

Bow: Ancient Indian Science and Tradition

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Abstract

The bow and arrow have been significant weapons in ancient Indian culture, used not only for warfare but also in religious rituals, meditation, and traditional arts. This research studies various types of bows, their structure, uses, and the materials required for their construction, based on treatises such as Dhanurveda, Vishnudharmottara Purana, Agni Purana, and Kautilya's Arthashastra.

The study highlights different types of bows, their measurements, and the importance of materials such as wood, iron, horn, and silk used in their construction. It also elaborates on guidelines related to prohibited bows and bowstrings. This research brings out the historical, cultural, and scientific aspects of the bow in the Indian tradition.

Keywords: Bow, Types of Bows, Dhanurveda, Bowstring, War Skills, Bow-making, Ancient Weapons.

Introduction

The bow and arrow in Indian culture are not merely weapons of war; they represent a unique tradition, art, and science. From ancient battlefields to religious rituals, bows have played a prominent role. Their significance goes beyond physical protection and extends to spiritual and cultural dimensions. Ancient texts such as Dhanurveda, Vishnudharmottara Mahapurana, Agni Purana, and Kautilya's Arthashastra discuss in detail the types of bows, their structure, uses, and technical features.

Dhanurveda describes ten types of bows—such as Yogic Bow, Kriya Bow, Shalaka Bow, Jyaghat Bow, and Sangramik Bow—each designated for a specific purpose. For example, the Yogic Bow is used for meditation, while the Sangramik Bow is for warfare. Other treatises like Nitiprakasika and Vaijayanti Kosha provide additional classifications, reflecting high technical expertise of the period.

The materials used for bow construction are equally important. According to Dhanurveda, iron, horn, wood, gold, silver, copper, and steel were used for crafting bows. Bamboo, sandalwood, teak, and willow were considered ideal. Bamboo and cane from the banks of the Ganga and Vitasta rivers were highly valued. Bowstrings were made from silk, animal sinews, or tree bark.

Ancient texts also specify ideal measurements: a bow measuring four-and-a-half cubits is considered superior, four cubits is moderate, and anything smaller inferior. The grip portion must be smooth and rounded.

This research paper examines textual references to bows, their types, structure, measurements, and features. It reflects the perfect balance between ancient Indian warfare techniques, religious practices, and technical skills, revealing both the historical background and scientific perspective behind the bow.

The bow and arrow symbolized valor, discipline, and cultural expression. Through this study, we gain a deeper understanding of the cultural and scientific significance of this ancient weapon.

Types of Bows

In ancient India, bows and arrows were regarded as highly important weapons. Various texts mention their classifications. According to Dhanurveda, there are ten types of bows, referred to by the term Chāpa:

1. Yogic Bow – used for practice
2. Kriya Bow – used for aiming practice
3. Shalaka Bow – for shooting iron arrows
4. Jyaghat Bow – to cut the opponent's bowstring
5. Shramik Bow – for daily practice
6. Sangramik Bow – for actual warfare
7. Long-range Bow – for distant targets
8. Difficult-target Bow – for precise aiming
9. Vikarsha Bow – with a highly stretchable string
10. Phala Bow – for accomplishing specific tasks

Nitiprakasika classifies bows into two major types:

Shangra Bow – curved at three points

Vainava Bow – made by bending a four-cubit bamboo cane like a rainbow

Measurements of the Bow

According to Vasishtha Dhanurveda:

A bow of 5½ cubits is considered superior (used by Lord Shiva)

A bow of 4 cubits is suitable for humans

Width should be 3, 5, 7, or 9 fingers; widths of 4, 6, and 8 fingers are rejected

Vishnu used a 3½-cubit Shangra bow designed by Vishwakarma

According to Vishnudharmottara:

Wood bow of 4½ cubits – excellent

Bow of 4 cubits – moderate

Bow of 3½ cubits or less – inferior

Grip must be smooth and round

Vaijayanti Kosha mentions various bows derived by increasing the two-finger length of the four-cubit bow, such as Vidyadhara, Sharayudha, Gandiva, etc.

Materials for Bow Construction

Dhanurveda recommends:

Iron, wood, horn, gold, silver, copper, steel

Woods such as sandalwood, cane, teak, salmalia, bamboo

Vishnudharmottara suggests:

Bows of iron, horn, and wood

Bamboo bows should have bamboo bowstrings

Shangra bows should be decorated with gold patterns

Gold bows studded with diamonds and pearls

Horn bows plated with gold

Bamboo from the Ganga, and cane from the Vitasta river, are superior

Wood from autumn season is ideal

Agni Purana recommends:

Iron, horn, and wood

Four-cubit bow – superior

3½-cubit bow – moderate

3-cubit bow – inferior

Arthashastra mentions:

Tal-tree bows – Karmuka

Bamboo bows – Kodanda

Wooden bows – Drina

Prohibited Bows

The following are to be avoided:

Very old or raw bamboo bows

Worn-out, burnt, insect-infested bows

Bows made from low-quality wood

Bows with weak or excessively thick bowstrings

Bows with cracked or perforated structure

Such bows may break during use, fail in accuracy, or cause defeat in battle.

The Bowstring (Pratyanchā)

The string tied to both ends of the bow is called Pratyanchā, also known as Guṇa, Maurvī, Jīva, and Drina. It must:

Reach the ear when pulled

Produce a strong twang

Be made of durable material so it does not break during battle

According to various texts:

Dhanurveda: Three-ply string, representing Brahma, Vishnu, Mahesh

Silk is superior; sinews of deer (best), buffalo (moderate), cow (inferior)

Vishnudharmottara: Make strings from hide, mature bamboo, or tree bark

Arthashastra: Use murva fibre, arka, hemp, wheat-grass, bamboo, or animal sinews

Conclusion:

The bow and arrow symbolize ancient Indian culture, with importance extending beyond warfare into religious, spiritual, and cultural domains. This research highlights various bow types, construction materials, measurements, and scientific techniques from ancient texts such as Dhanurveda, Vishnudharmottara, Agni Purana, and Arthashastra.

The study reveals the advanced technical knowledge and scientific understanding embedded in ancient weapon-making traditions. The bow reflects the harmony of philosophy, craftsmanship, and martial preparedness in Indian civilization.

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