Chapter I

INTRODUCTION

1.1. Scope and Nature

1.2. Sources

1.3. Proposed line of Investigation
I.1. SCOPE AND NATURE

*Kāla* or time is the general medium in which all events take place in succession or appear to take place in succession. All specific and finite periods of time, whether past, present or future, constitute merely parts of the entire or single time.

Knowledge of time and space is anticipated in Vedic literature. Reference has been made to the seasons of Summer (*Grīśma*), Rains (*Varṣa*) and Autumn (*Śarad*) in which different kinds of crops were sown. The *Vedāṅga-jyotisha* is considered to be a text on astronomy ancillary to the Vedas. It refers to the word *muhūrta* meaning 15th part of the day i.e. in a general way, one *muhūrta* means two *nāḍikās* or *ghatikās*. The *Vedāṅga-jyotisha* also mentions that there is a difference of 6 *muhūrtas* (i.e. 12 *ghatikās*) between the longest and shortest day. It evolved out of the attempt at regulating the performance of seasonal sacrifices year after year. This text recognises a *yuga* or a cycle of 5 years, among which each year consisting of 360 days, an additional month of 30 days being added to each cycle. According to the *Śatapatha Brāhmaṇa*, the sacrifice is of *Brahmā* equal measure with the year; he offers five libations for sacrifice in commensurate with the year and there are 5 seasons in a year.

The text of the *Vedāṅga-jyotisha*, which has come down to us, appears to have been revised from time to time and is replete with contradictory statements with regard to the commencement of the year. The date of this text, in its present form does not appear to be as early as thought of by previous scholars.

Later texts on astronomy bear reference to different systems of reckoning years. According to Indian tradition revolutions of the Sun, the Moon and, in an auxiliary sense, the Jupiter regulate divisions of time. They determine the duration of year, month and cycle of twelve or sixty years.

Important contributions to the study of dates in Indian inscriptions have already been made by G. H. Ojha, L. D. Swami Kannu
Pillai, A. C. Burnell, A. Cunningham, R. C. Majumdar, Robert Sewell and S. B. Dikshit, B. N. Mukherjee, A. M. Shastri, A. K. Chakraborty and others. These works mainly deal with the origin and commencement of eras used in Indian epigraphs. They have also referred to systems of dating found in indigenous texts constituting supplementary evidence. There is a vast field yet to be explored. None of the works mentioned above deals with problems relating to commencement of the use of months, lunar halves, week days and the introduction of luni-solar months in ancient India. We have evidence to prove that in early Indian epigraphs years, months and lunar days were regularly used. The system survived and is still used in religious ceremonies performed by us. A fresh study is thus imperative. Now we have also new materials and their interpretations offered by different scholars. The problems mentioned above and discovery of new materials have emboldened us to make a fresh study of the system of dating in early Indian inscriptions.

1.2. SOURCES

Our principal sources are undoubtedly inscriptions. We have confined our attention to epigraphs ranging, in point of time, from about the middle of the 3rd century B.C. to the middle of the 7th century A.D. The system of reckoning the principal eras viz., the Old Śaka era, Azes era, Kanishka era, Mālava, Kṛṣṇa, Vikrama, Gupta, Kalachuri-Chedi, Valabhi, Kathiaka and Traikūṭaka eras and that of traditional eras like Bhārata or Yudhishṭhira or Kaliyuga or Pāṇḍavakula era, Saptarshi era, Buddhist Nirvāṇa and Jain Nirvāṇa eras had developed before the end of the period chosen for this dissertation. The practice of recording months, lunar halves and day had come into vogue. As supplementary evidence, we have taken into account the materials supplied by literary sources beginning from the Vedic texts to the works on astronomy and astrology, principally those of Āryabhaṭa, Bhramasphuṭa-siddhānta of Brahmagupta, Śishyadhirrddhi of Lalla, Bṛhatsamhitā and Pañchasiddhāntikā of Varāhamihira, Chhandakasūtra of Piṅgala.
etc. Information culled from Vedic texts implies knowledge of time and space, the antiquity of which goes back to the time of composition of the Rigvedic hymns.21

The term Kāla in the sense of time has been used in the Rigveda22 and Atharvaveda23. The same sense of the term prevails when the Brāhmaṇa texts24 were being composed. Divisions of time is also anticipated in Vedic texts. These texts state the divisions as “that all winkings of the eye (and similar units of time) were produced from the (supreme) Person that is brilliant (like lighting),” as “under the dominion of Brahma the Sun and the Moon are held apart”.25 The divisions of time are the nimeshas26, muhūrtas,27 day and night (ahorātra)28, half months29 or lunar halves,30 months31, seasons32 and years.33

We have also reference to the term yuga in the Rigveda.34 It has been used in different senses like “short span of time,”35 “a cycle of five years or also a long period of thousand years”.36 The Rigvedic37 and later Vedic38 texts mention Sarivatsara, Parivatsara, Idāvatsara or Iduvatsara and Anuvatsara as a year being a part of the yuga or 5 years cycle. According to the Arthaśāstra of Kautilya39 and Parīchasiddhāntikā of Varāhamihira,40 5 years constituted a yuga, with 1 intercalary month added after every 30 months.

In the Mahābhārata, Manusmṛiti and in some of the Purāṇas mention has been made of manvantaras and kalpas in addition to yugas.41 We have also reference to the concept of mahāyuga comprising 4 yugas. It is mentioned in the Pulīśasiddhānta42 as consisting of 12,000 years divided into four parts in the ratios 4:3:2:1, viz., Kṛta, Tretā, Dvāpara and Kali. In Indian tradition the concept of manvantara grew around the tradition of seven Manus.43 Each of them had their own time extending over thousand of years. Manu44 also state: that the manvantaras are numberless and the Great God brought about creation and destruction of the world during the manvantaras.

The works of Āryabhaṭa, Brahmagupta, Lalla and Varāhamihira bring out the knowledge of thinkers of ancient India with regard to the revolution of the Sun, Moon, five planets and two nodes, obliquity of the ecliptic and lunar parallax.
1.3. PROPOSED LINE OF INVESTIGATION

In this work we have made an endeavour to study the system of dating in early Indian inscriptions in the perspective of information supplied by early indigenous texts. A careful analysis of the materials found in Vedic and post-Vedic literature clearly brings out that years, months, days and its fractions were known to the authors of relevant texts. Epigraphic materials at our disposal seem to indicate that in the 3rd century B.C. only regnal years and days (sometimes counted in nights) and also lunar days were taken into account. In this connection the inscriptions of Aśoka may be mentioned. Inscriptional evidence also points to the fact that the eras were popularised in India by alien rulers.

Though these eras are sometimes connected with the names of rulers: from the initial year of whose reign they had been counted, atleast a few of them were Indianised later by rulers who continued to use them. A typical example is the Aṣes era which later came to be known under such names as Vikrama, Kṛta and Mālava. An attempt has been made to trace the earliest reference to the era under the new names Vikrama, Kṛta, and Mālava. Similarly the Kanishka era was later popularised under the name Śaka. It may interest us to know the earliest reference to the use of the Kanishka era under the name Śaka.

Secondly, it appears that initially lunar system was used in computing time. Early Indian inscriptions, however, bear reference to both the solar and lunar systems when they mention solar months along with lunar days. The circumstances leading to the use of this dual system in the same record may be investigated. It might have been due to either introduction of new ideas alongwith the settlement of foreigners and large scale communication between India and the Greek world, Central Asia and the Middle East or an attempt to compute the exact date. Different methods of recording dates like use of words, numerals, both words and numerals and chronograms have been discussed in detail. It may be mentioned in this connection that sometimes full verses
have been employed to record dates. We have also taken into account the use of abbreviations for eras and lunar halves.

NOTES AND REFERENCE

2. RV. X. 90.6.
3. RV. I. 164. 15. and RV. I. 164. 48, where seasons are metaphorically mentioned.
4. RV. X. 90.6.
6. Ibid.
7. Pañchasaṁvatsaramayaṁ yugādhyaṁkham Prajāpatiṁ (Vedān-
  gajyotisha, V. I.)
8. Saṁvatsara sammito vai yajñah; pañcha vāritavaḥ saṁvatsarasaya
   tat pañchabhirāpnoti tasmāt pañcha kṛtvā ānakti, Ś. Br. III.
   1.3.17.
10. G. H. Ojha, BPL.
11. L. D. Swami Kannu Pillai, AIE.
12. A. C. Burnell, Elements of South Indian Palaeography.
12a. A. Cunningham, Books of Indian Eras, with tables for calculating
   Indian dates.
13. R. C. Majumdar, "Vikramāditya and the Vikrama Samvat",
   Vikrama Volume, pp. 291—93.
14. R. Sewell and S. B. Dikshit, TIC.
15. B. N. Mukherjee, ASSIPH; IMB, vol. XX, 1985, pp. 1—27;
17. Āryabhaṭīya, III-10. See also S.B. Dikshit, BJŚ, Part-2, p.11.
18. Mm. Sudhakara Dvivedin, (ed.), Brahmasphutasiddhānta by
   Brahmagupta.

19a. A.N. Jha, (ed.), *Bṛhatsamhitā* of Varāhamihira; G. Thibaut, (ed.), *Pañcālchhandasūṭram*, vol. V, 19, ch. VII.


22. *Ibid*.


24. ...... *Sa āyatatayottārata upotpeda ya esa sviṣṭakṛtaḥ kālaḥ*, Ś. Br. 1.7.33.


27. *RV*. III. 33.5.


31. *RV*. I. 164.2. and I.164.3.

32. *RV*. X. 90.6; VII.103.3; II.12.11.

33. P.V. Kane, *op. cit*. p. 656.


35. *RV*. I.158.6 and III. 26.3.


40. *Pańchasiddhāntikā*. XIII. I.


43. *Manu.* l. 61–63.
45. *CII,* vol. 1; D. C. Sircar, *SI,* vol. 1. (Aśokan inscriptions only).
51. Mathurā Buddhist image inscription of Huvishka—(Śaka) year—33, "*Mahārājasya Devaputrasya Huvishkasya sām 30 (+) 3 Gṛt 1 di 8,*" *EI,* vol. VIII, pp. 181ff.
54. Aśokan Inscriptions, *CII,* vol. I, pp. 155, 74f; For numerical
notations used in Brāhmī inscriptions of Aśoka, See *Ibid.*, pp. 166f; *El*, vol. XXXI, pp. 1ff.

55. B. N. Mukherjee, *SAEA*, p. 12, 14.

