

ASPECTS OF THE HISTORY OF THE PRAYER WHEEL

– Marianne Winder

The word "prayer wheel" in English is a double misnomer. What is inside are not prayers but mantras. This mistake is due to early Western travellers not having known what mantras were. The use of the word "wheel" is probably due to a literal translation from the Tibetan where 'Khor-lo' means something turning round but not necessarily a wheel. The German word *Gebetmühle* 'prayer mill' approximates its meaning better than the English 'wheel'. Pallas at the turn from the 18th to the 19th century uses *Gebettrommel* 'prayer drum' 1) and *Bettrommel* (same meaning) for the large prayer wheel and *Gebetmü(h)le* 'prayer mill' for the hand-held prayer wheel. 2) Klaproth in 1814 uses *Betzylinder*. 3) The English translation uses "prayer wheel". 4) James Bell in 1832 calls it a "Prayer mill". 5)

There are two types of prayer wheels : the large one moved by means of a handle or gently pushing hands, by the wind, water power or hot air, and the small hand-held one which is twirled round and kept in motion by a chain 6) or leather strap with a metal globe or cube at the end which balances the movement in such a way that it continues beyond the original impetus. This chain with its globe is called in Western technology a 'governor'. 7)

The idea for the large prayer wheel is usually thought to go back to a Chinese invention : the octagonal revolving book case to hold all volumes of the *Tripitaka* together. Mention of a revolving octagonal repository for the Chinese Buddhist canon contemporary to the event seems to occur in an inscription on a stele bearing a date/equivalent to January 16, 823 CE, which in 1942 was seen housed at the Pei-lin monastery in Hsi-an. 8). In 836 one such book case is mentioned at the Nan-Chhan Temple in Suchow which had a braking device to stop the rotation. Therefore it is clear it was intended to take volumes out and read them. 9) The evidence for the building of revolving repositories for books in the 8th and 9th centuries is meager. By the 11th century the evidence is abundant. One reason for this may be the printing of the Chinese Buddhist canon between 971 and 983, which placed the whole range of sacred Buddhist literature within the reach of any monastery of importance. (Goodrich, n. 8, l.c., p. 137.) The fact that in modern

Mongolia certain large prayer cylinders are octagonal suggests that in Central Asia such devices which contain mantras were inspired by the revolving book-cases. 10)

Another pointer in this direction is a legend told by Bunyiu Nanjio in the introduction to his Catalogue : " The plan (in a Japanese edition of the Buddhist canon of 1681 of a large eight-angled book-case made to revolve round a vertical axis) is said to have been invented in A. D. 544 by a celebrated Chinese layman named Fu Hhi (sic), commonly known as Fu Tash (sic) or the *Mahāsattva*. ... He is said to have thought, that if any pious person could touch such a book-case containing the whole of the *Tripitaka*, and make it revolve once, he would have the same merit as if he had read the whole Collection." 11)

It would be interesting to determine from Tibetan records when the large prayer barrels filled with mantras were first mentioned. They seem to be a Tibetan invention which subsequently spread all over the regions of Central Asia wherever Tibetan Buddhism flourished. By the 12th century the Chinese Buddhists seem to have adapted to their use of book-cases the idea of gaining merit by turning cylinders containing sacred writings. According to Yeh Meng-tê who died in 1148, in six or seven out of ten temples one could hear the sound of revolving cases turning. Lynn White 12) concludes that this was not the result of increased scholarly activity but an attempt at what he calls 'mechanised piety'. To the untutored Western mind it may indeed seem unworthy of true religious feeling if prayers or sentences reminding of a spiritual reality are constantly repeated, let alone not by oneself but by a mechanical device. The passage in the New Testament, "But when ye pray use not vain repetitions as the heathen do : for they think that they shall be heard for their much speaking" was assuming that the devotee wanted to emphasise a petitionary prayer expressing a wish by repetition which may perhaps have been the case at the time are circumstance when this injunction came into being. But the Roman Catholic Church later introduced the repetition of the Lord's Prayer and of "Hail Mary" together with the rosary which itself had been a Buddhist meditation aid long before a dream revealed to St. Dominic that it would be useful. Repetition with the help of a rosary needs concentration of mind, and therefore the mind during the practice cannot dwell on trivial everyday things. The purpose of the prayer wheel in any form is that of pulling the mind back to the spiritual sphere of life, even during everyday activities. Even if it is not pushed by a human hand and driven by water, wind or hot air, as we shall see later, it is seen turning by passing pilgrims and people going about their business. A prayer wheel turned by the wind can stand in

quite a lonely place on mountain sides but even if nobody ever sees it, it brings merit to the person who built it. The circular movement in itself is symbolical of the apparent motion of the sun 13) or, in modern terms the circular movement of the earth. It reminds the followers of Buddhism of the first turning of the wheel of the Dharma at the Buddha's first sermon in the Deer Park of Varanasi and the other two turnings initiating the *Mahāyāna* and the *Vajrayāna*. It may also be felt by practitioners to reflect the turning of wheels in the body as taught in Yoga and Tibetan medicine, but the prayer wheel belongs chiefly to the popular sphere of worship like the ceremony of circumambulation which goes back to early times of Buddhism in India and South East Asia. Western psychologists warn that constant repetition of a mantra may lead to self-hypnosis and trance but there are beneficial trances like the *jhānas* gone into after training, and harmful trances where the balance of the mind may be upset. This depends on the capabilities and past experience of individuals and the guidance they receive and accept. In the case of the prayer wheel, the rotation of the long strips of a repeated mantra pasted together, with which a deity is specially associated, is assumed to activate the power of sound 14), a tradition inherited from Hinduism.

Neither the earliest date for the large barrel prayer wheel, some of them 30 to 40 feet high and 15 to 20 feet wide (Zwalf, n. 14, *ibid.*, pp. 86-87) nor the earliest appearance of the hand-held cylinder-shaped prayer wheel have been determined in Western language literature. When are they first depicted on sculptures and in early frescoes or other paintings ? When do they appear first in state records or in liturgical or epic literature ?

While the revolving book-case may have been one inspiration, the prayer wheel driven by the wind is found in Tibet before the vertical-axle windmill reaches Europe. In Tibet windmills are used only for prayer. The first application of wind-power to prayer cylinders is entirely obscure (to Western research). Windmills are not found in China before the late 13th century and are solely applied to pumping or to hauling canal boats over locksides. 15) It is possible that the idea for using wind power for rotating prayer cylinders was inspired by the use of prayer flags fluttering in the wind and bearing religious messages in areas where shamanism and Bon had been practised at an early time. 16)

In Europe, the first vertical-axle windmill appears as a sketch in the unpublished notebook of the Italian engineer Mariano Jacopo Taccola datable 1438-1450 CE. 17) The European windmill before this was turning round a horizontal axle slightly tipped to one side and was

probably inspired by the geared horizontal-axle watermill. (Lynn White Jr., n. 7, l.c., p.519.) The likelihood that Taccola's device with a vertical axle was in fact of Tibetan origin is confirmed by the appearance in Italian art at the time, of such motifs as the Dance of Death. 18) and the bat's wings of demons and devils from 13th century European paintings onwards. H.I. Horwitz and Berthold Laufer 19) have described Tibetan prayer drums with curved wind-vanes preserved in Western museums. Nowadays, the Savonius S-rotor which provides air conditioning in the form of the twirling ventilators on the roofs of motor-vans and refrigerated railway wagons are the lineal descendants of these.

Horizontal water wheels were also applied to rotate prayer cylinders in Tibet while water power had never been applied to revolving book cases in China. (Joseph Needham, n. 15, l.c., vol. IV, part 2, p. 552). Mongolian nomads in some cases used hot air to turn prayer cylinders in the draught above the fire place in their tents.

As often happens with inventions, the larger item is later followed by a smaller form of it as in the case of the clock and the watch or the cannon and the rifle, and subsequently the rifle and the pistol. The essential innovation in the hand-held prayer cylinder (Lynn White, n. 10, l.c., p. 49) which revolves on a pin stuck loosely into a handle, with a ring of shell or ivory between cylinder and handle (Zwalf, n. 14, l.c., 87) is a heavy ball or cube attached to the side of the cylinder by a chain, a cord or a leather strap which sets up a centrifugal momentum when the cylinder is turned on its axis. This device which maintains the rotation is called a 'governor' in modern technology. In the 1420s in Europe, Western technicians were much concerned with devices for helping mechanical crank motion over the "dead spot". This led to the exploration of possible forms of governors. In the drawing of a compound crank and connecting rod found in the manuscript of the work of an Italian painter and engineer, from between 1482 and 1501, a ball-and-chain governor on exactly the Tibetan model is found. (Lynn White, n. 10, l.c., p. 49). The painter was Francesco di Giorgio Martini (1439-1501) who was also military engineer at the court of Federigo, Duke of Urbino, the most famous condottiere, that is, military and city leader of his age. The manuscript in the Biblioteca Nazionale in Florence 20) is a version of Giorgio's *Trattato de architettura civile a militare* ("Treatise on civil and military architecture") which had formerly been part of the Strozzi Collection, 21) The mechanism in the sketch shows a flywheel with four spokes and four balls (governors) attached to them by short chains tautened by the centrifugal force. It was made use of for such things as,

How did the Tibetan hand-held prayer wheel reach 15th century Italy ? According to Lynn White (n. 10, i.c., p. 50) the answer is to be found in the slave trade which built up a population of thousands of so-called Tartar slaves in every major Italian city and reached its apogee in the middle of the 15th century. In the Italian records of the 15th century and later the word 'Tartar' was used loosely for the inhabitants of Central Asia, and generally for Mongolian invaders of countries to the West of Central Asia. A branch of the Mongolian tribes actually called 'Tartars' came to the Crimea during the Mongol invasion in the 13th century, 22) In the 14th and 15th century two Crimean sea-ports specially were colonies of Genua and Venice respectively; Caffa, later called Feodosiya, and Tana. Tana, at the mouth of the river Don near the modern Azov, was the gateway to the Far East and to the Chinese silk trade. In these cities, though slaves of many nations were being sold, the greatest number of them were from Buddhist Central Asia. Amongst them, the largest number came from the regions bordering Tibet and China on the north. 23) Some had been captured by pirates, some had been prisoners of war and some had been sold by their own families, the way children in Thailand are still being sold by poor families today. They were transported from Central and Western Asia to the Black Sea ports. There were many more women than men amongst them, and the majority ranged from eleven to twenty five years of age. Lynn White says : "Thus they brought with them detailed memories of their distant homeland." But in order that the principle of the hand-held prayer wheel should be transmitted to their Italian owners surely memories would not be sufficient : at least one actual prayerwheel must have been brought by a Mongolian to Italy. If it was true that all of them "came to the slave market almost naked" 24), then they would have been clothed in rags and hardly allowed to carry any possessions with them. However, if they could have carried anything at all one can well imagine that they would have carried the prayer wheel for their protection. Also, some slaves, perhaps sons and daughters of chieftains, may have been taken and sold with good clothes and a few possessions which may have increased their value. While most of them were employed to do domestic work, some became concubines, and some were observed by visitors acting as playmates for the little Florentine merchant princes. 25)

Another possibility is that Marco Polo had brought a prayer wheel to Venice. The fact that this is not mentioned in the account of his travels might be due to the person who wrote down what he told of his adventures not being interested in religious and art objects. In his last will in 1328, Marco Polo decreed that his slave who had been baptised Pietro should be freed and be made a Venetian citizen. It was the custom

with all slaves that their own names were replaced by Christian ones. If Pietro had accompanied Marco Polo from Central Asia he certainly could have brought his prayer wheel with him, and after his death it could have come into the possession of a wealthy Italian like Filippo Strozzi in Florence or the Duke of Urbino who might have kept it in their collections of curios. Seeing it one day could have inspired Francesco di Giorgio Marini's drawing which became seminal for Western technology.

NOTES

1. Peter Simon Pallas, *Sammlungen zur politischen, physikalischen und moralischen Geschichte der mongolischen völkerschaften*, St. Petersburg, vol. 2, p. 304
2. *ibid.* p. 335.
3. Julius von Klaproth, *Reise in den Kaukasus und nach Georgien*, Berlin, Hallisches Waisenhaus, vol. 1, 1812, p. 108.
4. *idem*, *Travels in the Caucasus and Georgia performed in the years 1807 and 1808*, London, Henry Colburn, 1814 translated by F. Shoberl, chapter 8.
5. James Bell, *A system of popular and scientific geography*, Glasgow, Fullerton and Blackie, 1832, vol. 5, p. 403.
6. John Lowry, *Tibetan art*, London, Victoria and Albert Museum, 1973, p. 79 and illus. 34.
7. Lynn White jr., Tibet, India and Malaya as sources of Western Mediaeval technology. *American Historical Review*, 1960, vol. 65, p. 520. I am indebted to Dr. Michael A. Sutton of the Newcastle upon Tyne Polytechnic for having drawn my attention to Lynn White's remarks on the subject.
8. L. C. Goodrich, The revolving book-case in China, *Harvard Journal of Asiatic Studies*, 1942, vol. 7, p. 133.
9. S. Levi and E. Chavannes, Quelques titres énigmatiques dans la hiérarchie ecclésiastique du Bouddhisme indien. *Journal Asiatique*, 11th series, vi, 1915, p. 308.

10. Lynn White jr., *Mediaeval religion and technology*, University of California Press, 1978, p. 86 quoting L. C. Goodrich, l.c., p. 161, n. 59.
11. Nanjio, *Catalogue of the Chinese translation of the Buddhist Tripitaka*, London, 1883, pp. 131-132, 137.
12. Lynn White jr. *Mediaeval technology and social change*, Oxford University Press, 1964 reprint of 1962 ed, p. 86.
13. William Simpson, *The history of the praying [sic] wheel*, London, Macmillan, 1896, p. 3.
14. W. Zwalf, *Heritage of Tibet*, London, British Museum, 1981, p. 87.
15. Joseph Needham, *Science and civilisation in China*. vol. 1, 1954, p. 245.
16. H. T. Horwitz, Ueber das Aufkommen, die erste Entwicklung und die Verbreitung von Windrädern. *Beiträge zur Geschichte der Technik und Industrie*, Berlin, 1933, vol. 22, p. 99.
17. Arturo Uccelli, *Storia della tecnica*, Milan, 1945, fig. 28. The original manuscript is in the Munich State Library, Cod. lat. 197, fol. 87r.
18. Jurgis Baltrušaitis, *Le Moyen Âge fantastique : antiquités et exotisme dans l'art gothique*, Paris, Armand Colin, 1955, p. 247.
19. Berthold Laufer, "The noria or Persian wheel", in *Oriental studies in honour of Cursetji Erachji Pavey*, ed. A. V. W. Jackson, Oxford, 1933, p. 238.
20. Codice Magliabecchiano, MS II, I, 141, fol. 96r. See Francesco di Giorgio Martini, *Trattato di architettura civile e militare*, edited by Corrado Maltese, Milano, Il Polifilo, 1967, volume II, plate 327, description on pages 501-502.
21. Allen Stuart Weller, *Francesco di Giorgio*, Chicago, 1943, pp. 268 and 271-2.
22. The Crimea Tartars were deported from there in 1944 by the then Soviet Union for alleged collaboration with the Germans who had occupied the Crimea from 1942 to May 1944. The Tartars were exonerated in 1967.

23. V. Lazari, "Del traffico e delle condizione degli schiavi in Venezia nei tempi di mezzo" in *Miscellanea di storia Italiana*, volume 1, 1862, pp. 470-471.
24. Leonard Olschki, "Asiatic exoticism in Italian art of the Early Renaissance. *Art Bulletin*, 1944, vol. 26, p. 105.
25. Iris Origo, "The domestic enemy. The Eastern slaves in Tuscany in the 14th and 15th centuries. *Speculum*, 1955, vol. 30, p. 321.