

||Parāśaratantra|| Ancient Sanskrit Text on Astronomy and Natural Sciences. R. N. Iyengar. Jain University Press, Jakkasandra Post, Ramanagara District 562 112, India. 2013. Price: Rs 750 (Asia), US\$ 40 (rest of the world).

The name of Parāśara (pronounced Paraashara) conjures up the image of a seer with flowing silvery beard and a wise look, who pioneered several disciplines like *jyotiṣa vṛkṣāyurveda*, etc. Also, the devout see him as the sire of the great Veda Vyāsa. Who is this legendary Parāśara? When did he live and what did he contribute? Answers for these and many more such queries are sought by the author R. N. Iyengar in this book.

The author has made a sincere effort in bringing together passages attributed to Parāśara by later writers. The book is an anthology of statements, quoted as Parāśara's, by three texts, viz. Bhaṭṭot-pala's commentary (10th century) on the *Bṛhatsamhitā* (*BS*) of Varāhamihira, *Adbhutasāgara* of Ballālasena and Bhāskarayogi's super-commentary *Utpalaparimala* on Bhaṭṭot-pala's commentary on *BS*. There are several texts on diverse disciplines attributed to Parāśara. For example, *Bṛhat Parāśara Horā* (on astrology), *Kṛṣi Parāśara* (on agriculture) and *Parāśara-smṛti* (on *dharmaśāstra*). Actually, Parāśara might have been a pseudonym adopted by different authors during different periods to earn popularity and credibility for their texts. The name 'Parāśara' could have been adopted by those authors who were born into the gotra (lineage) of that name.

The book has 21 chapters under which the relevant Sanskrit passages are quoted with English translation. Some important and interesting topics discussed are: divi-

sions of time, 'motion' of planets, nakṣatras, rainfall and earthquakes. Among truly significant topics discussed in the book are (i) 26 comets (Dhūmaketu or simply ketu), and (ii) the heliacal rising and setting of the bright star Canopus (Agastya).

As regards the 'motion' (*cāra*) of planets, the discussions lean heavily towards astrology rather than scientific astronomy. However, Iyengar has put a lot of effort in delineating concrete astronomical references, wherever they occur. It is mentioned that the visibility numbers given for Mercury are reported in *BS* of Varāhamihira, but criticized as being incorrect according to computations. But Iyengar defends Parāśara by saying: 'however it is possible that the reported periods of visibility and numbers were valid for some particular latitude after allowing for observational inaccuracies'.

The phenomenon of heliacal rising of the second brightest star Agastya is given much religious importance, especially in North India. Parāśara states that Agastya rose when the Sun was with star Hasta and set when the Sun was with Rohiṇī, Iyengar argues that the above data are a valid naked-eye observation in the period 950–1400 BCE for the Pushkara-Kurukshetra region. This topic is dealt with in detail in chapter 12 (Agastya *cāra*)

Under Rāhucāra (chapter 5), there are discussions of eclipses, both lunar and solar. Lunar eclipses are said to occur in intervals of six months. This fact is also mentioned in the *Atharva veda-pariśiṣṭa*.

Interestingly, Iyengar refers to number 3339 that occurs twice in the *Rgveda*. He argues that the said long count of tithis only in the dark fortnights is equivalent to 6678 tithis, which is equal to about 18 years, 'the so called *saros* mistakenly attributed to Chaldeans'. The author proceeds further to say, 'This has prompted *siddhāntic* astronomy to exhibit great refinement in eclipse calculations'. This sophistication could not have suddenly raised its head without a long tradition. The missing link between the Vedic theories and the later Siddhāntas is to be found in this book, AVP and in some purāṇas.

Varāhamihira believed that comets were beyond computations and hence unpredictable. Iyengar maintains that both Parāśara and Vṛddhagarga carefully stated the interval between the successive comet appearances. In his preface, the author rightly points out that Varāhamihira was only a compiler of scien-

tific topics prevalent in ancient India and not an original thinker. He depended on Parāśara and Vṛddhagarga for the natural phenomena.

The author regrets that traditional scholars, historians of science and modern astronomers have generally ignored Indian comet observations as non-existent and blindly interpreted ketu as the descending node, leading to conclusions that are at times glaringly absurd.

Varāhamihira, while describing the motion of Mercury in *BS*, attests Parāśara and *Parāśaratantra* by name. But nowhere has he quoted the original tantra even though in many places he has repeated the opinions of Parāśara, including the visibility numbers for Mercury.

One of the two important sources for the present book is *Adbhutasāgara*, which is a compilation of anomalous phenomena. Ballālasena, the author of this book, is well-known in Indian history. Originally from Karnataka, he was ruling at Mithila in the Bihar–Bengal region.

One noteworthy point is that in the prose passages of Parāśara quoted in this book, the six seasons are indicated in terms of nakṣatra divisions and not rāśis. This additionally confirms the existence of astronomer (and astrologer) Parāśara before the entry of the rāśi concept (zodiacal signs) into Indian astronomy, i.e. at least two or three centuries before Varāhamihira and Āryabhata (5th century). This does not rule out the possibility of arrival of Parāśaras in later centuries.

But pushing back Parāśara to a period as early as that of *Vedāṅga Jyotiṣa* needs more convincing corroborations than the fact that his passages are in prose and resemble the style of the brāhmaṇas. Hopefully access to more manuscripts, as and when available, will throw further light



Early morning sky picture at Kurukshetra for 21-09-1299 BCE with star Agastya rising in the southern sky and constellation Hasta (Corvus) rising in the eastern sky.

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on fixing the original Parāśara's time as also on unearthing more indigenous astronomical wisdom.

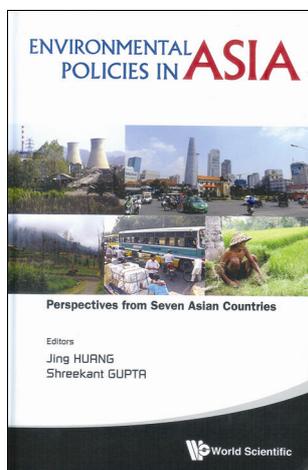
A small note on a possible typo on p. xix under 'Examples for astronomical negative years': 1499 BCE will be (−1498) and not (−1500) as cited. So also 1199 BCE, 1400 BCE and 1350 BCE become respectively (−1198), (−1399) and (−1349) since the year 1 BCE is considered as the year 0 (zero) in mathematical reckoning for astronomical computations.

Iyengar deserves congratulations for bringing out for the first time a compilation of genuine passages attributed to the original Parāśara. This work is bound to prompt scholars to rethink on their erstwhile pet theories regarding the Indian antiquity of astronomical concepts, phenomena, parameters, etc.

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Environmental Policies in Asia: Perspectives from Seven Asian Countries. Jing Huang and Shreekant Gupta (eds). World Scientific Publishing Co. Pte. Ltd, 5 Toh Tuck Link, Singapore 596224. 2014. xii + 243 pages. Price: US\$ 95.

The extensive damage to natural ecosystems at large due to climate-led variability and vulnerability poses a serious threat to human life. Environmental sustainability is a criterion for economic

progress and poverty bargain in Asia. Climate change accelerated by human-induced pressures is threatening the development and security of Asia. The poor are particularly vulnerable to these changes and are already suffering from rising sea levels and increasingly devastating storms, droughts and floods. Urgent action is needed to integrate both extenuation of greenhouse gas emissions and climate change adaptation measures into the development strategy of the region.

There are two types of environmental challenges faced by countries of the region, those associated with urban and industrial development, and with natural resource exploitation. The first type is considered as pollution and the second as degradation, and severity of both can differ markedly, as can their interaction with economic processes¹. Speedy industrialization might reduce burden on the land, as the population moves to cities in search of higher-paying jobs. Soil degradation and deforestation would tend to slow down, while industrial pollution and urban overcrowding would accelerate at first. However, degradation and pollution may rise simultaneously, where government policy promotes resource-based industrialization.

This book focuses on the environmental challenges Asian managers and policymakers face as the continent experiences rapid commercial growth in the 21st century. Viewpoints from seven different Asian countries (Japan, China, India, Vietnam, Malaysia, Indonesia and Singapore) are addressed in this book, with contributions from prominent Asian scholars and practitioners. This is a timely and unique volume on environmental policies and governance from the perspective of seven dynamic Asian countries. The articles in the book include developed economies of Japan and Singapore, emerging giants such as China and India, and rapidly developing nations such as Vietnam, Indonesia and Malaysia. The volume deliberates upon the environmental challenges that have emerged from issues as local as poor recycling practices, to ones that are as vast and complex as global climate change. Appealing, manageable and pan-Asian in scope, the articles also present resourceful ways in which these challenges are being addressed.

The book elucidates the complication of environmental policies in Asia. Poli-

cies discussed in the book are outcome of socio-economic and political developments in Asian countries. Discussed environmental policies in Asia are framed to conserve various aspects of environment. Furthermore, it gives an outlook on future challenges associated with the ongoing economic rumble of developing countries, which has contributed to the serious environmental and natural resource degradation. Therefore, the book is targeted to a wider readership ranging from 'scientists, policy makers, Govt organizations and NGOs in the fields of climate change, energy, forestry, natural resource management and pollution'. It is valuable to anyone who is keen on understanding Asia, its growth, and whether its rise is environmentally sustainable.

Though there are a few books in the same domain addressing aspects of environmental issues and related environmental policies and their implications in Asia²⁻⁴, this book provides deliberations on the above issues along with solutions, and success stories in a doable way. Therefore, this book has its own outlook, concepts, and considerations to handle the cross-cutting edges of environmental policies in Asia.

Importantly, 'this publication builds upon the ongoing rampant economic development in Asia in the last few decades and how at large it has polluted the air, water and extensively damaged the natural resource base of Asian countries. Chapters also discuss international developments in the last few decades such as IPCC, UNFCCC, CBD, Green Energy, CDM and how Asian countries have aligned the national policies with respect to them'. Moreover, the 'contributions to this book are based on the extensive experience of authors from different countries of Asia'.

The book basically focuses on the following aspects: (i) key issues in combating environmental concerns in Asia that include environmental policy and governance in a Federal framework; (ii) role of developed countries like Japan in climate change issues and how recent nuclear disasters have increased dependency on coal-fired power plants after closing down a large number of nuclear power plants; (iii) environmental impacts of fast-growing economies in India that include perspectives from Vietnam; (iv) resource-environmental foundation for green and low-carbon development with