

BUDDHAGHOSA ON ARAGHAṬṬA

In his Presidential Address (Medieval India Section) at the Indian History Congress (XXXI session, Varanasi), Prof. Irfan Habib observed that « the case for assigning the introduction of the Persian wheel in India to the period of the Turkish conquests and the centuries immediately following (13th and 14th centuries) would seem unassailable¹ ».

Earlier Indologists² had translated the term *araghaṭṭa* appearing in ancient texts and epigraphic records as Persian wheel, without taking the slightest notice of the implications of this usage. D. Sharma³ and R. Nath⁴ have confirmed that the term *araghaṭṭa* signified the Persian wheel of modern usage and have gone on to object to the persistence of the name Persian wheel in view of the earlier occurrence of the water-lifting device in India.

J. Needham⁵ has pointed out the difference between *noria* (wheel carrying pots or buckets fixed on its rim) and *saqiya* (the Persian wheel) and has expressed his reservation about the propriety of using the expression Persian wheel for describing the devices mentioned in ancient Indian sources. The main contribution of Irfan Habib is that through his Presidential Address he has given wide publicity to the need for a caution in the context of Indian study. He has emphasised the distinction between *noria* and Persian wheel in interpreting the term

1. *Proceedings of the Indian History Congress, XXXI session (Varanasi, 1969)*, pp. 152-53.

2. COWELL and THOMAS, *The Harṣa-carita of Bāna*, p. 79; P. PETERSON & H. JACOB, *Upamitibhavaprapaṅcākaṭhā*, contents, p. lxxx; D. C. SIRCAR, *Three East Indian Inscriptions of the Early Mediaeval Period*, in « *Journal of Ancient Indian History* », VI (1973), p. 47.

3. Presidential Address, Ancient India Section, *Proceedings of the Indian History Congress, XXIX session (Patiala, 1967)*, p. 41.

4. *Rehant versus the Persian wheel*, in « *Journal of the Asiatic Society* », XII (1970), Nos. 1-4, p. 84.

5. *Science and Civilization in China*, IV, 2, pp. 361-62.

araghaṭṭa and its derivatives. He points out that « one of the principal differences between the noria and the Persian wheel, as far as practical results are concerned, is that the noria can operate on an open surface (stream or reservoir), whereas the Persian wheel can also raise water from deep wells », and that in the case of the noria the wheel carries pots or buckets fixed on its rim, but in the Persian wheel the chain makes it possible to raise water from some dept.

In interpreting the nature of the *araghaṭṭaghaṭṭīyantra* Irfan Habib relies on its description in the *Samantapāsādikā* of Buddhaghosa, a commentary on the *Vinayapīṭaka*. According to him, it « decisively supports the view that the device was originally the noria and not the Persian wheel »; the passage says that « it is a contrivance consisting of a cartwheel, to whose various spokes (*are are*) earthen pitchers are tied that lift water when the wheel is rotated by one or two men ».

Prof. Habib makes all these observations about *araghaṭṭaghaṭṭīyantra* on the basis of the information appearing in *A Critical Pali Dictionary*⁶. In view of the importance attaching to the description of the *yantra* we may analyse the original sources. For a proper evaluation of the Pali evidence we are presenting the information as derived from different sources in its correct historical sequence.

The starting point for the information about the water-lifting device is a passage in the *Cullavagga*⁷, which forms part of the *Vinayapīṭaka*. The passage records the permission given to the monks by the Buddha to use three water-lifting devices: *tulaṃ*, *karakāṭakaṃ* and *cakkavaṭṭakaṃ*. When the monks submitted that in drawing water many earthen pitchers are broken, the Buddha permitted them to use vessels of iron, wood and leather.

The *Samantapāsādikā*, a commentary on the *Vinayapīṭaka* written by Buddhaghosa in the fifth century A.D., adds some useful information⁸. *Tula* is the pulley like the balance of a merchant for lifting water⁹. *Karakāṭaka* is the device for drawing water by hand or by yoking bulls and with the help of long straps or ropes. *Cakkavaṭṭaka* is the *araghaṭṭaghaṭṭīyantra*. *Cammakhaṇḍa* is a leather vessel attached to a *tula* or a *karakāṭaka*.

6. Begun by V. Trenckner and revised by D. Andersen, I (Copenhagen, 1924-48), p. 423.

7. (Nalanda edn.) p. 212, line 1: *Anujānāmi, bhikkhave tulaṃ karakāṭakaṃ cakkavaṭṭakaṃ' ti. Bhājanā bahū bhijjanti... pe... 'Anujānāmi, bhikkhave tayo vā rake lohavārakaṃ dāruvārakaṃ cammakhaṇḍaṃ ti.*

8. (Nalanda edn.), vol. III, p. 1290, line 7: *Tulaṃ ti paṇikānaṃ viya udakubbhāhanakamatulaṃ. Karakāṭako vuccati goṇe vā yojetvā gahetvā dīghavaratādīhi ākadḍhanayantaṃ. Cakkavaṭṭakaṃ ti. Arhaṭṭaghaṭṭīyantaṃ. Cammakhaṇḍaṃ nāma tulāya vā karakāṭake vā yojetabbakaṃ cammabhājanaṃ.*

9. It is popularly known as *ḍhekulī* and probably operates like the weighing balance. It operates with the help of a weight or big stone placed at one end of a pole with a vessel or water bag attached to the other end.

Here the most significant piece of information supplied by Buddhaghosa is the name *arahaṭṭaḥaṭṭiyaṅtra*. We can explain the appearance of the name in one of the three ways: (a) It existed earlier, but the Buddha gave only one of the names of this water-drawing device, (b) The name was coined later, sometime between the compilation of the *Cullavagga* and the writing of the *Samantapāsādikā*, (c) The *arahaṭṭaḥaṭṭiyaṅtra* was similar in nature to the *cakkavaṭṭaka*, but not identical with it, and Buddhaghosa mentioned it because it was more popular in his times.

We have no means to support our preference for any one of these explanations. On the basis of the reference in the *Samantapāsādikā* we can be sure only about the introduction of the *arahaṭṭaḥaṭṭiyaṅtra* before the times of Buddhaghosa in the fifth century A.D. When we compare the references in the *Cullavagga* and the *Samantapāsādikā*, we notice that, whereas the *Cullavagga* indicates that the device contained a wheel, the *Samantapāsādikā* emphasises the role of pitchers in it. The use of the word *yantra* shows that Buddhaghosa considered it to be a complicated mechanical device when compared with the other two, namely *tula* and *karakāṭaka*. Further, we may note that Buddhaghosa associates *cammakhaṇḍa* with *tula* and *karakāṭaka*, but not with *cakkavaṭṭaka* or *arahaṭṭaḥaṭṭiyaṅtra*. From this we can infer that leather vessels were not used in the *arahaṭṭaḥaṭṭiyaṅtra* and that the *ḥaṭṭi*s were made of iron, wood or clay.

The description of the device¹⁰, which Prof. Habib reproduces, allegedly on the basis of the *Samantapāsādikā*, does not appear in the *Samantapāsādikā*. Actually, it occurs in the *Vajirabuddhi-ṭīkā*¹¹ which is a commentary on the *Samantapāsādikā* composed by the Theravādin monk Vajirabuddhi who belonged to the close of the twelfth century. There are actually three commentaries on the *Samantapāsādikā*, namely, the *Sāratthadīpanī*, *Vimativinodanī* or *Vimativicchedanī-ṭīkā* and *Vajirabuddhi ṭīkā* or *Vinayagaṇṭhi*. They were all written during the reign of King Parākramabāhu (A.D. 1153 to 1186) of Sri Lanka. His reign is an important landmark in the history of the Pali literature. A Buddhist Council was convened by the renowned Ceylonese monk Mahākassapa, who was a great authority on the *Vinayaṭīkā*. The three commentaries on the *Samantapāsādikā*, which started the fashion for commentaries on the *Aṭṭhakathās*, came into existence. We, however, do not have much information about the authors of the three commentaries¹². Sāriputta, the author of the *Sāratthadīpanī*, and Mahāvajirabuddhi, the

10. The original reads: *Arahaṭṭaḥaṭṭiyaṅtraṃ sakaṭacakkasanthānayaṅtraṃ, tassa are are ḥaṭṭikāni bandhitvā ekena dvīhi vā paribhamiyamānassa udaka-nibbāhanaṃ veditabbaṃ.*

11. C. S. UPASAK, *Dictionary of Early Buddhist Monastic Terms* (Varanasi, 1977), p. 85.

12. B. S. UPADHYAY, *Pāli Sāhitya Kā Itihāsa* (Allahabad, 1972); R. SANKRITYAYANA, *Pāli Sāhitya Kā Itihāsa* (1st edn.), p. 268.

author of the *Vajirabuddhi Tikā*, belonged to Sri Lanka. Kassapa Coliya, the author of the *Vimativinodanī*, lived in the Nāgānana *vihāra* in the capital city of the Colas.

There is no significant difference in the information supplied by the three commentaries. We find only minor variations in the form of one or two words being added or dropped here and there¹³. It has to be appreciated that one description need not hold good for all periods and all regions. The geographical peculiarities can cause significant variations. For instance, the level at which water is available in a particular region will be an important consideration for the choice of the type of water-lifting device. Likewise, the possibility of some improvement or change in the device during the long period involved cannot be ruled out. In the case of the three commentaries on the *Samantapāsādikā* it is not unlikely that their authors, who were monks associated with Sri Lanka and the Cola Kingdom, did not have a chance to be acquainted with the water-lifting device of the type of *araghaṭṭa*, resembling a Persian wheel, and hence explained it, on the basis of their own knowledge, in terms of a *ghaṭṭīyantra* resembling a noria.

Thus, Buddhaghosa gives us one of the earliest references to *araghaṭṭa*. Some other sources¹⁴ imply a device which may have been the *araghaṭṭa* itself, but the term does not occur in any of these¹⁵. Two other significant early sources recording the name *araghaṭṭa* are the *Pañcatantra* and the *Gāthāsaptasatī*. The original *Pañcatantra* attributed to Viṣṇuśarman, possibly belonging to the early centuries of the Christian era, is not available. The *Pañcākhyānaka* of Pūrṇabhadra, a derivative version of the *Pañcatantra* which has a reference to *araghaṭṭa* in a well as an essential part of the story of the frog Gaṅgadatta¹⁶, was written in the closing years of the twelfth century. This story, however, does not occur in the *Tantrākhyāyikā*, the earliest available version of the *Pañcatantra* cycle of stories and written about A.D. 300. But another story in the same text relates to a person who used to operate the

13. The passages have been quoted from the Burmese edition brought out by the Ghaṭṭasaṅgīti Prakashan, Rangoon. Prof. C. S. Upasak of Nalanda has kindly sent the extracts to me. *Sāratthadīpanī Tikā*, III, 388: *Arahaṭaghaṭṭīyantraṃ nāma sakatacakkasaṅghānaṃ are are bandhitvā ekena dvīhi vā paribbhamīyamānaṃ yantaṃ; Vimativinodanī Tikā*, II, 233: *Arahaṭaghaṭṭīyantraṃ cakkasaṅghānaṃ anekāraṃ are are ghaṭṭikāni bandhitvā ekena dvīhi vā paribbhamīyamānayantraṃ; Vajrabuddhi Tikā*, 524, is quoted above f.n. 10.

14. *Mṛcchakaṭīka*, X, 59; *Kuvalayānanda* (Nirnaya Sagara Press edn. 1955), p. 25; *Amarakoṣa*, II, 20, 27; *Kādambarī* (Ed. M. R. Kale), p. 322; *Kuvalayāvalīrajjubhīr-grathyamānāni patrapuṭaghaṭṭīyantrakāni; Harṣacarita* (N.S.P., 1925), p. 254: *Saṃsārāntyo naktāṃ divaṃ drāghīyasyo janmajarāmaranaghaṭṭanaghaṭṭīyantrarājirajjavah; Mandasor inscription of Yaśodharman* (A.D. 532), v. 27 (Fleet, *Corpus Inscriptionum Indicarum*, III, pp. 150 ff.).

15. *Araghaṭṭa in early Indian texts*, in « Dr. L. Sternbach Felicitation Volume », being published by Akhila Bharatiya Sanskrit Parishad, Lucknow.

16. The *Pañcatantra* (*Pañcākhyānaka* of Pūrṇabhadra). Ed. Hertel (Harvard Oriental Series, XI, 1908), Book IV, Tale I, pp. 231-44.

araghāṭṭa (*araghāṭṭavāhaḥ puruṣaḥ*)¹⁷. This second story occurs only in one manuscript and hence has not been accepted by the editor as belonging to the original form of the text of *Tantrākhyāyikā*. The verse in the *Gāthāsaptaśatī* employs a simile based on the pitchers in the *rahāṭṭa* (*rahāṭṭaghādiya*)¹⁸. The author of this text is generally identified with king Hāla of the Sātavāḥana dynasty, and is thus to be placed in the first century.

We may conclude that the *Samantapāsādika* is one of the earliest texts to use the name *araghāṭṭa*. It leaves no doubt about its being a complicated device (*yantra*) for drawing water. The *ghaṭīs* used in it were possibly made of metal or wood, but not of leather. Whether it resembled a noria or a Persian wheel proper is not indicated in the *Samantapāsādikā*. We would not like to impose on the terms, as used in Buddhaghosa's time, a meaning which we have derived from other sources of the ancient period, because we are conscious of the possibility that, as in modern times in the Arabic and English usage, the same term could have been loosely applied to any one of the many similar but slightly differing devices for water-lifting.

17. Ed. J. Hertel (HOS, XIV), Book IV, Tale 3, pp. 142-43.

18. V. 90.