Sanskrit, Savanghavāch would mean she who speaks the Eastern tongue, and Erenavāch she who speaks that of Irān or of the country of Iru, the bull.

² Darmesteter's Zendavesta, Introduction to Abān Yast, Sacred Books of the East, vol. xxiii. pp. 52, 53.

³ Sayce, Hibbert Lectures for 1887, p. 195.

⁴ Sayce, Hibbert Lectures for 1887, pp. 101-103. Can Tiamut have any connection with the Dravidian Tai, the mother? If so, the victory of Merodach would tell not only of the conquest by the moon of the dragon, which was trying to devour it, but also of the conquest of the worshippers of the mother earth by the moon-worshippers.

chief god of heaven, while Bel and Beltis, No. 25 in the Akkadian list, is the married Bel, which is equivalent to the sacred Fravashis, or wives, in that of the Yasna list, to the Ashi Vanguhi of the *Sirōzah*. This last goddess is the mother goddess of the races who introduced household life and marriage, and thereby superseded the Turanian customs of tribal life and temporary unions. She is represented in the Ashi Yašt as escaping from the Turanians and the swift-horsed Naotaras by hiding first under the foot of a bull, and afterwards by hiding, like Ulysses escaping from the cave of the Cyclops, under the throat of a ram.¹ In the *Ābān Yašt* the Naotaras are again mentioned as the lords of swift horses, and their kings are named as Vistāspa, who was not a Naotara himself, but who married Hutaosa, a Naotara heiress, and who was the great supporter of Zarathustra's reforms.² Another king named is Vistauru, the son of Naotara. The whole story shows that household life and marriage were introduced by the race of horsemen who were the worshippers of the bull, and who were the sons of Kaş or Kasyapa, and that this reform was afterwards insisted on by the Aryan and Semitic tribes, who worshipped the ram, Varuna's victim, which was offered up by Abraham as a substitute for his son.³

In No. 28, the day sacred to Zamyād, there is a similar agreement in the three lists, Hea or Ea the water-snake god, represents the old Akkadian earth god. While there is evidently a correspondence between Ushahina, the ruling god of the winter season, and the earth which is represented in the Hindu mythology by Kadrū, the mother earth, who rules the last month of the lunar year, and whose connection with Zamyād is shown by the name of the mountain Ushidarena, the equivalent of Zamyād. But we also find in the above analysis further evidence as to the process by which the reckoning of time was evolved. The first measure of

¹ Darmesteter's *Zendavesta*, Ashi Yašt, x. 54-56, Sacred Books of the East, vol. xxiii pp. 280-281.

² Darmesteter's *Zendavesta*, *Ābān Yašt*, xxii. 98, xxiv. 105, and xix. 76, Sacred Books of the East, vol. xxiii. pp. 76, 77, 78 and 71.

³ *Śat. Brāh.* ii. 5. 2. 16, vol. xii. p. 395; *Gen.* xxii. 13.

continuous time was the five seasons; but when shorter periods required to be reckoned in order to insure the offering of sacrifices on the correct dates, the next guide sought was the waxing and waning moon. It was this reckoning which made the fourteenth day, dedicated to the conquering moon-god, a specially holy day; but this did not allow for the sanctity of seven, as five was the sacred number of the early Turanians. The sacred number seven was evidently a later addition of the fire-worshippers and the worshippers of Hea, the god of the waters. It was Hea, the great god of the Sumerian Asuras, who became Ahura Mazda, and ruled the first day of the sacred week, while Ameritāt, Ahura's fire, ruled the closing day. The religious reforms which these additions to the calendar imply were both the work of the Northern races, and they must have been made after they came southward, as Prof. Darmesteter, by his reference to the Norse *fimt* or five days week,¹ shows that the sacred five days which was used by the Mazdeans in reckoning the lunar month of thirty days, was also known in the Aryan North. Prof. Darmesteter also shows though the seven holy Amesha Spentas ruling the first seven days of the month were worshipped in the Sīrōzah; yet in the calculations for lunar sacrifices the month of the thirty days was divided into six periods of five days each.

But the original sacred number of days was, as I have shown, fourteen, and not five or a multiple of five, though these perhaps might have been used before the moon was used as a measurer of time. As soon as time began to be reckoned by lunar periods, the days of each period were calculated as fourteen in number, and further convincing proof of this fact is shown in the Hindu names of the lunar days belonging to the Karāṇas or half days of the lunar month. The names of these are as follows: ²

¹ Darmester's Zendavesta, Māh Yast, 3, Sacred Books of the East, vol. xxiii. p. 90, note 5. He shows that in the Mazdean ritual, as set forth in this passage, the first fifteen days of the month were divided into three parts of five days each, called the "panchak fartum" or "antare maungha," the moon within, the "panchak datigar," the "hereno maungha," the moon full, the first quarter, and the panchak sitigar, the vishaptatha, belonging to the full moon.

² Alberuni's India, Sachau's edition, chap. lxxviii. vol. ii. p. 197.

The white or light half of the month.		The dark or black half of the month.	
1 Amāvāsyā	9 Atīn	17 (1) Barkhu	26 (10) Dahīn
(new moon)	10 Navin	18 (2) Biya	27 (11) Yāhī
2 Barkhu	11 Dahin	19 (3) Triya	28 (12) Duvāhī
3 Biya	12 Yāhī	20 (4) Caut	29 (13) Trohī
4 Triya	13 Duvāhī	21 (5) Panchī	30 (14) Chaudahi
5 Caut	14 Trohi	22 (6) Sat	
6 Panchī	15 Chaudahi	23 (7) Satīn	
7 Sat	16 Purṇima	24 (8) Atīn	
8 Satīn	panchāhī	25 (9) Navin	

Now of these names Amāvāsyā means the new moon, but all the rest are merely ordinal numbers, extending from one to Chaudahi the fourteenth. After the first fourteenth Purṇima Panchahi, meaning the completed fifteenth, is added; but this, like Amavasya, is a later addition, and the naming of the days of the first half of the month by a notation in which the day, according to the calendar, is one day more than is expressed in the ordinal number by which it is named distinctly shows that originally twice fourteen or twenty-eight days formed the lunar month, which was the earliest measure of time reckoned after the five seasons, and therefore the twenty-eight Nakshatras must have represented the twenty-eight days of the lunar month. This conclusion answers the first question, and the evidence I have adduced to prove this also answers the second, as it shows that the Nakshatras first received names as representing the days of the lunar month, and that under these names they were included in the thirty-three gods of time, the lords of the ritual order.

We now proceed to the third question. *How was the original year measured by months reckoned, what number of months did it contain, and what was the number of days in the month of the first and subsequent collections of months used to measure time exceeding one month?* An answer to this has been begun by the proof adduced to show that the original year was one of five seasons. These were the five ancestral gods to whom sacrifices were offered by the first ritualists. But this division of time must have been made by a people

living in a country where there is a monsoon or rainy season, and this must have been the Lower Euphrates valley near the Persian Gulf. It was thence that the five seasons were brought, both to the Zoroastrian districts lying between the Caspian Sea and India, and also to India itself. The gods of these five seasons must have been originally the central abyss or t'hom, and her four daughters, the mothers of the whole earth, and of all beings living on it, of the heavenly bodies, and those of the tribe and country to which the worshippers using the ritual belonged.

I have now succeeded in proving that the year began with five seasons used as a measure of time by the people living on the Persian Gulf, who diffused their mode of reckoning time through the adjoining countries, and have also shown that after the seasons lunar months of twenty-eight days were first reckoned. I must now proceed to consider the evidence proving when periods of time exceeding one month began to be measured by months instead of by seasons.

Among both the Romans and Hindus we find distinct mention of a sacred period of ten months, representing the period of gestation, which is called by the Romans an "annus" or ring of time. In the Mahābhārata these ten months appear as ten of the fifty daughters of Daksha, who are the wives of Dharma, the embodiment of the heavenly immutable law,¹ the others being the thirteen wives of Kaśyapa, the thirteen months of the full lunar year, and the twenty-seven Nakshatra or wives of the moon, representing the lunar sacrificial year of the five years cycle. These can only be ten lunar months of twenty-eight days each, making forty weeks. These ten months of gestation are frequently mentioned both in the Rigveda and the Mahābhārata.² This second period was subsequently increased to eleven months,

¹ Dharma, Law, is the exact equivalent of the Greek *θέμις*, the goddess of law and order, who is named by Hesiod, Theog. 16, as one of the great gods, and who is identified by Æschylus, Prom. 18. 205. 874, with Gaia the earth, and named as one of the older gods, Liddell and Scott, s.v. *θέμις*.

² Rigveda v. 78. 7, x. 184. 3; Mahābhārata, Vana Parva, cxxviii. p. 388, where, in the story of Jantu, he is born ten months after the sacrifice which had made his mother pregnant; also Vana Parva, cxxxii-cxxxiv. pp. 402-405, where the ten months of gestation are referred to in the dispute between Ashtavakra and Vandin as to the sanctity of numbers, and many other places.

as is shown by the mention of eleven Rudras among the thirty-three gods of time, by the eleven victims offered at the great annual animal sacrifice, by the eleven stanzas of the *Apri* hymns recited at the annual animal sacrifice to the gods of the year, and by the number eleven sacred to the older gods. But the proof in Hindu ritualistic mythology of the sanctity of the periods of ten and eleven months, though very strong, is only deductive and inferential, and not absolutely so strong as that furnished by the Roman "annus" of ten months. This "annus" or year is called the year of Romulus, and is under this name minutely described by three authors, Censorinus, Macrobius, and Solinus, of whom the first two are described by Sir G. Lewis as "learned and intelligent antiquarians."¹ They say that this year consisted of ten months, beginning with March, and that of these ten months six, April, June, August, September, November, and December, were hollow months of thirty days each, and four, March, May, July, and October, were full months of thirty-one days each, so that the whole ten months contained 304 days. To these 304 days Numa Pompilius, who reformed the year, added fifty-seven (57) days, twenty for January and twenty-eight for February, and thus made the whole year 361 days; but this period does not agree with any solar or lunar year. The whole year of twelve months of thirty days each, which I will show later on to have been most generally used, only contained 360 days, and another year also used, of alternate months of twenty-nine and thirty days, only contained 354 days.

But besides this, there is another difficulty as to the acceptance as absolutely correct of the statements of these three authors as to the history of the Roman year. Ovid, when speaking of the year of ten months in the *Fasti*, distinctly says that it consisted of the ten lunar months of gestation:²

¹ Lewis, *Astronomy of the Ancients*, p. 55. He cites Censorinus, c. 20; Macrobi. Sat. 1. 12, § 3. 38, 1. 13, § 1-7; Solinus i. 37-38. See also p. 35.

² Ov. *Fasti* iii. 121.

"Annus erat decimum cum luna receperat orbem.

Hic numerus magno tunc in honore fuit

Seu quia tot digiti per quos numerare solemus

Seu quia bis quino femina mense parit."

The ten Romulean months described above are distinctly solar months, as they each, with the exception of August and December, contain exactly the same number of days as are reckoned in these months in the Gregorian solar year. The days thus computed could only have been assigned to these months by persons dealing with a solar year. But the ten sacred lunar months must have contained 280 days. And the addition of fifty-seven to this number would only make 337 days, which can never have been reckoned as the number of days in the year. But if, instead of taking ten solar months as making the Romulean year, we take eleven lunar months of twenty-eight days each, the number sacred to the eleven Hindu Rudras, we find that they contain 308 days, and if the fifty-seven days of Numa Pompilius be added to these, the total will be 365 days, which almost exactly represents the solar year.

The accounts as to whether Numa knew the real length of the solar year are conflicting,¹ but there is no doubt whatsoever that a system of correcting time by intercalations was introduced and used by the priests to bring the solar-lunar year of 354 days and that of 365 days into harmony, and that this system was so badly worked as to produce the confusion which was remedied by the Julian year.

It cannot therefore be determined whether the explanatory suggestion I have made is actually correct; but at any rate it presents a much more likely solution of the problem than that offered by the Roman authors, who knew only of lunar months of twenty-nine and thirty days, and whose calculations must be erroneous, as they used solar months of thirty and thirty-one days to measure time reckoned by lunar periods. By taking eleven lunar months instead of ten solar months, and retaining the fifty-seven days said by tradition to have been added, we arrive at a statement of the length of the solar year

¹ Lewis, *Astronomy of the Ancients*, p. 40.

correct enough for ordinary purposes, and very nearly astronomically exact. And it is certainly most probable that whoever undertook to reform the calendar knew at least that the solar year contained 365 days.

But there is another explanation of these proceedings which also appears to possess some probability. If the number of 304 days for the ten months is retained, and instead of the arbitrary numbers of twenty-eight days of January and twenty of February, sixty days, making thirty-one for January and twenty-nine for February, be added for these two months, the result would give a total number of 364 years, or a complete lunar year. As it is certain that a lunar year of thirteen months, and 364 days, was used before the solar year, this may probably have been the reform of the mythical king known by the name of Numa Pompilius, which may have been confused by tradition with the subsequent revision of the year on the introduction of solar reckoning.

The whole story is evidently an attempt to account for the year of ten lunar months. And to do this it was necessary for those who knew only of the later solar year to add two months to the original ten; but that this explanation is not correct, is proved conclusively by the fact that *Januarius*, which means the opening month, was always the first month of the year, and must have been so when the name was given. What is absolutely certain is, that the ancestors of the Romans and the original authors of their ritual regarded the ten months of gestation as an especially sacred period, while there is the strongest reason to believe that they, like the Hindus, also looked on eleven months as sacred, and that they used a lunar year of thirteen months, or 364 days, before they used a solar year.

The original existence of an independent lunar year, universally accepted by all the civilized nations of the ancient world, is conclusively proved by the persistent attempts made by astronomers in all countries where their science was studied to assimilate the solar and lunar years. Of these attempts, the following may be mentioned: In Greece there was (1)

the ancient Athenian cycle of three years, called the *τριετηρίς*, in which a month of twenty-nine days was intercalated every second year after Poseidon.¹ (2) Meton's cycle of nineteen years, dating from B.C. 433, followed one hundred years after by that of Calippus, which quadrupled the period of the Metonic cycle, and these both contained years of thirteen months as well as years of twelve.² Besides these, there were other changes, such as that of Solon. In India there was the five years' cycle, and the year formed by the addition of twelve days to the lunar year of 354 days, spoken of in the Rigveda as the rest of the Ribhu in the house of Agohya.³ In Egypt there was the Sothiac cycle used in Rome, and to these must be added the changes already spoken of. But these endeavours to make the two years commensurate, while they testify to the previous existence of a lunar year of thirteen months, all prove its extreme antiquity.

In treating of the Indian year, Zimmer, who argues the question very fully, thinks that only solar years and the lunar-solar recognized by the five years' cycle were known to the authors of the Rigveda.⁴ But this conclusion, I must say, seems to me to be very doubtful. It is true that twelve months are usually spoken of, and that in the great cosmological hymn, the seven hundred and twenty sons of the three fathers and the three mothers, meaning the three hundred and sixty days and nights of the year, are spoken of as passing through the heavens in the chariot of time with its twelve spoked wheels, and in another stanza the twelve months of the year with their three hundred and sixty spokes are named.⁵ But even in this hymn, which is unfortunately very obscure, there seems to be distinct mention of a thirteenth month of the year. Stanza 15 runs thus:—"From that which is begotten in the self-same manner (that is, in

¹ Zimmer, *Altindisches Leben*, p. 370.

² *Encyclopædia Britannica*, Calendar, vol. iv. p. 668.

³ Zimmer, *Altindisches Leben*, chap. xiii. p. 366; Rg. iv. 33. 7. The Ribhu are the genii or guardians of the year, who in their three-wheeled chariot (the three seasons) pass through heaven without horses, and by these changing seasons make earth and heaven young again, Rg. iv. 36. 1.

⁴ Zimmer, *Altindisches Leben*, chap. xiii. pp. 364-374.

⁵ Rg. i. 164. 11 and 48.

the way in which the year, the son of the universal mother, was begotten by thought), meaning the self-begotten (see stanza 8), they call the seventh month the single born (that is, the self-produced). The six paired months (the twelve) the wise call 'those begotten of the gods.' Under her rule (that of the seventh, the unpaired, or thirteenth, month) the wished-for (children) are ranged in order. In her region those of diverse mien range themselves in their places." This, it seems to me, can only refer to the moon which, as Pushkarā, the goddess of the divine lotus, is ruler of the month of the summer solstice, and thus ruled the remaining months of the year.

The mention in another hymn of the thirteenth month as known to Varuṇa, the lord of order, besides the twelve months rich in children,¹ also shows that the thirteenth month was known to the authors of the Rigveda. Zimmer explains this by insisting that the authors of the Rigveda knew and used the five years' cycle, but this cycle, as explained in the calendar in the Taittiriya Brāhmaṇa, quoted by Max Müller, does not make any mention of thirteen months; it makes the lunar year to consist of twenty-seven Nakshatra or phases of the moon, included in a year of twelve months and six seasons, and the correspondence between the solar and lunar computations is effected by making the lunar "tithes" or days shorter than the solar days, there being 1860 lunar days in a lustrum of five years, to 1830 solar days.² But at the same time the mention of twenty-seven Maruts or Nakshatra in the Rigveda³ can only have been made by an author who knew of the twenty-seven Nakshatra of the cycle. Otherwise he would have spoken of twenty-eight Maruts. Zimmer again explains the allusions in the Veda to the ten horses of the car of time, and the five divisions of time represented as five made into six,⁴ as denoting the five years' cycle; but this is very doubt-

¹ Rg. i. 25. 8.

² Max Muller, Preface to vol. iv. of edition of the Rigveda, pp. 34 and 35, 55 and 56.

³ Rg. i. 13. 3. 6.

⁴ Rg. iii. 55. 18, Zimmer, Altindisches Leben, chap. xiii. p. 368.

ful. The five and six almost certainly, as I have shown, refer to the five and six seasons, and the ten horses are the ten months of gestation. Thus, in stanza 12 of the cosmological hymn (Rg. i. 164), to which he refers, the father, divided into twelve parts (or the year of twelve months), is said to be five-footed, and hence in the next stanza (13) the wheel of time is said to be five-spoked, and on this wheel all living beings rest. Surely this means the five seasons, which are parts of the year, and not the five years' cycle, which is a multiplication of it, nor the five wet months, as Grassmann conjectures. Similarly, in stanza 14, which Zimmer quotes, the car resting on this wheel is said to be drawn by ten horses, but these cannot be the ten half-years of the cycle, which would not draw the five seasons of the year, but must be the ten months of gestation, in which the year was brought forth. It is true that the last lines of this stanza say that the sun wanders through space and surveys all things; but this mention of the sun does not justify an interpretation of the previous lines, which can only be made by wresting the obvious sense, which, when fully considered, is quite capable of explanation without doing any violence to the plain meaning of the words. The author of the hymn, like the authors of the Brāhmaṇas, seems to have known both of the years of twelve months and that of thirteen, and to have regarded the year of twelve months as the orthodox year, but to have remembered that the old ritual recognized the older year of thirteen months, which he looked at in the same light as that in which it was regarded by the authors of the Brāhmaṇas, who said that twelve cups of Soma must be drawn for the twelve months of the year, but that the priest may also draw thirteen, "for they say there is a thirteenth month."¹

The whole hymn is intended to represent the different phases of the course of the year and the different lights in which it was regarded in the sacrificial ritual, and has nothing to do with a five years' cycle. The first ten stanzas tell of the birth of the year-calf, begotten from the mother

¹ Śat. Brāh. iv. 3. 1. 5, vol. xxvi. p. 318.

earth by the thought of the heavenly spirit which filled her with the sacred mist impregnated by the water of life, from which her son (the year) was born (stanza 8).

It is in short the legend of Manu and the birth of Idā in another form, transferred to the birth of the year. The next five stanzas, 11 to 15, tell of the growth of the year, and the numbers of the stanzas throughout are so arranged as to make up a complete compendium of the differing ritualistic doctrines as to the measurement of time expressed in the sacred numbers which conveyed to the early ritualist the deepest meanings wrapped in a symbolic shorthand which interpreted by a few figures what would have occupied much time and trouble if conveyed in words which, before the invention of writing, had to be learnt by heart, and which, even after the invention of writing, could only be recorded by the expenditure of much labour, and which even then could only be communicated very slowly.¹ Thus in this hymn, the first ten stanzas represent the ten months of gestation, the next five the five seasons, and the fifty-two verses which complete the hymn represent the four lunar years dedicated to the four Agnis, making up between them the two completed pairs necessary according to the idea of production underlying the ritual, to produce a perfect sacrifice. The four solar years also dedicated to the same four Agnis are completed in the 48th stanza which runs thus: Twelve felloes (the twelve months) are fixed in one wheel, with three naves (the seasons). Who understands this? To this there are fixed three hundred and sixty unwavering steadfast spokes (the days). Thus this stanza sums up the measures of time of the Northern nations, the twelve months, the three seasons, and the three hundred and sixty days. The whole hymn is, like the Brāhmaṇas, a unification of the Southern ritual, with its five seasons, ten lunar months

¹ I would here remark upon the obvious advantage gained in a time when writing, if known at all, was only known to a select few, and the wide diffusion of knowledge by writing was exceedingly difficult, by a system which embodied the meaning of many sentences in numbers. Similarly, myths were exceedingly useful, as arranging in a form easy of recollection the history of centuries. Thus a whole epoch was comprehended in a name which to the instructed formed an excellent memoria technica.

of gestation, and the year of thirteen months, with that which is based on three seasons and solar time. It represents the union of the five lunar races represented by the five snake gods with those who are descended from the three fathers and three mothers, the two being united by the fire-god, the fourth Agni, who thus makes up the nine, the sacred number of the Vishnu worshippers embodied in their nine Rudras.

But whether this attempt to interpret the inner meaning and some obscure passages of a very obscure hymn be or be not considered as argument sufficiently strong to help materially towards a conclusive proof of the ancient methods of measuring time and their history, one thing is certain, that the Hindus used a year of thirteen months before they used the solar year, and that it is these months which are spoken of in the *Mahābhārata* as the wives of Kaśyapa. If these thirteen months had ever been used as an intercalary year in India before the five years' cycle was adopted, a use of which I have found no evidence, the first month of the thirteen (*Āditi*) would not on that account have been made the parent of the twelve *Ādityās*, the solar months, and yet they are said in the *Mahābhārata* to be her sons.¹

But though the evidence I have now adduced proves that a lunar year of thirteen months preceded the solar year both in Europe and India, yet it does not show quite conclusively that these years both originated in one common centre. For this purpose it is necessary not only to consider more fully than I have yet done the significance of the fifty great gods of the Akkadians, the fifty daughters of Danaus and Endymion, and also the fifty sons of Priam, who will be shown to contribute most important evidence as to the true meaning of these fifty gods and goddesses. I will also show that there is both in the Bible and the *Zendavesta* most important evidence to show that this early year was first used in the Euphrates valley, and thence transported with the other measures of time to Egypt and Europe.

In Part III. of this series of essays I, on the authority of

¹ *Ādi* (*Sambhava*) *Parva*, lxx. p. 185.

the Mahābhārata, asserted that the fifty gods of the Akkadians, the daughters of Danaus and Endymion, must, like the daughters of Daksha in the Mahābhārata, mean the twenty-seven lunar periods, the thirteen months of the lunar year and the ten months of gestation.¹ But I have in this essay shown that the twenty-seven Nakshatra were only used in the Hindu five years' cycle, and that the original number was twenty-eight, representing the twenty-eight days of the lunar month; and therefore, unless it can be proved that this cycle was used in other countries where we find the fifty gods, twenty-seven could not be one of the component numbers of the sacred fifty. Now these fifty gods, if they included a solar element like that of the twenty-seven Nakshatra, must show some traces of a solar origin; but of this there is no trace whatever in the story of Endymion and Danaus. The mother of the daughters of Endymion is Selene, the moon, and their father is the phallic god. Legend does not tell of the mother of Danaus's daughters, but he himself is also the phallic god, the Hindu Danu, the strong man, the father of the Dānava of the Mahābhārata, and the Turanian Dānus of the Zendavesta.² But it is in the case of Priam and his fifty sons that we find the strongest evidence of the infiltration into Greece of early lunar Hindu Mythology. Priam is, like Dhritarāshtra, who is the father of the Kaurāvyā, a blind king, that is, he is the phallic god who is, like the earlier Cupid, blind. Priam's wife is Hecuba, who must represent the mother earth before the consecration of Ida, the mother mountain of the Troad. Gandhārī, the wife of Dhritarāshtra, had one hundred sons, who were all born from an egg like a ball of flesh as hard as iron, which had been two years in the mother's womb. When Gandhārī reproached the Rishi Vyāsa (the uniter) with this apparent failure in the fulfilment of his promise that she should have one hundred sons, he directed that the ball should be sprinkled with water, that is, that it

¹ Part III. J.R.A.S. July, 1889, pp. 550, 559; Mahābhārata, Ādi (Sambhava) Parva, lxvi. p. 189.

² Darmesteter's Zendavesta, Ābān Yašt, xviii. 73, and Farvardin Yašt, ix. 37. 38, Sacred Books of the East, vol. xxiii. pp. 71 and 189, in both of which places the Dānus are called Turanians.

should be sanctified with the water of life, and it then became divided into "into one hundred and one parts, each about the size of the thumb." These were then put into pots of clarified butter, the divine seed, and kept carefully covered for two full years, when a hundred sons and a daughter, named Dusshalā, who was married to Jayadratha, king of the Sindhus,¹ were born. Now these one hundred and one persons represent the fifty-one gods of the lunar ritual, with their mother, the moon-goddess, which bore them all,² the twenty-eight Nakshatra, the thirteen months of the lunar year and the ten months of gestation, and they were snake-gods as they came alive out of the egg like young snakes, and were born by the help of the two great phallic gods, the Rudra, or god who lives on butter, and the later god of the fertilizing waters, who gives the first impulses which are fostered into life by the phallic father. The remaining fifty represent the fifty gods as worshipped by the sun-worshippers after the reconciliation of the two calendars by the adoption of the cycle containing the lunar year of twenty-seven Nakshatra. This legend is clearly intended to give an account of the origin of the Kaurāvyā, or snake-worshipping races, and as they certainly came to India from the Euphrates valley, it is probable that the original list of fifty gods did so too, but these fifty gods must, if there is no addition to make a fifty-first, represent the twenty-seven Nakshatra as forming part of the combination. In the Greek stories of the daughters of Endymion and Danaus there is certainly the phallic father, and in that of Endymion there is also, as in the Hindu myth, the mother moon to make up the fifty-one lunar gods recognized before the invention of the five years' cycle; but in the Akkadian numeration it appears that the father and mother are wanting, and that therefore the fifty great gods must date from a later period than the fifty-one, and that they must

¹ *Ādi (Sambhava) Parva*, cxv.-cvii. pp. 337-342.

² *Gāndhārī* is the moon-goddess, and so is *Dus-shalā*, *Gāndhārī* being the original moon-goddess of the sons of *Kaśyapa*, and *Dus-shalā* the moon-goddess of the *Sindhus*. *Dus-shalā*, according to the legend of the *Mahābhārata*, was born after her brothers, being produced from the egg by the *Rishi Vyāsa*, at the special request of *Gāndhārī*, *Ādi (Sambhava) Parva*, cxvi. pp. 340, 341.

have been adapted to a people who believed the gods of time to be self-created, and who had tried to reconcile the solar and lunar calendars by the adoption of the five years' cycle, which was afterwards transferred from the Euphrates valley to India. In the myth of Priam we find the same number of lunar and solar elements as in the Hindu story of Dhritarāshtra and his sons. First, in both cases the father is blind, and in both there is a distinct connection between the solar and lunar reckoning of time. But Hecuba does not have one hundred, but fifty sons, and not one daughter, but twelve. In the Trojan legend the symbol of the producing mother is transferred to the twelve solar months, while the fifty sons and their blind father make up the fifty-one gods of the snake and moon-worshippers.

But another proof of the extreme significance of numbers in ancient legends is given by the poems in which the myths I have here spoken of are developed. I have already shown that the eighteen books of the Mahābhārata represent the twelve months and the six seasons, and in the same way Homer's Iliad and Odyssey, each of which contain twenty-four books, both represent a completed sacrificial period of two productive years, as the best offering which can be made by the singers or poets, who are the high priests of the goddess of speech. The Iliad represents the war of the sun-worshippers with the moon-worshippers of the Troad, for the possession of Helena, who is, as Max Muller has shown, the Sanskrit Saramā, the dawn, and Paris is the Greek form of the Sanskrit Paṇis, the greedy avaricious moon-worshippers.¹ Both the Iliad and Odyssey are representations of the solar myth, and of the contest between the sun and moon-worshippers, the latter being vanquished at Troy in the Iliad, and slain by Ulysses in the disappointed suitors of Penelope in the Odyssey. But for the immediate purpose of my present argument, the proof given by these poems, and the Mahābhārata, of the importance anciently attached to divisions of time by early authors, is most significant. The Iliad and Odyssey both, in the number of their books, show

¹ Max Muller, Lectures on the Science of Language, 2nd series, pp. 470, 471.

the value assigned to pairs of years, and the Mahābhārata shows that given to a single completed year. It was in the form of years that the ancient poets, the earliest historians, produced the poetical accounts of the epochs they tried to depict, and it was necessarily in the form of years that their successors, the earliest historiographers, whose history was exhibited in the form of genealogies, cast their narratives. A conspicuous instance of this early form of history is given in the genealogies of the patriarchs in the Book of Genesis. An examination of the early genealogies given in chaps. iv. v. and xi. of this book show that in each genealogy the number of ancestors given is thirteen. It has been already suggested by Ewald that the first two genealogies had some connection with the solar year, as the name Enoch, which means the beginner, like the Latin Janus, the Hindu Āditi, and the Egyptian Ptah, seemed to him to mean the solar year, which recurs every three hundred and sixty-five days, the number of years of Enoch's life. He thought also that as Mahalaleel means the god of light, he may have something to do with sun-worship.¹

But before discussing the question connected with these genealogies further, it will be better to place them side by side.

I. Male and female line. Gen. iv.	II. Male line. Gen. v.	III. Line of Shem. Gen. xi.
1. Adam	1. Adam	1. Noah
2. Eve	2. Seth	2. Shem
3. Cain	3. Enos	3. Arphaxad
4. Enoch	4. Cainan	4. Salah
5. Irad	5. Mahalaleel	5. Eber
6. Mehujael	6. Jared	6. Peleg
7. Methusael	7. Enoch	7. Reu
8. Lamech	8. Methuselah	8. Serug
9. Adah	9. Lamech	9. Nahor
10. Zillah	10. Noah	10. Terah
11. Jabal	11. Japhet	11. Abram
12. Jubal	12. Ham	12. Nahor
13. Tubal Cain	13. Shem	13. Haran

¹ Ewald, *History of Israel*, edited by Martineau, 4th edit. vol. i. pp. 266, 267.

It is universally admitted that in the first two of these genealogies the names in both, from Cain and his counterpart Cainan to Lamech, are practically identical, while Adam and Enos both mean "the man," Seth means "the germ," and Cain "a created thing." But it is in Lamech and his wives that the meaning of these genealogies is most clearly seen. Dr. Sayce has shown that Lamech is the Semitic equivalent of Lamga; and Lamga, as I have pointed out,¹ is exactly the same word as the Hindu Linga, the sign of the phallic god. Dr. Sayce further suggests that the song of Lamech in verses 23 and 24 of Gen. iv. means that Lamech had slain as a young man the god Tammuz; Yeled, the word used in Genesis for young man, being the equivalent of the Assyrian Ilatta, the title of Tammuz.² Thus Lamech and his two wives would represent the winter months following the autumn, which kills the old year Methuselah or Methusael, the same word as Mutu-sa-elati, the husband of the goddess, that is, the god Tammuz. But these wives, whose names mean darkness and shade (Assyrian *edu* and *tsillu*),³ would thus be the moon and earth goddesses of the Hindu triad, and Savanghavāch and Erenavāch, the wives of the great snake Aži Dahāka in the Zendavesta, who was slain by Thraētaona in the land of Bauri or Babylon.⁴ They would thus represent a year closing with the winter solstice and beginning with the months represented by the sons of Lamech. The year would thus, like the Roman year, close with the tenth month December, and begin with the month called Jabal or Abel, the Assyrian Ablu, meaning the son

¹ Part III. J.R.A.S. July, 1889, p. 538.

² Sayce, Hibbert Lectures for 1887, p. 186, note. He also, in p. 185, identifies Enoch with the Akkadian Unuk, the place of settlement, the ancient name of Erech, and thinks that this was the city which Cain built, and called after his son Enoch. He also connects Jared and Irad with Eridu, the great port of the Sumerians, the three names being identical. Again, he thinks that Methusael and Methuselah are the same as Mutu-sa-ilati, the husband of the goddess, *i.e.* the sun-god Tammuz, the husband of Istar, who had a shrine in the forest of Eridu, while Istar was the presiding deity of Erech.

³ Lenormant, *The Genealogies between Adam and the Deluge*, Contemporary Review, April, 1880, p. 573, says Adah means beauty. I have given the meanings given by Dr. Sayce.

⁴ Darmesteter's *Zendavesta*, *Ābān Yašt*, viii. 34, *Sacred Books of the East*, vol. xxiii. pp. 60 and 62.

(of the old year). But, in addition to these sons, a sister of Tubal Cain, named Naamah, is mentioned in Genesis, and there appears to be considerable doubt whether there is any real difference between Jabul (Yabul) and Jubal (Yubal), both coming from Ablu, and though Ewald suggests that Jabul may mean the husbandmen, and Jubal the musicians, or learned class, it seems likely that they both refer to the class of shepherds to whom Abel, whose name is the same as theirs, belonged, and who have always been connected with music and poetry. The mention of Naamah in the genealogy and the almost complete identity of the names Jabul and Jubal, makes it likely that she once had a place in it; and if it represented, as I hope to prove, the months of the year, it is all but certain that she was reckoned among them. Naamah, which means "the pleasant, the graceful one," had, as Lenormant has pointed out, the same name as a Phœnician goddess, whom the Greeks called Nemannum, or Astronome (Ashtar No'ema), who was the prototype of Aphrodite, the great mother.¹ Māghā, the Hindu month of the great mother, as well as Tai the mother, were the first two names of the months of the Hindu year,² and Naamah or her equivalent must have occupied a similar place in the calendar from which this genealogy was taken. But as the Hindu year, which originally began with Tai, the mother, was made to begin afterwards with Push, the bull-god, so the original mother of the Semitic year was changed to Ablu the son. But if these names represent the first months of the year, the month represented by Adam must have been that of the vernal equinox, and the calendar must have been altered by the sun-worshippers. But this interpretation, which would make Adam represent the first month of the year, beginning at the vernal equinox, only depends upon the assumption that the lines attributed to Lamech, and representing him as causing

¹ Lenormant, *Genealogies between Adam and the Deluge*, Contemporary Review, April, 1880, p. 575.

² In the list of names of months taken from the Taittiriya Brāhmana in Max Muller's Preface to vol. iv, of the *Rigveda*, pp. 34 and 35, Tishya is entered as another name for Pūshya, the first month, and this shows that the Tamil list, which began with Tai, was the standard form from which the names of the months were taken.

the death of Tammuz, represent the original meaning of this genealogical year. If these lines are a later addition, as I think is probable, Adam would be the same month as the Hindu Āditi, and would mean the great mother earth, the first month of the original lunar year beginning with the winter solstice, and Eve would be the Magha, the heavenly mother, the moon-goddess. Lamech and his two wives, Adah and Zillah, would then be the last three months of the year of generation ending with the tenth month, the Hindu Pradhā, Visva, and Vinatā. Pradhā, the mother of the Apsaras,¹ daughters of "Apsu," the dark abyss. The t'hom is Adah, "darkness"; Visva, meaning "beings of both sexes," is Lamech, the bisexual parent, and Vinatā² or Zillah, "shade," the mother of the handicraftsmen represented by Tubal Cain; while Naamah, "the beautiful," would be the purified mother, the Aphrodite sanctified by the waters, who was also, like the arts of the handicraftsmen, the daughter of thought, or of Manu, the thinker. She, Tubal-Cain, and the northern shepherds, or Jubal, would close the year which they had worked out by making the sacred ten months of generation, with the additional month dedicated to the fire-god of the metal workers, the sons of Tubal Cain, the full year of thirteen months, the year of the sons of Kaśyapa. Under this arrangement, Lamech and his wives would represent the fathers and mothers who were worshipped in the tenth month. This was an earlier form of the myth of generation than that which connected them with the abyss as their generator. The latter was mystical, and must be later than the anthropomorphic explanation. After the original father and mothers, came the three months whose duty it was to prepare for the birth of the coming year. I have already shown that in the Hindu year beginning with the winter solstice the moon-goddess, known to the Hindus as Pushkarā, the lady of the divine

¹ Ādi (Sambhava) Parva, lxv. p. 187.

² Vinatā must be the mother, as the tenth of the wives of Dharma, who represent the sacred months of gestation, was Matī the mother, Ādi (Sambhava) Parva, lxvi. p. 189. Böhtlingk-Roth connect the word Vinata with a root meaning to bow down. It is apparently connected with Vinā, the lute, which brings forth music. See Part III. J.R.Ā.S. July, 1889, pp. 551-553, also p. 566. In p. 545 I have connected Vinata with "vinsati, twenty," but this is perhaps untenable.

lotus, and to the mother-worshippers as Chitrangada, the coloured bracelet (chitra), with the warrior-god, Pushkara Bharmā or Takshaka, the maker, the Greek Arēs, ruled the summer solstice,¹ and this appears to be the place assigned to their counterparts in the Cain genealogy. Mehujael, who holds the sixth place, means "smitten of God," and Methusael, like Methuselah, means "the husband of the goddess." These names both show traces, like that given in the legend of Lamech and in the age of Enoch in Gen. v., of the influence of the sun-worshippers, and thus the "smitten of God" must have a former deity who was like Mahalaleel, to whom he corresponds in the genealogy of Gen. v., a warrior-god, that is, he must have been the fire-god, the Greek Ares. While Methuselah, the husband of the goddess Istar, must have been originally the phallic god who was by those who worshipped the father as the head of the triad placed in the centre place formerly allotted to the moon-goddess. The place of Enoch in the genealogies in Gen. iv. and v. is also significant. In Gen. iv. Enoch, the beginner, comes immediately after the first three lunar months of the year represented by the Latin Januarius, Februarius, and Mercedonius, the wage-setter; the Hindu Āditi, Diti, and Danu (the strong man) and the Egyptian Shu, Tefnet, and Set (the phallic god of the evil principle), and thus represented the month of the vernal equinox in which the solar year opened, so that he was "the beginner" of the solar year, and also the beginner of the ten months of generation, which fulfil the promise of the present and prepare for the birth of the coming year. Again, in Gen. v. he occupies the seventh place, but this is assigned him to mark the beginning of the Egyptian solar year, which began after the summer solstice, and this would add another argument to those already adduced by Bunsen and others to prove that Seth, the germ of all mankind, in this genealogy is really the Set, the great snake, or god of the evil principle abhorred by the Egyptians. This assumption is,

¹ Part II. J.R.A.S. April, 1889, p. 320.

however, emphatically condemned by Ewald on linguistic grounds.¹

From the above review of some of the questions connected with these genealogies, it appears that Gen. iv. shows that a period of ten lunar months of generation and a full lunar year of thirteen months were looked on as the accepted official measures of time. But the mere statement of the fact does not prove how the great logical interval between a period of ten or eleven lunar months of gestation and generation and a year capable of being used as a continuous measure of time, like the year of thirteen months, was filled up. This change must have been made by astronomical observation, and it is the earliest record of the first conclusions formed by the early observers of phenomena, who looked to the heavens for the explanation of the mysterious changes of times and seasons, that we apparently find in the list of ten antediluvian kings of Babylon preserved by Berosus. The following is the list, with the number of sars and years during which each king is supposed to have reigned :

Name of King.	No. of Sars.	No. of Years.
1. Alorus	10	36,000
2. Alaparos	3	10,800
3. Amelon	13	46,800
4. Ammenon	12	43,200
5. Amegalaras	18	64,800
6. Daonus	10	36,000
7. Enedorachus	18	64,800
8. Amempsinus	10	36,000
9. Obartes	8	28,800
10. Xisuthrus	18	64,800
<hr/>		
Total	120	432,000

These sars, as measures of time, are composed of periods of 600 years, called ners, and six ners=one sar ; therefore one sar=3600 years, and this multiplied by 120, the number of

¹ Ewald, *History of Israel*, 4th edition, edited by Martineau, vol. i. p. 264, note 2.

sars assigned to the reigns of the ten kings, gives a total of 432,000 years.

But this multiplication by ten was used by the Akkadians for the division of the circle. Thus they used to divide into 12×10 parts, or into $60 \times 2 = 120$, or the number of sars during which the ten kings reigned. If these 120 sars are divided into 360 degrees, the number in a circle, each sar will = 3 degrees. Each king's reign will thus stand for the following number of degrees :

1. Alorus	30
2. Alaparus	9
3. Amelon	39
4. Ammenon.....	36
5. Amegalarus	54
6. Daonus.....	30
7. Enodorachus	54
8. Amempsinus	30
9. Obartes	24
10. Xisuthrus	54
<hr/>	
Total	360

That this division of the circle into degrees is the true explanation of the numbers assigned to these several kings, is apparently proved by Ptolemy, who says that the Chaldæans used to divide each of the twelve signs of the circle of the heavens into ten degrees, each degree containing 60 minutes, and each minute 60 seconds. Thus $10 \times 60 \times 60 = 36,000 =$ one-twelfth of the circle, and $36,000 \times 12 = 432,000$.¹ So that the 432,000 years of the reigns of the kings represent a complete circle in the heavens, whether it be divided into degrees or seconds.

But if this was a circle in the heavens, it is clear that it must have been consisting of quite unequal parts, and that to mark the divisions of these points, stars must have been used, and that stars were the division, or junction-marks, the Hindu

¹ Ptolemy, *Tetrabiblos*, i. 32.

Joga-tāra, in this circle, is clear from the names of the first two. Assyrian scholars have long connected Alorus with Ailuv, a translation of the Akkadian Lu-nit, a male sheep, and hence Alorus has been identified with Hamul the ram, the first star in the constellation Aries. That the second King Alaparus is a star in the constellation Taurus is still more certain. Alaparus means "the divine bull of the foundation," from Akkadian "Alap," divine bull, and "Ur," foundation. The remaining stars have been identified by astronomical measurements, but the meaning of the names has not been determined.¹ It thus appears that this circle was, like that of the Chinese Sieu, marked out into ten divisions at unequal intervals by ten stars, and it was with this instrument that the early Akkadians, like the Chinese, began to determine the positions and changes of heavenly bodies. The number ten must have been taken from the mother's year of ten months, and that Noah, who occupies the tenth place in the genealogy of Gen. v., is the same as Xisuthrus, is certain, because it was in the time of Xisuthrus, according to Berossus, that the deluge took place, and it was he who was saved in the Ark. Hence, if Xisuthrus is a concluding mark in a time circle, Noah in Genesis must probably represent a period of time. But when we turn from Berossus's account to that given in the deluge tablets found in the library of Assurbanipal, the identification of the Noah of Genesis with a period of the year is rendered still more certain. According to this account, it was Tammuz, the autumn sun, son of Ubaratutu, an Akkadian name meaning "splendour of sunset," who was warned by Hea-bani, the fish-god, the all-father of the Sumerians, of the coming deluge. By Hea's command he built a ship, which he coated inside and out with bitumen. When the sun-god, Samas, sent the rain which destroyed all life, Tammuz was saved by the ship and the seamen to whom he entrusted it. Now this story is exactly similar to that of Lamech, except that in Lamech's

¹ See the whole question discussed, and the list of the ten stars given, in the *Phainomena* or heavenly display of Aratus, done into English verse by Robert Brown, jun., F.S.A., Appendix II. pp. 79-80.

story he kills the autumn sun, and so kills himself as the god of the present year ; but in the Deluge story Tammuz is saved to give life to the future year and to the race of beings to be born, who are purified by the sanctifying water. In both stories the natural phenomena referred to are the rains of the late autumn represented in the signs of the zodiac by Aquarius.

This investigation has, I would submit, now proved that the genealogies in Genesis each represented a year of thirteen lunar months, used to denote an epoch, that this year was calculated by observing the motions of the heavenly bodies, and that the motions of the moon, who ruled the year, were calculated by a circle in the heavens, divided into ten spaces, marked by junction stars. It must have been by means of this circle that the yearly motions of the moon were calculated, and that thirteen months were fixed on as the continuous measure of time.

Before proceeding further with the special questions raised by these genealogies, I must now, in order to ascertain more clearly how this change was made, turn to the evidence given in Indian records, and in the Zendavesta, as to the race which first adopted the full year of thirteen months, and who are represented in the genealogies of Genesis in the children of Lamech and Noah. Indian tradition, as I have frequently pointed out, makes Kaşyapa the framer of the lunar year. Kaşyapa is the ancestor of the Kuşikas or Kaşis, the Chitraratha of the Rigveda, the founders both of the sacred city of Kaşyapura or Multan, and of the still more sacred city of Kaşı or Benares. It was they who were the ancestors of one of the united tribes who ruled the most ancient Indian empire called that of Magadha. They are always spoken of as a Northern people, and their original home was in the Kabul country. The Indian Kaşyapa was the same as the Keresāspa of the Zendavesta, and the word "āşpa" or horse in his name shows that he, like the Kuşikas, belonged to the people who called themselves the sons of the horse. He is described as "the sturdiest of the men of strength next to Zarathustra, for his manly courage."¹ He

¹ Darmesteter's *Zendavesta*, *Zamyād Yast*, vii. 38, *Sacred Books of the East*, vol. xxiii. p. 295.

is called also the son of Sāma, and also the fourth created man, the son of Thrīta, *i.e.* Thraētaona, the Trita Aptyā of the Rigveda and Brāhmaṇas, who was the third,¹ and who is said to be the most helpful of the Sāmas. He is represented as the club-bearer "with plaited hair, and as the ringlet-headed bludgeon-bearing hero,"² like the Kaparddin of the Mahābhārata and the modern Śiva. He is said to have offered his sacrifice, that is, to have ruled in the valley of Pisanah,³ *i.e.* Pishin, south of Kabul, in the same country where the primæval capital of Pushkalavati, the Hastinapore of the Mahābhārata, stood. This was the country called Vāēkereta, or the land of the evil shadows, the seventh land in the Zoroastrian cosmogony, and it was there he lived with Knāthaiti the Pairika, who was created by Angra Mainyu the evil spirit.⁴ This connection between Keresāspa and the Pairikas or wandering stars, the moon, the planets, comets, and other moving heavenly bodies, is also referred to in his conquest of the Gandarewa, "who were rushing with open jaws, eager to destroy the living world of the good principle."⁵ This is the same legend as is told in the Rigveda of Kutsa, who is said by the help of Indra to have conquered the Gandharva.⁶ Now these Gandharva are in their earthly aspect the sons of Kaśi or Kaśyapa, the tribe known as the Gandhāri, the charioteers, whose home was in the Kabul valley. But in their heavenly aspect they are the charioteers of heaven, the planets, or wandering stars, as opposed to the fixed stars. Now throughout the Zendavesta the fixed stars are always looked on as the agents of the good principle,⁷ while the planets or Pairikas are the bad demons, against

¹ Mills, Yasna, ix. 10, Sacred Books of the East, vol. xxxi. p. 233.

² Darmesteter's Zendavesta, Fravardin Yast, xix. 61, Sacred Books of the East, vol. xxiii. p. 194.

³ Darmesteter's Zendavesta, Abān Yast x. 37, Sacred Books of the East, vol. xxiii. p. 62.

⁴ Darmesteter's Zendavesta, Fargard i. 10, Sacred Books of the East, vol. iv. p. 7.

⁵ Darmesteter's Zendavesta, Abān Yast, x. 38, Zamyād Yast, vii. 41, Sacred Books of the East, vol. xxiii. pp. 63, 295.

⁶ Rg. viii. 1. 11

⁷ Darmesteter's Zendavesta, Rashn Yast, xxv. Sacred Books of the East, vol. xxiii. p. 176, note 2.

whom Tistrya the dog-star fights,¹ and it is they who are described in the Bundahis as dashing against the celestial sphere and mixing the constellations.² They are in short the elements of disorder in the otherwise orderly celestial world.

From these various indications we can easily collect what must be very nearly an accurate account of the process by which the lunar year of thirteen months was reckoned. There were evidently among the ancient astronomical inquirers two parties, one living in the South of the Euphrates valley, the Sumerians, and the other the Akkadians or highlanders, whose rule extended to the countries of the North of India. The Sumerians were the people who first calculated the year by five seasons and by lunar months, and who worked out the year of gestation of ten months; but their observations were not made on a regular system; they trusted too much to unconnected observations of the movements of the moon and planets, and consequently they and the people who depended upon similar guides, like the ancient Jews who reckoned their year by new moons, were always at a loss how to estimate the passage of time. It was the Akkadians or highland races who first hit upon the idea of mapping out the heavens, and thus measuring the motions of the heavenly bodies, and calculating the time from these observations, and for this purpose they used the circle, in which they determined ten fixed points marked by stars, and they fixed on this number as that assigned to the lunar months of gestation, which was, till these observations began to be made, the only period of time to which any certainty was attached. It was these people who conquered the Sumerians, or the mother-worshipping Turanians. The contest between the two races is referred to in the Zendavesta, where Keresāspa is said to have offered his sacrifice to the wind-god by the Gadha or channel of the Rangha or Tigris, to avenge the

¹ Darmesteter's Zendavesta, Tir Yast, v. 8, Sacred Books of the East, vol. xxiii. p. 95, where Tistrya is called "the glorious star that afflicts the Pairikas, that vexes the Pairikas, who, in the shape of worm-stars, fly between the earth and the heaven."

² West's Pahlavi Texts, Bundahis iii. 25, Sacred Books of the East, vol. v. p. 19.

death of his brother Urvākhshaya, who was slain by Hitaṣpa the Gandarewa, who lives beneath the waters.¹ Urvākhshaya is described in the Yasna as a judge confirming order,² and the Gandarewa, who lives beneath the waters, are the people who took to the planets and wandering stars as guides for the measurement of time, but which really, when uncontrolled by observation, disturb the heavenly order. It was this disordered system of calculation which was said to be victorious when Urvākhshaya, the judge who maintained order, was slain. It was, therefore, as a reformer, that Keresāṣpa used the power obtained by his conquests, and his object was to restore order by the maintenance of well-organized government on earth, and by the intelligent use of heavenly bodies as indicators of time. By observing and measuring their motions on the stellar map, formed by the circle with its marked stars as guide-stones, he traced out the annual course of the moon, and made the months coincident with the seasons, and in thus making the lunar year of thirteen months the measurer of the year, he made the moon-goddess, called the Pairika Kñathaiti, the ruler of continuous time, as she had been hitherto the ruler of the disconnected months and of the sacred period of gestation.

But in order to trace the career of the sons of Kaṣ still further, we must turn to the Bible. We there find the Hindu Kaṣyapa called Nimrod, the son of Cush, a name exactly the same as the Hindu hero. He also, like his Indian prototype, was a great builder of cities, for he built Babel, Erech, and Akkad, as the Indian Kuṣ built Pushkalavati, Multan, and Benares, and thence went into Assyria. The connection of Cush with India is further proved by the

¹ Darmesteter's *Zendavesta*, Rām Yast, vii. 28, *Sacred Books of the East*, vol. xxiii. p. 255. Can Hitaṣpa mean the Hittite horsemen? The Hittite empire in early times certainly extended as far as the Tigris, and it may, to judge by the constant intercourse which undoubtedly existed between the seafaring people of the Hittite coasts in Palestine and Asia Minor, have once extended over the whole of the Euphrates valley, that is, the country must have been ruled by tribes of kindred origin, all worshipping the mother earth. It was probably the invasion and conquest of the Tigris and Euphrates country by the Northern Akkadians which broke up the continuity of this wide-spread confederacy.

² Mills, *Yasna*, ix. 10, *Sacred Books of the East*, vol. xxxi. p. 234.

fact that Havilah was one of the sons of Cush,¹ and Havilah, in the second chapter of Genesis, is the land which is watered by the River Pishon, where there is gold, bdellium, and the onyx-stone. Havilah must be India,² and the River Pishon must be the Indus, which is here called after the name of the valley of Pisanah, or Pishin, in the kingdom of Keresās̄pa. It was these people who, as we know from the Indian traditions, calculated the lunar year of thirteen months, and it is these people who are both mechanics and handicraftsmen as well as warriors. It was by applying to the heavens the same system of measurement which they used as carpenters and builders that they were able to calculate the years upon the heavenly circle marked by the stars. They are in Genesis represented by Tubal-Cain and Cain, the father not only of those who make destructive weapons, but of all those who built inland cities³ and worked in copper and iron. It was they who took away the moon from among the aimlessly wandering stars, and subjected her motions to rule, and she was the Kñathaiti, the Pairika who, according to the Vendidad, clave to Keresās̄pa.⁴ The description of Keresās̄pa in the Yaṣts as the club-bearing hero of the plaited hair shows that he was the representative of Śiva, and hence we find Śankara or Śiva ruling the lunar year, it having been invented by the worshippers of the linga and material fire-stick, the earthly fire. The connection between the Kaṣis, or Kusikas, and the Indra-worshippers appears both in the Zendavesta and in the Rigveda, for in the one Keresās̄pa is, as I have shown, the son of Thraētaona, the Mazdean Indra,

¹ Gen. x. 7.

² Or at least that part of India which forms the northern region watered by the Indus. Ophir is probably the southern part. Franz Delitzsch on Genesis, Clark's Foreign Theological Library, new series, vol. xxxvi. pp. 93, 94, and xxxvii. p. 129, shows from Gen. xxv. 17 that Havilah is to the East of the Persian Gulf, touching Arabia on the West. The sons of Ishmael are there said to dwell "from Havilah unto Shur, that is before Egypt as thou goest towards Assyria," and identifies the people of Havilah and the sons of Joktan, who dwelt in the hill-country to the East (Gen. x. 26-30) with the *Χαυλυραῖοι*, whom Strabo (xvi. 4. 2), quoting Eurysthenes, places between the Nabathæans of Arabia and the Agræans.

³ Maritime cities, and cities near the mouths of navigable rivers, had probably been built before by the mother-worshippers.

⁴ Darmesteter's Zendavesta, Fargard, i. 10, Sacred Books of the East, vol. iv. p. 7.

while in the other, Kutsa, the conqueror of the Gandharva, or Gandarewa, is the charioteer of Indra. But the statement in the Yasna that Keresāšpa is the fourth man, and the son of Thraētaona, the head of the third race, is an inversion of the order set forth in the history of all other nations. It was Keresāšpa, Tubal-Cain, and the Indian Kuṣikas, who represent the handicraftsmen and charioteers, who were the first opponents of the snake; and it was Thraētaona who finally destroyed the great snake Aži-Dahāka, and appropriated his wives, Savanghavāch and Erenavāch. This fourth race is in the Biblical genealogies represented in the male and female lines by Naamah, the beautiful, the graceful, the Greek Aphrodite who rose out of the waters, and by Noah in the male line. Noah means the comforter, and it was he who was regarded by the Semites as the ancestor of the regenerate race which succeeded the Flood, and who always looked to the father as the only ancestor worth mentioning. This genealogy in Gen. v. is evidently copied from the earlier genealogy in Gen. iv., Seth and Noah being substituted for Eve, Adah, and Zillah. Whether Seth, or Sheth, is or is not the Egyptian snake-god Set, as Bunsen affirms and Ewald denies, his name means the "germ," or "scion," while Enos is merely another name exactly equivalent to Adam, both meaning "the man"; and these two names have absolutely no history attached to them. On the other hand, Cainan occupies a very important position, as is shown by the reference to him in the song of Lamech, where it is said, "If Cain shall be avenged seven-fold, surely Lamech seventy and seven-fold."¹ The collocation of figures set forth in this threat appears again in the numbers of years of the lives of the patriarchs in Gen. v. They are as follows:—

Adam	130 + 800 = 930	Jared	162 + 800 = 962
Seth	105 + 807 = 912	Enoch.....	65 + 300 = 365
Enos	90 + 815 = 905	Methuselah	187 + 782 = 969
Cainan ...	90 + 840 = 930	Lamech ...	182 + 595 = 777
Mahalaleel	65 + 830 = 895	Noah	600 + 350 = 950

¹ Gen. iv. 24.

In this list the 910 years of Cainan's life are exactly seven times 130, the number of years Adam lived before Seth was born; while the 777 years allotted to Lamech looks very the seventy and seven-fold of the poem. The 130 years that Adam lived before Seth was born are also apparently significant, as it seems that they refer to the years of thirteen and of ten months, and thus make the pure race, of which Seth was the progenitor and Noah and his offspring the descendants, to begin after the wicked races who worshipped the mother earth, and the phallic god, had been destroyed, and their modes of reckoning time displaced by the solar year. In the story of the Flood the solar reckoning of time is distinctly used, as it was on the first day of the tenth month, that is, after the nine solar months of gestation had passed away, that the tops of the mountains appeared out of the waters.¹ Unfortunately the remaining enigmas concealed in these numbers are not so easy of detection as those in the corresponding list of Babylonian patriarchs, and the only item which corresponds with the Babylonian notation is the age of Noah before the Flood—600 years—which seems to represent a Babylonian Ner.

When we come to deal with the third genealogy, we find that it begins the history of the Semites, the descendants of Shem, meaning "the name." This was the people who worshipped the one ineffable God, who embodied all the attributes attached to the Deity by previous seekers after truth. It is these Semites who are apparently connected with Keresāspa, for we find him called the son of Sāma in the Yasna and Yasts. At any rate Genesis records an emigration of Semites to the East, for Joktan, the son of Eber, the fifth in descent from Noah, had thirteen sons,² among whom are Ophir and Havilah, names which evidently refer to India, Havilah meaning the north country, and Ophir that of the western ports, and the former name also connects the Semites with the Cushites or Kuṣikas, as Havilah is also a son of Cush.³ But this Eastern Semitic emigration seems to have taken place at a late period, for the whole Semitic gene-

¹ Gen. viii. 5.² Gen. x. 26.³ Gen. x. 7.

alogy is, as Ewald has shown, a list of the countries they successively inhabited, beginning with Arphaxad in Armenia, and ending with the Euphrates valley, represented by Nahor, the river, or the great snake. The evidence that I have now brought forward seems to me to go very far towards proving conclusively the very early existence of the lunar year of thirteen months, and to show that this was worked out by astronomical observations made by the sons of Kuş, who added two months to the longest unit of time previously reckoned, the eleven months of the Rudras, or Cainites, which was again founded on the period of gestation of ten lunar months. But the history of this early year cannot be considered complete till the change in the number of seasons, consequent on the introduction of the full lunar year, is explained. In the original year, reckoned before the ten months of gestation were consecrated, there were five seasons, and it was the reduplication of these, so as to make a productive pair, which apparently first led to the adoption of two months as the duration of a season, called by the Hindus "ṛitu." These five "ṛitus" made up the time of gestation, and it was probably from a combination of the connection formed by observations of recurring years with astronomical calculations that the sixth season, or ṛitu, of two months was added to the eleven. At any rate, the Brāhmaṇas tell us that the Pitarah Somavantah, the moon-worshippers, recognized six seasons, and there are six seasons recognized in the Yasna Visparads and Āfri Nagān, which, except the five Gāthas, are the oldest parts of the Zendavesta. They are there called, 1. Maidhyō Zaremaya, the milk-giver; 2. Maidhyō-shema, the pasture-giver; 3. Paitiṣhahya, the corn-giver; 4. Ayāthrima, the breeder; 5. Maidhyāirya, the cold; 6. Hamaspath Maēdhaya, the special time for ritual deeds.¹ In the Bundahis these are reduced to four, and three months are assigned to each season, and Maidhyairya is said to end on the day of the winter solstice, the twentieth day of the month Dīn, when Hamas-

¹ Mills, Yasna Visparad, i. 2, Yasna, i. 9, Sacred Books of the East, vol. xxxi. pp. 335 and 198.

path Maēdhaya begins,¹ and it lasts till the vernal equinox. When there were six seasons and thirteen months in the year, one of the seasons must have had three months and the rest two. Hamaspath Maēdhaya, the special time for ritual deeds, must have ruled the year, and included the great new year's festival and the Hindu women's festival of the Huli in February, with the festivals of the Dionysia at Athens, and the Lupercalia Matronalia and great new year's festival at Rome. This season must have lasted from about the 21st of December to the 15th of March, and the others must have followed in regular order. Maidō-zaremaya up to the 11th of May. Maidhyoshema, the summer, up to the 6th of July. Paitishahya up to the 31st of August. Ayuthrima up to the 26th of October, and Maidhyairya up to the 21st of December. This would make Ayuthrima, the season specially dedicated to ancestors, agree exactly with Aivisrūthrima in the older arrangement of the five seasons, which was sacred to the Fravashis, the mothers, and to Verethragna, the phallic god, the father.

It thus appears that the third question should be answered as follows : The first years, or rather periods of time measured by months, which succeeded the year of five seasons, were the periods of gestation and generation of ten lunar months first, to which an eleventh was added. That when the heavens were mapped out into marked divisions, it was found possible, by measuring the motions of the moon, to introduce a permanent measure of time more accurate than that given by the recurring seasons and the unregulated months, and that thus the first full year of the thirteen lunar months was determined, and that then the seasons, which had been hitherto reckoned as five, were increased to six.

I have now come to the fourth question proposed for solution. *When did the original year begin?* I have already shown that in the case of the Hindu year there can be no doubt whatever that the year began with the winter solstice dedicated first to the great mother Tai, called Taishya in the Brāhmaṇas, and

¹ West's Bundahis, xxv. 3-6, Sacred Books of the East, vol. v. pp. 91-93, note 2.

afterwards to the bull-god Pūsh. The Roman year also certainly began at the same time; and though the Athenian year in its latest form began, like the Egyptian year, at the summer solstice, there can be but little doubt that it originally began with the winter solstice, like the Bœotian, Delphic, and Bithynian years.¹ The evidence as to the beginning of the Delphic year is conclusive as to the customs of all the Grecian states who acknowledged the supremacy of the Delphic god, while the Bœotians were the most ancient and conservative of the Greek races. The Bithynians were a people of cognate race to the Thracians,² and the fact that they began their year with the winter solstice proves that the custom passed over from Asia to Greece. But this year, which appears to have been universally used throughout the ancient world, could never have been a solar year, as from the very beginning this year has always been based on the Zodiacal circle, which starts from the time of the vernal equinox. Therefore the year beginning with the winter solstice must belong to an earlier system, which can only be that which reckoned time by the lunar year of thirteen months.

This year was, as I have shown, most probably calculated from a circle coincident with the celestial equator, which originally was marked by ten stars,³ but it is certainly most probable that the people who had found the value, for purposes of comparison, of a circle of ten points, would, when there were thirteen separate measures of time, have increased the divisions of the circle to thirteen. When the discovery that the sun ruled the year was made, and when it was found that the path of the sun was not coincident with the equator, it was necessary to alter the position of the heavenly circle;

¹ Lewis, *Astronomy of the Ancients*, p. 39, quoting K. F. Herman's *Griech. Monatskunde*, pp. 122-9.

² *Encyclopædia Britannica*, ninth edition, vol. iii. p. 793, sect. Bithynia.

³ This was the first circle used for computing time exceeding a month. The daily positions of the moon in her monthly course had probably, as I have before shown, been noted in the lunar circle of twenty-eight stars, afterwards increased to thirty. But the scholars who are now studying Akkadian astronomy will probably shortly solve these and many other questions connected with early astronomy. A book about to appear, called *Babylonische Kosmologie*, by Jonson P. Strasburg (Trubner), will, I hope, prove a great deal, and will certainly, I am told, give an earlier list of zoological signs than that I have used.

but there is no evidence to prove that this change caused any great disturbance or commotion. When a change was to be made affecting the reckoning of time, which was so politically important, minds imbued with the spirit of ancient conservatism would make every effort to make the change in such a way as would raise no religious or fanatical prejudice, and therefore they would naturally, while altering the position and numbers of the stars of the heavenly circle, try to preserve in it the names of the old months which were before given to its distinguishing points. Now in three of the oldest list of months which are recorded—the Egyptian, Hindu, and Pahlavi—we find the bull-god or the mother occupying the first place. In the Egyptian year the first month is Thoth, a name of the bull-god Osiris. In the oldest form of the Hindu year Tai, the mother, and in the latter Pūsh, the bull-god, rules the opening month, while in the Pahlavi year the first month is Fravardin, dedicated to the Fravashis, or mothers.¹ Among the Akkadians the bull was always considered to be the god who guides the year, and the moon-god Bel was the original Gudana, the bull of heaven, whose title, when transferred to the sun-god, was changed into Gudibir, the bull of light.² It is therefore antecedently probable that in changing the old equatorial circle into the ecliptic, the authors of the change would use, where possible, the old names, and that they therefore transferred the bull of the winter solstice, who had replaced the mother earth in the list of months, to the vernal equinox. If we retransfer the signs of the Zodiac to their original position in the lunar calendar, we shall find that they give a much better ideal picture of the changes of the year than they do when Taurus is placed as the first month coincident with the vernal equinox.

This will be much clearer if we begin by comparing the earliest list of the signs of the Zodiac taken from the Akkadian tablets with the lists of Akkadian months.³

¹ West's *Bundahis*, xxv. 20, *Sacred Books of the East*, vol. v. p. 97.

² Sayce, *Hibbert Lectures for 1887*, pp. 48, 163; Part III. *J.R.A.S.* July, 1889, pp. 542-543.

³ I have to thank Mr. Benzon, of the Assyrian Department of the British Museum, for this information, which he most kindly gave me. I have also taken some of the names from a list by Dr. Sayce.

¹ Akkadian Months.	² Meaning.	³ Akkadian Signs of the Zodiac.	⁴ Meaning.	⁵ Ordinary sign.
1. Khas-sidi	The bull of increase	1. Tete	The bull	The bull
2. En Ga or Munga	The making of bricks	2. Mas-masa	The twins, or the bricks	The twins
3. Su-gal-na	The seizer of seed	3. Nungaru	The crab, the seizer of seed	The crab
4. Ne-ne-gar,	Fire making fire	4. A	The lion, or water	The lion
5. Gin - nini- na, Ki-gingu- na	The errand of Istar	5. Ki	The earth	The virgin
6. Dul-azag, Tul-ku	The pleasant hill, The holy altar	6. Nuru	Light	The balance
7. Bin-ga-a	Crowned chest (of the the body) Mouth opposite the foundations	7. Agrabu	The scorpion	The scorpion
8. Gan-gan - na,	The very cloudy	8. Pa	The sceptre	The archer
9. Ab-ba-e	The cave (of the rising sun)	9. Shuhu	The ibex	Capricornus, or the sea- goat.
10. As-san	The curse of rain	10. Gu	The dog?	The water- ing pot
11. Se - gin - dar, Se-kesil	Se = win, dar = cutting Sowing of seed	11. Zeb	Meaning not known	The fishes
12. Sâ-se- gen-dar Se-dei	The cloudy Segundar The dark month of sowing	12. Ku	The ram	The ram
13. Bara-zig- gar	The altar of the demi- urge.			

Now to begin with the last sign, which is a perfect epitome of ritualistic history. The ram, which in Tamil is Mesham the goat, evidently is the victim sacrificed on the altar of the demiurge, or creator. It is a reproduction of the myth of Jantu in the Mahābhārata, where the king sacrifices to secure increase of offspring; and of the sacrifice of Isaac by Abraham, only in the sacrifice of Abraham, as in that of Phrixos, in the story of the Argonauts, the sacrifice of the ram is substituted for that of the human victim. It is the sacrifice of the old year, which is by its blood poured out to secure the fertility of the next. But this original sacrifice was

offered to the mother earth, the Hindu Kadrū, who ruled the last month of the Indian lunar year, whereas the Akkadian altar was the stone or brick altar, the representative of the phallic god, the father, and it was to this god that the goat was offered which became, under the rule of the sun-worshippers, the ram, which was always a solar animal. We thus see that the Akkadian god of the altar, the male father, ruled the close of the year, just as Sankha, or Śankara, the Hindu Rudra, ruled the winter solstice.¹ If the month represented by the last sign of the Zodiac before Taurus is taken to be the month ending with the winter solstice, the altar and the sacrifice have a most significant meaning; whereas if it represents the month before the vernal equinox, it has no apparent connection with the course of the year. Again, the evidence that the bull or cow represented the first month of the year beginning with the winter solstice is very strong. In the Manu legend, which represents the birth of a new year as well as of a new earth, it was Iḍā, both the sacred cow and the mother earth, who rose out of the waters. Āditi, the opening Hindu lunar month, means the mother earth as well as the beginner, and Tai, the Tamil mother, was originally the mother earth, who probably, like Iḍā, became afterwards the cow. As for her successor, Pūshya, he was certainly preceded by the goat, for in the Rigveda he is called the god drawn by goats.² This goat was the Tamil sign of the Zodiac Mesham, who was the animal sacred to the fecundating power which was to make the new year fruitful. In the original Athenian year it was the Grecian Pūshan, the god Poseidon, who ruled the time of the winter solstice, which happened in Poseidon, the month sacred to him, and he, like Pūshan, was the god of the black bull, to whom bulls were sacrificed at Ephesus.³

The second month, represented among the Zodiacal signs

¹ Alberuni's India, Sachau's edition, vol. ii. chap. lxi. vol. ii. pp. 118-120. Saturn is shown in the list of snake-gods given as ruling the year to represent Sankha. See Part II. J.R.A.S. April, 1889, p. 320.

² Rg. vi. 55, 4, vi. 57. 3.

³ See Part IV. J.R.A.S. April, 1890, p. 443. Poseidon fell in the latter half of December and the first half of January.

by the twins on the bricks, clearly consists of two symbols. If these were taken from the lunar calendar, they must have represented two months. In the Hindu Zodiac the twins are a boy and girl,¹ and in the representations of the Assyrian signs they appear as two male figures.² But the evidence given by the names of the second and third months in the lunar series seems to show that they originally represented the two sexes. In the *Mahābhārata* the name of the second lunar month is Diti, who is the mother of the Daityas; and again, Māgh, which probably was originally a lunar month, is, as I have already shown, almost certainly a female goddess, and to the evidence I have already brought forward to prove this, I may add that in the list of Nakshatras Maghāh is feminine. On the other hand, the third lunar month in the Hindu list is evidently masculine, as Danu is the putative father of the Turanian race called Dānus in the *Zendavesta*, and Dānava in the *Mahābhārata*. As it was one of these months which was usually inserted as an intercalary month when an additional month was required to correct the errors of the solar calculations, it must have been one of these two months which was left out when the thirteen months were reduced to twelve. It was after February that the Romans inserted their intercalary month Mercedonius, and after Poseidon that the Athenians inserted theirs. The reduplicated Hebrew month Va-adar was inserted after Adar in the embolismic year in order to secure the observance of the Passover on the right day, the full moon of the month of Nisan at the vernal equinox,³ and this practice must have originated with the reduplicated month in the Akkadian list I have quoted, Se-gen-dar and Sā-se-gen-dar. Further evidence that the month represented by the twins was formerly a pair representing the mother and father, is given in the Athenian name of the second month, Gameliōn, or the marriage-month. It was to form this month that two lunar

¹ Alberuni's *India*, Sachau's edition, vol. i. chap. xix. p. 219.

² Law of Kosmic Order, by Robt. Brown, jun., F.S.A. (Longmans, 1882), Appendix, p. 80, No. xiv.; also Lagard, *Culte de Mithra* (1847), pl. xxvi.

³ *Encyclopædia Britannica*, Art. Calendar, vol. iv. p. 678.

months were married and formed into one.¹ This marriage was symbolized in the Akkadian Zodiac by the bricks which were put together to make the permanent month. When we recollect that in the Hindu sacrificial ritual everything is done in pairs, we can see how the most natural way of making the change required in the years seemed to amalgamate one of the pairs of the month into a single month. Further evidence connecting the twins with the lunar year of the sons of Kuṣ, or Kaśyapa, is given by the connection that I have already shown to exist between the heavenly twins, or horse-men, and the northern charioteers of India.

Further evidence as to the truth of this explanation is given by the Hindu name of the sixth month, Jyestha, corrupted into Jeth. This, according to the present hypothesis, was formerly the seventh month. It means the eldest, or chief. This is a name which is most appropriate for the month which is sacred to the sixth, formerly the seventh, sign of the Zodiac Nuru, the light, in the Akkadian list which, according to Varāhamihira, appeared in the Hindu Zodiac as "fire."² This was the month which was formerly sacred to the moon which ruled the summer solstice, and which in the great cosmological hymn of the Rigveda is represented as being the seventh month, the self-produced, standing in the midst of the six pairs of months.³ In the Hindu lunar list she appears as Krodhā, the ancestress of the warrior moon and snake races, who were hateful to the Aryans and Northern tribes.

The eighth Akkadian sign, Pa, the sceptre, and its counterpart, Dhamsu, the archer, both represent the ruling power, and fully justify the name of the Hindu month Srābon, which means the glorious month.

But one of the clearest proofs of the identity of the signs as I have arranged them, and the Hindu months they represent, is that given by the Akkadian Shuhu, the Ibex, later the Tamil Makaram, or sea-monster; and last of all, Capri-

¹ This was also symbolized by the *ἱερός γάμος* of Zeus and Here which was celebrated at Argos, in Gameliōn. See Part IV. J.R.A.S. April, 1890, p. 450.

² Alberuni's *India*, Sachau's edition, chap. xix. vol. i. p. 219.

³ Rg. i. 164. 15. See above, pp. 572, 573.

cornus. This animal was, as Alberuni tells us, represented by the Greeks as a goat with a fish's tail.¹ The names of the corresponding Hindu months are Bhādrapada, meaning the "blessed-footed," and Proshthapada, meaning the "ox-footed" month, but the dominant deity of the month is Ājaekapād, the one-footed goat,² agreeing exactly with the Zodiacal sign of the sea-goat with its fish's tail,³ which was its one foot. Again, Mesham, the Tamil twelfth, formerly the thirteenth sign, meaning goat, agrees precisely with the name of the present twelfth and former thirteenth Hindu month, Mirga, or Mārgasirsha, which means the "deer-headed animal." This was the gazelle, formerly sacred to the Akkadian chief phallic god Mul-lil, represented in the Akkadian months by Bara-ziggur, the altar of the Creator, which was afterwards altered first to the goat, and next to the ram.

The above explanations will be made more clear by the following table, in which I have placed the Hindu months side by side with the signs of the Zodiac they represent when the Zodiacal year is reckoned as beginning with the winter solstice, making December-January the first month :—

Name of Hindu month.	Akkadian sign of Zodiac.	Ordinary Zodiacal sign.
1. Pūshan	Tete, the bull	The bull
2. Māgh	Masmasa, the twins, or the bricks	The twins
3. Phalgun	Nungaru, the crab, the seizer of seed	The crab
4. Chait	A, the lion, or water	The lion
5. Baisakh	Ki, the earth	The virgin
6. Jeth	Nuru, the light	The balance
7. Assār	Agrabu, the scorpion	The scorpion

¹ Alberuni's India, Sachau's edition, vol. i. chap. xix. p. 219. Varāhamihira also calls it Makara, and translates it "hippopotamus," but Alberuni corrects him.

² Alberuni's India, Sachau's edition, vol. ii. chap. lxi. p. 122.

³ He is the fish-man called by Berossus Oannes, which is the equivalent of the Akkadian Hea-ana, the god (ana) Hea or Ea, who arose from the sea to impart civilization and knowledge to the Euphratean populations. His earlier form was the goat, or ibex. It was the worshippers of the sanctifying water of life who assimilated him to the fish.

8. Srābon	Pā, the sceptre	The archer
9. Bhadon	Shuhu, the ibex	Capricornus, the sea-goat (Makara)
10. Asvin	Gu, the dog?	The watering-pot (Aquarius)
11. Khartik	Zeb, meaning unknown	The fisher
12. Margasirsha	Ku, the ram	The ram, or the goat.

It has thus been shown that the year everywhere originally began with the winter solstice, but certain nations altered this original custom. Thus the Egyptians, who were imitated by the Athenians, began their year with the summer solstice, because this period nearly coincided with the rising of the Nile, which was the most important event of the Egyptian year. Others, again, like the Spartans and the Peloponnesian States, the Macedonians and the States of Asia Minor, began their year with the autumnal equinox.¹ This change was made under the influence of Tammuz worship, and, as I have already pointed out, the Song of Lamech in Genesis iv. gives evidence of a similar change having been made in the reckonings followed by the Biblical chronologists. But Tammuz worship was essentially a solar-cult, and must have been long posterior to the lunar year except in its original form of earth-worship. I have now completed the inquiry on which I started, and have, I hope, given what will be accepted as a fairly accurate proof of the processes by which the solar year was evolved from the earliest year of five seasons. The first stage towards reckoning time, following the division of the year into five seasons, was that made by the calculation of the lunar month into twenty-eight days. These were divided into two periods of fourteen days each, representing the phases of the moon; but these phases, the Hindu Nakshatra, were not used as a measure of annual time till the Hindu five years' cycle, reconciling the solar and lunar year, was calculated. The first period beyond the month recognized as a stable unit of time were the ten lunar months of

¹ Lewis, *Astronomy of the Ancients*, chap. i. sect. 6, p. 29.

gestation, subsequently increased to eleven by the addition of a month in honour of the earthly father; but the complete year of thirteen lunar months was not calculated till a map of the heavens had been framed by dividing the celestial equator into ten unequal divisions characterized by selected stars. From the tables thus formed, measurements and calculations of the movements of the heavenly bodies were made, from which the year of thirteen months was determined, and to this circle probably three more divisions were added when the thirteen lunar months were fixed on as the period of the year. This year always began with the winter solstice. From the signs used to denote the circle by the lunar astronomers, those used by the founders of the solar year were selected. Two of these signs, which were first the two sacred fire-sticks, and afterwards the husband and wife, were made into one, representing first the pair of bricks, afterwards the boy and girl, and last of all the male twins; and it was the month that was thus discarded that was again re-inserted when an intercalary month was required to correct errors in calculation.

But subsequent perturbations in this order were made when the beginning of the year was fixed at the autumnal equinox, as among the Tammuz-worshippers; in the summer solstice, as among the Egyptians and Athenians; and, lastly, by the solar year.