Chapter – 3

**DHANURVEDA- WORKS ON ANCIENT INDIAN ARTILLERIES**

The term *Dhanurveda* is generally used by Sanskrit writers to denote the artillery science. Many Sanskrit texts on epics, *Purāṇas* and *kāvyas* have references in detail about artilleries. Further there are texts on this specific subject, by the name ‘*Dhanurveda*’. A number of weapons like bow and arrow, sword, spear and mace are discussed in full detail in such texts.

The value and importance of the army were realized by ancient scholars very early in the history of India, and this led in course of time to the maintenance of a permanent armed force to put down dissensions. War or no war, the army was to be maintained, to meet any unexpected emergency. This gave rise to the *Kṣatriya* or warrior caste, and the *kṣātram dharma* came to mean the primary duty of war\(^1\). To serve the country by participating in war became the *svadharma* of the warrior.

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\(^1\) [http://War In Ancient India.mht](http://War In Ancient India.mht)
community. The necessary education, drill, and discipline to cultivate militarism were restricted to the members of Kṣatriya community. This prevented the militant attitude from spreading to other communities and kept the whole social structure unaffected by actual wars and war institutions. At that time the whole country looked upon the members of the Kṣatriya community as defenders of their country and thus did not complaint the high influence and power wield by the Kṣatriya, who were assigned a social rank next in importance to the intellectual and spiritual class of the society, i.e., the Brahmin hood.

Ancestors are very sensitive people, and their heroes were instructed that they were defending the noble cause of God, Crown and Country. Viewed in this light, war departments were 'defense' departments and military expenditure were included in the cost of defense. In many cases, ancient India was ahead of modern ideas. Ancestors knew the methods of making swords and new metal combinations. In ancient texts, Dhanurveda is the scientific word for the treatises on weapons. It narrates different
kinds of weapon. The main division of this book deals with archery. So it
is called *Dhanurveda*.

A variety of weapons are mentioned *Dhanurveda* texts. From ancient India, a number of texts were available on *Dhanurveda* which deal with ancient artillery. But most of these writings are now not available in full. Some texts on *Dhanurveda* have referred to the advantages of artillery as follows.

दुष्टद्धूचौराणिन्यः साधुसंरक्षणं तथा ।
धर्मतः प्रजापालनं धनुवंदस्य प्रयोजनम्॥
एकोषिस्य प्रजने प्रसिद्ध: स्याद्धनुधर्यः: ।
ततो यान्त्यरयो दूरान्मृगाः स्याद्धनुधरः ॥

In *Dhanurveda*, the importance of warriors in a society is highlighted in this verse. The above verse narrates that a good soldier can ensure the security of a society. So the soldiers have an important role for the social security. Hence practicing and training of weapons are of much important and it is the actual advantage of *Dhanurveda*. Ancestors were aware about the importance of weapon and its training. So they were trying to develop new weapons as and when it is needed in each part of

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1 Vasiṣṭha’s *Dhanurveda samhita* p-3, see also *Dhanurveda* p 24-25
ancient India. Almost all of our ancient books, *Vasiṣṭha’s Dhanurveda samhita*, *Śukranīti, Agnipurāṇa* and the like contain narration about weapon manufacturing and its training. Hence ancient writers in Sanskrit wrote not on spirituality alone but on warfare and the like also.

Many of the scholars are equally known in both the fields of spirituality and warfare. Mention may be made of Vasiṣṭha, Viśvāmitra, Paraśurāma, Kaśyapa, Parāśara, Śāṅgadhara, Bharata and Garga. All these writers are well known in both fields of spirituality and material world alike. The ancient Sanskrit books to a great extent refer to a variety of new weapons. These weapons are generally used in wars. Sanskrit texts mention different types of weapons and the methods of manufacture and usage of weapons.

Most of the scholars of ancient India considered *Dhanurveda* as the branch of *Yajurveda*. *Prasthānabheda* of Madhusudana swami considered *Dhanurveda* as a branch of *Yajurveda*.1 *Śukranīti*,2 *Nītiprakāśika*3,

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1 Prasthānabheda p 7, see also Dhanurveda p26
2 Śukranīti chapter 4 śloka 278
3 Nītiprakāśika p 5
Kodāndamandana\textsuperscript{1} and the like consider Dhanurveda as the upaveda of Yajurveda. According to Vasiṣṭha, on the other hand, Dhanurveda is considered as the branch of both Yajurveda and Aṭhavaveda.\textsuperscript{2} Because the Pracaraṇa of Dhanurveda is from Yajurveda and that of the knowledge about the divine weapons is adopted from Aṭhavaveda. So it can be concluded that Dhanurveda is also connected with Aṭhavaveda also.

There are a number of commentaries available on Dhanurveda. Mahābhārata, Agnipurāṇa, Prasthānabheda of Madhusūdana sarasvati and the like refer vivid pictures of Dhanurveda. These books divide Dhanurveda into different divisions. The scholars of ancient India divided Dhanurveda into four pādas. According to the Dhanurveda samhita, dīkṣa, saṃgraha, sidhā and prayoga are the four pādas of Dhanurveda. The dīkṣāpāda gives instructions on the principles. The saṃgrahapāda contains the rules for collection and sidhīpāda describes the ways of casting bows. The prayogapāda tells about the application of the

\textsuperscript{1} Kodāndamandana 1-3

\textsuperscript{2} Vasiṣṭha’s Dhanurveda samhita p 3
weapons.¹ According to Nilakanṭhiya, the commentary of Mahābhārata by Nilakanṭha, mantramukta, pāṇimukta, muktāmukta and amukta are the divisions of Dhanurveda.² According to Agnipurāṇa, chariot, elephant, horse and cavalry are the divisions of Dhanurveda.³ Nītiprakāśika divided Dhanurveda as mukta, amukta, muktamukta and mantramukta.⁴ All these divisions are based on some particular areas of the science of artillery.

**Angas of Dhanurveda**

According to the Ādiparva of Mahābhārata, saint Śaradva was an exponent of Dhanurveda. He taught Dhanurveda to Kṛpa and Kṛpa taught Dhanurveda to his students. Mahābhārata also narrates that Parasurāma taught Dhanurveda to Droṇa and Droṇa taught it to his students, Kauravas and Pāṇdavas. Sage Agastya was also an expert in Dhanurveda and he taught it to Agniveśa.⁵

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¹ Vasiṣṭha’s Dhanurveda samhita p 3
² Mahābhārata Ādiparva adhyāya 72, śloka 220
³ Agnipurāṇa 249/1-3
⁴ Nītiprakāśika 2/11/24-25
⁵ Purāṇic encyclopedia p 617-619
Mahābhārata, Agnipurāṇa and the like texts narrate the angas of Dhanurveda. According to Mahābhārata, Dhanurveda have ten angas and four caranas.

आदानमध्य सन्धानं मोक्षस्य विनिवर्तनम्
स्थानं मुष्ठिं प्रयोगश्री प्रायश्चित्तानि मण्डलम्
रहस्यश्रेति दशधा धनुर्वेदाङ्गमिष्य्यते॥ २

The above verse of Mahābhārata narrates the ten angas of Dhanurveda. They are, ādāna, sanḍhāna, mokṣaṇa, vinivarttana, sṭhāna, muṣṭi, prayoga, prāyaścitta, mandala and rahasya.

Agnipurāṇa narrates, Dhanurveda as having five angas, yantramukta, pāṇimukta, Muktasandhārīta, amukta and bāhuyuddha.

Yantramukta means using weapons by the help of machines. It involves kṣepini, bow machines etc. Pāṇimukta means using the weapons by the hand, stone, mace etc. Muktasandhārīta means which can be used by either throwing or holding it. Kunta is an example for the Muktasandhārīta type of weapons. Which is used by not renouncing from the hand, is

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1 Mahābhārata, śalyaparvam 6, śloka-41
2 Mahābhārata Ādiparva adya 72, śloka 220
3 Agnipurāṇa 249/3-6
4 Purānic encyclopedia p 617
known Amukta. Sword is an example for it. Bāhuyuddha means fighting by hand without using any weapons.\(^1\)

Some other scholars classified Dhanurveda into two, depending upon the classification of astra and śastra\(^2\) and which is again classified into ṛju and māyā. From these classifications and narrations of Dhanurveda, one can assume that Dhanurveda and weaponry was one of the most relevant subjects in ancient time.

**Classification of weapons**

According to Dhanurveda weapons are divided into four kinds as per the use of such weapons.

चतुःर्विधायुधं मुक्तमुक्तं मुक्तामुक्तं यन्त्रमुक्तश्चेति।

\(^3\)

*Mukta, Amukta, Muktāmukta and Yantramukta* are the main types of weapons. Mukta means which is released completely from the user. The Mukta type of weapons can be thrown by hand. Discus is an example.

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\(^1\) Dhanurveda p18-19  
\(^2\) Purānic encyclopedia p 617  
\(^3\) Vasiṣṭha's Dhanurveda samhita, p 4
Amukta type of weapons cannot be released from the hand. The weapons like gadā, śūla are best examples. Weapons which are sometimes released are called Muktamukta. Spear is an example of this variety. Weapons hurled with the help of machines are called Yantramukta and catapult ball is an example for this. Karamukta is again classified into Yantramukta and Mantramukta. For example archery is Yantramukta and Brahmāstra is Mantramukta.

In Yuktikalpataru, weapons are classified into two types. They are nirmāya and māyika. The sword, bow, arrow, ardhacandra, nārāca, paraśu, cakra, spear, parikha etc are included in nirmāya group of weapons. Dahanāgni [fire], water and taptataila (boiled oil) were included in māyika group of weapons.

In Śukranīti weapons are classified into two main groups. They are astra and śastra.

अस्थतेष्यविते यत् मन्त्रयन्त्राय्यिशिर्य यत् ।
अस्थं तदन्यतः शशं असिकुतादिकं तथा ॥
यदा तु मान्त्रिकं नास्ति नालिकं मान्त्रिकं तथा ।
यदा तु मान्त्रिकं नास्ति नालीकं तत्र धारयेत् ॥”

1 Kalāvidya vivaraṇam p 216
Weapons which are used by the help of mantra, yantra or fire are called śastra and other types of weapons are generally called astra. Astra type of weapons is again classified into two, ie. nālikam and māntrikam.

**Types of Battle**

According to the usage of weapons ancient scholars classified battle into different type. Śukranīti classified battle into daivikam, āsuram mānavam and bāhuyuddha.

The above verses of Śukranīti narrate four type of battle. They are daivikam, āsuram, mānavam and bāhuyuddha. The divine weapons are used in daivika type of battle. Nālīka type of weapons are used in āsuram and that of śastra and astra type of weapons are used is mānavam.

Bāhuyuddha is the fourth type of battle in Śukranīti.

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1 Śukranīti 4/ 53-54, see also Dhanurveda p 23
According to Agnipurāṇa battle is classified into five. They are yantramukta, pāṇimukta, muktasandhārita, amukta and bāhuyuddha.

धनुशेष्ठानि युद्धानि प्रासमध्यानि तानि च ।
तानि खड्ग जचन्यानि बाहुप्रत्यवराणि च॥¹

In this verse of Agni purana describes four types of battle. The battle which is fought by using dhanus is considered uttama and that of using prāsa is considered as madhyama type battle. Using khadga to fight in a battle is adhama and bāhuyuddha is considered as adhamādhama.

According to Vasiṣṭha, battle can be classified into seven as per the types of weapons used in it.

धनुश्रं कुन्त च खड्गं च शुरिका गदा
ससं म बाहुयुद्धं स्यादेव युद्धानि सस्था ॥²

The above verse of Vasiṣṭha narrates the seven ways of fighting. They are by using bow and arrow (archery), discus, spear, gada, dagger, mace and dvandvayuddha (wrestling). In Śukranīti, battle is classified into four, i.e. uttama, madhyama, adhama, adhamādhama. Astra group of

¹ Ibid p 24, see also Agni purāṇa chapter 7 p 249
² Vasiṣṭha’s Dhanurveda samhita p5
weapons are used in battle with the support of mantras. This is the best
class of war – *uttama* and the gun used in that war can be called
*madhyama*. Śastra group of weapons (spear) are considered as *adhama*
and that of *Bāhuyuddha* (wrestling) is *adhamādhama*. Besides these
varieties of battle another two types of battle are mentioned. They are
*Māyayuddham* and *Rājayuddham*. Weapons which are released by the
help of a string are called *Yantramukta*. *Tomāram* is released by hand,
such is known as *pāṇimukta*. From these narrations, one can safely
conclude that ancestors who have gone through with minute details of
warfare and artilleries have provided a clear picture about ancient Indian
warfare. War and weapon manufacturing is very closely related with their
day to day life.

**Teachers**

In *Dhanurveda*, the quality of Ācārya is explained in a verse. He
should be efficient in the seven types of battles.

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आचार्यं ससयुः स्यात्मुर्मिभार्गवं स्मृतः
द्राम्यां चैव भवेदद्रोहा एकेन गणको भवेत् ॥¹
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¹ Vasiṣṭha’s *Dhanurveda samhita* p4
Those who knew seven ways of fighting are entitled as Ācārya and he who teaches the art of warfare is called as Ācārya. He who is accustomed with four ways of fighting is known as Bhārgava. Who knows only two type of fighting is Yodḍhā (warrior) and the person who knows only one type of fighting is termed as ganaka. Bhārgava is a brahmanical family name commonly found in Punjab and Utharpradesh. So it is difficult to say whether the name is derived from the sage Bhṛgu or the teacher expert in four types of warfare.

Divisions of weapons by casts

Besides this classification of weapons on the usage of weapons, each weapon is again classified into a variety of classes. This mentioned in the following verse-

बर्दाणाय धनुर्दैयं खड्गं वै क्षितर्याय च ।
वैश्याय दापयेत् कुः गदाय शूद्राय दापयेत् ॥

1 Vasiṣṭha’s Dhanurveda samhita p 5
The Brahmins use archery; Kṣatriyas use khadga (sword), Vaiśya use kunta (spear) and śūdra use gadā (mace) respectively. From the above verse one can understand the priority given to weapons by ancestors. The lower communities were engaged in making of weapons while the upper classes and saints were the theoretical authors of artillery science. Almost all scholars accept the classification of weapons by cast. There was no different opinion about the classification. From this information, it is also revealed that the cast system has domination in ancient Indian society.

**Methods of teaching archery**

*Dhanurveda* also narrates training of weapon in detail. It deals with the training of student and also describes the ideal time and place for starting training.

आचार्यं धनुदैःं ब्राह्मणं सुपरीक्षते
लुम्बे धूतेः कृतघ्ने च मन्दबुद्रो न दापयेत् ॥ ¹

The Ācārya will teach the science of archery only to the Brāhmans who have successfully come through the tests and they should not be greedy,

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¹ Vasiṣṭha’s *Dhanurveda samhita* p5
ungrateful and foolish people. From the above verse, it is clear that ancient scholars tried their best to avoid some communities from weapon trainings.

**Auspicious time for training**

हस्तः पुनर्वसुः पुष्यो रोहिणी चोत्ररात्रयम् ।
अनुराधास्थिनी चैव रेवती दशमी तथा ॥

The above verse of *Vasiṣṭha’s Dhanurveda samhita* narrates the ideal time for starting weapon training. The weapon training may be started after the keen observation of *nakṣatra, tithi, day* etc. The ideal time for initial teaching and learning of archery is found with some auspicious tithi and stars-*hasta, punarvasu, puṣya, rohiṇi, uttaraphālguni, uttarabhādrape, uttarāśāda, anurāda, aśvini, revati*. Learning archery will be fruitful when the moon is present in one’s zodiacal sign of *lagna* or occupies its third, sixth, seventh, tenth or eleventh position. Also the book tells that learning archery on the third, fifth, seventh, tenth twelfth and thirteenth lunar day *titḥi* is very auspicious. They believed that Sunday, Thursday and Friday are

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1 Ibid p6
good for starting the learning. To start with the teaching the Ācārya should submit offerings to deities and also should arrange for putting up an oblation of fire, where an offering of clarified butter is made along with chanting hymns. The disciples should offer feast for the Brahmins and virgins and should also worship the hermits or yogins who are the ardent devotees of lord Śiva. Thereafter the disciple should salute his teacher by offering food, garlands, clothes and ornaments. The student who is on fast should wear the deer skin and with folded hands begs the teacher to teach him archery. The teacher then in order to destroy the evils and sins and also to bring success to his disciple, should touch different parts of the body along with recitation of different Vedic hymns or mantras as mentioned by lord Śiva. Then the teacher prays to lord Mahādeva to dwell at the crown of his head or palate, lord Kṛṣṇa at his arms, Lord Brahma on the navel and lord Gaṇeśa on the thighs. The teacher then offers the bow to his disciple after purifying it with the hymns mentioned in

*Dhanurveda.*
As referred to in the texts on war science, Brahmins are authorized to deal with bow and arrow. It indicates the fact that even Brahmin was engaged in battles. At least a section of Brahmins must have engaged in wars. In Kerala there are some Brahmins who are not entitled to study Vedas. They are known as \( \text{śastradvija} \)- Brahmin with weapon. In Malayalam, they are known as \( \text{cāttiras} \). Sanghakali or \( \text{cāttirānga} \) was an interesting art form performed by such Brahmins.

**BOW AND ARROW**

In our ancient texts *Dhanurveda* is used as the scientific term for the treatises on weapon in general. The main division of *Dhanurveda* deals archery. So it is called *Dhanurveda*. Archery is the main part of *Dhanurveda*. Different types of bow and arrows are dealt with in it.

**Materials for bow**

Metal, wood and horn of some wild animals are used for good bow. Gold, copper, silver etc. are the metals commonly used for the manufacturing of bow. Sandal and bamboo are the commonly used.
Bamboo is the most commonly used wood. Šarabha’s (a kind of animal) horn is also said to be used for making bow.

The bow made of bamboo having odd joints like three, five, seven and nine are always considered auspicious. And the bow having four, six and eight joints should be discarded.

\[\text{Vasiṣṭha’s Dhanurveda samhita p11}\]
Measurement of Bow

Bow is the most important weapon of the ancestors in everywhere in the world. A variety of bows and arrows are referred to in Dhanurveda. The bow is classified into two major divisions.

प्रथमं यौगिकं चापं युद्धचापं द्वितीयकम् ।
निजवाहुवलीन्मानात् किमिदूनं शुभं धनुः ॥1

The two types of bow are *yaugika* and *yuddhacāpa*. *Yaugika* or composite bow is made up of horn, wood and sinew and is mainly used for practice. *Yuddhacāpa* is for fighting. *Dhanurveda also* gives importance to the archer [bow man]. If the archer is troubled by the bow, he can’t see and shoot the aim easily. Hence the size of the bow should be proportional to the size and health of the archer. The length of the common man’s bow should always be shorter than the divine bows.

The bow measuring five and a half *hasta* is recognized as the best. This type of glorious and best bow was in possession of Lord Mahādeva.

The measure of most auspicious and suitable bow for common man’s use

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1 Vasiṣṭha’s Dhanurveda samhita p10
is four hastas. Twenty four angulas make one hasta and four hastas make one bow.

According to some authorities the bow should measure nine vitasti (ie. $4\frac{1}{2}$ Cubits). Vitasti is the distance between the wrist and the tip of the fingers and is said to be equal to 12 angulas or about 9 inches.²

**Bows which are not useful**

The text also discusses about the bows which are not suitable for use. One should not use very old fragile bows and also the bows made up of unseasoned and unripe bamboo or cane and also the bow, which had earlier been used in the family by the ancestors. The bow without string and the bow encompassed with string should be avoided.

Vasiṣṭha says:

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¹ Vasiṣṭha’s Dhanurveda samhita p 11
² Ibid p 12
अतिजीर्णमपकश्च ज्ञातिधृष्टमतः च।

dagdhyApritam kartaṃ bhālabhāvyataraśtuṣṭakam || ¹

One should not use very old fragile bows and also the bows made

up of unseasoned and unripe bamboo or cane and also the bow which

had earlier been used in the family by the ancestors. The burnt or

perforated bow should also be avoided.

गुणहीनं गुणाकर्यन्तं काण्डदोषसमिन्वतम्।
गलाग्रन्थिः न कर्त्त्वम तत्मये तथैव च || ²

The bow without string and the bow encompassed with string should

be avoided. Due to the defect in the stem, joints may appear at the neck

and also at the bottom of the bow. Such bows should not be used.

अपव्रें भव्यमायाति हा तिजीर्णतु कर्त्त्वम्।

झातिद्रूष्यं तु सोद्धमं कलहो बान्धवैः सह || ³

The bows made up of unripe bamboo break up easily. Bows made up

of very fragile bamboo do not possess the elasticity. Hence these are

considered to be of inferior quality. Again bows used by the family

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¹ Vasiṣṭha’s Dhanurveda samhita p12
² ibid p12
³ ibid p 12
ancestors should never be used, since these may bring dispute among friends.

**String**

String is one of the important parts of a bow. Bow is tied up at both ends with a strong cord. It is named as string or *guna* or *jyā* in Sanskrit.

\[
\text{गुणानां लक्षणं वक्ष्ये यादूशं कारयेद्गुणम्} \|
\]

\[
\text{पद्मनबं गुणं काये निगमानसम्मितं} \|
\]

\[
\text{श्वेतक्ष्रियुणं तत्तुर्भि} \|
\]

\[
\text{वर्तितं स्यादूरुणं शश्वतं सर्वकर्मसहो युधिः} \|
\]

The above verses of Vasiṣṭha’s *Dhanurveda samhita* explain the qualities of string. The good string is made up of silken thread, which is twisted to the thickness of the little finger and its length is equal to that of bow. The string should be pure, polished and without joint. Three strings are taken and twisted in such a way that it becomes neither too thick nor too smooth and has a thickness equal to that of little finger. This string can sustain strain during battles. If silk is not available, the sinew of deer, buffalo or bull can also be used for making bow strings. The freshly killed

\[1 \text{ibid p15}\]
hide of cow or goat devoid of hairs is made into threads. The bowstring made out of this thread is considered as best.

प्रासे भाद्रपदे मासि त्वगर्न्त्त्य प्रशस्यते ।  
तस्यास्तत्र गुणः कार्यों न विचः स्थावरो दृढः: ॥ ¹

The above verse narrates the ideal time for choosing bow string. In the month of *bhādra pada*, when bark of sun plant matures the fine threads of its skin can be taken out to make a fine bowstring. It will be lasting too.

**Arrows**

One of the most important and powerful part of archery is the arrow. An arrow usually consists of a shaft with an arrowhead attached to the front end, with fletching and nocks at the other. The size of arrow varies greatly across cultures, ranging from eighteen inches to five feet. The shaft is the primary structural element of the arrow, to which the other components are attached. Traditional arrow shafts are made from lightweight wood, bamboo or reeds, while modern shafts may be made from aluminum, carbon fibre reinforced plastic or composite materials.

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¹ Vasiṣṭha’s *Dhanurveda samhita* p 16
Composite shafts are typically made of from an aluminum core wrapped with a carbon fibre outer\(^1\).

\[\text{Different types of Arrows}\]

The arrowhead or projectile point is the primary functional part of the arrow, and plays the largest role in determining its purpose. Fletching are found at the back of the arrow and provide a small amount of drag used to stabilize the flight of the arrow. They are designed to keep the arrow pointed in the direction of travel by strongly damping down any tendency to pitch or yaw. Ancestors had done a great research in this field, so that

\(^1\) http://en.wikipedia.org/wiki/Arrow
there are sufficient descriptions of different type of arrows. A variety of arrows are used to achieve different target.

The arrows are mainly classified into three. They are male, female and neuter. The classifications are under the range of defeating the aims. The male type is able to pierce an object placed at a long distance. The female type is a fast runner and the neuter type is helpful in practicing archery. Again the arrows are classified by the purpose. These classifications vary in each part of ancient India.

**Nature of Arrows**

*Dhanurvēda* of Vasiṣṭha refers to arrows as follows-

अतः परं प्रवक्ष्यामि शराणां लक्षणं शुभम्।
स्थूलं च नातिसूक्ष्मं नोपक्षं न कुभूमिजम्॥¹

Arrow should not be too thick or too thin. It should also not to be the product of vile land.

हीनग्रन्थिविदीर्णं च वर्जयेदैवश शरम्।
पूर्णग्रन्थि सुपक्रं च पाण्डुरं समयाहतम्॥¹

¹ *Vasiṣṭha’s Dhanurveda samhita* p16
The arrow should be made out of matured pale yellowish reed plants. Odd number of joints like few trim is preferred. Also it should not be weak or split. The reed which is round but hard and which has been grown in a favorable place may be accepted. The arrow should measure a length of two cubits or five angulas. In thickness it should be equal to that of the smallest finger. A curved arrow should be made straight. The feathers of cow, swam, brown hawk, peacock, vulture, osprey are excellent for fetching the arrow. Length of these feathers should be six angulas, but for arrows of šarnga (lurn) bow, feathers of ten angula have been recommended. These should be tied strongly with sinew and thread at the rate of four feathers per reed arrow.

**Division of Arrows**

Arrow heads are known as phāla in Sanskrit. The shape of phāla is of many kinds. They are -

आरमुखं धुरप्रश्चं गोपुर्णं चार्ध्वं चछं ।
सूचीमुखं भल्लं वत्सदन्तं द्विभल्लकः ॥

1 ibid p16
The above verses narrate different type of arrows. The shapes of arrow heads vary according to different regions. As per Dhanurveda they are, Ārāmukha, Kṣurapra, Gopuccha, Ardhacandra, Sūcīmukha, Bhalla, Vatsadanta, Dvibhalla, and Kākatunda. Ārāmukha or serrated arrow head is similar to an owl and Kṣurapra, razorblade, gopuccha, cow's tail, Ardhacandra, crescent shaped, Bhalla, a spear headed, Vatsadanta, teeth of a calf, Dvibhalla, two pronged, Karṇīka, petal of a flower, Kākatunda, beak of a crow respectively.

The Ārāmukha can cut through the skin, while Kṣurapra used for cutting up arrows of the enemy or aiming at his hand. Gopuccha is good for general aim ardhacandra can cut through enemy’s head, neck and bow. The Sūcīmukha can pierce the armor of the enemy and Bhalla pierces enemy’s heart. Vatsadanta is used for cutting up the bowstring.

Dvibhalla is used for entangling enemy’s arrow, karṇīka is used for cutting

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1 Vasiṣṭha’s Dhanurveda samhita p18
up the arrow made up of nārāca (iron) and Kākatunda can pierce any unpiercable object. Gopuccha is a different type of arrow of which the head is made up of sapless wood and has got a thorn of three angulas length fixed at its tip.

**Applying poison over arrow head**

Ancestors made poisoned arrows to defeat their enemies. They were well aware about making of poisoned arrow heads.

The above verse narrates the method of Phālāpāyana. The technique of applying poison on arrowheads is called the Phālāpāyana. Phālāpāyana is done to harden the edges of the metals fitted with the arrow heads. It is done by the applications of pastes of certain plants on the arrowheads or shafts. These poisonous arrows are able to pierce even unpiercable iron armor of the enemy.

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1 Vasīṣṭha’s Dhanurveda samhita, p 20. Sea also Rgveda 4, 75,15,87.6, Atharva Veda 4 .6, 5.18.8-15, 5.31.4
The application of juices of poisonous plants was used for making poisonous arrow heads. When the colour of the white red plant turns yellow after receiving rain water on the day of svāti nakṣatra, its root becomes poisonous. This root, if applied on the arrow heads acts as fatal for enemies. The best way to recognize the plant is that it trembles always, even when the wind is not blowing\(^1\).

\[
\text{पिप्पली सैन्धवं कुष्टं गोमूत्रे तु सुपेषयेत् ।}
\]
\[
\text{अनेन लेपयेच्छखं लिसं चाय्य्रू प्रतापयेत्॥}
\]
\[
\text{शिख्रुह्रवानुवर्णांशं तस्फीतं तथौषधम्}
\]
\[
\text{ततस्तु विमलं तोयं पाययेच्छखानुतमम्॥}
\]

The above verses of Dhanurveda provide some techniques of phālāpāyana (making poisons arrow). The Peepul tree’s bark along with saindhava (rock salt) and kuṣta (costus, a medicinal plant) should be mixed with cow’s urine. The paste should be smeared over the arrow heads and then it should be heated in fire till it becomes blue in colour like the peacock’s neck, then it has the poisonous effect. It should be washed

\(^1\) Vasiṣṭha’s Dhanurveda samhita, p19
\(^2\) ibid p 20
in water then, and such arrows can pierce the strongest enemy. From this it can be safely concluded that ancestors had tried even to make poisoned weapons to defeat their enemies.

**Nārāca and Nālika**

सर्व लोहस्तु ये बाणा नाराचास्ते प्रकृतितः।
पञ्चभिः पृथुलैः पक्षैरुप्तः सिद्धवस्तिः कस्यचित्।

1

*Nārāca* and *Nālika* are the other two important types of arrows. *Nārāca* is the name of those arrows which are entirely made up of iron.

Five big feathers remain attached to *nārāca*. It is a very strong type of shaft, only a strong and skilled archer can use it.

नालीका लघवो बाणा नलयन्तरे नोदितः।
अत्युद्दूरपातेषु दुगर्युद्धेषु ते मतः।

2

*Nālika* are shot through tubular instruments. These arrows can be shot at a great distance from high places and especially useful in the siege craft.

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1 Vasiṣṭha’s *Dhanurveda samhita* p 21
2 *ibid* p 21
**Lakṣya (Aim)**

In the texts of *Dhanurveda*, there is an apt reference about the aim also. Aims are four in number.

लख्यं चतुर्विधं ज्ञेयं स्थिरं चैव चलन्तथा।
चलाचलं द्वयाचलं वेधनीयं कर्मेण तु॥

The above verse narrates about the aim. The aim is classified into four – *sthira*, *sacala*, *calācala* and *dvayācala*. Firstly the archer should stand still in front of a still object and then practice. If he becomes able to pierce the object in three different ways, then only he will be *sthirabhēdi* (archer- expert in piercing still object).

When the archer stands still and able to pierce an unsteady object under instruction of the teacher, he will be considered as *calabhēdi* (able to pierce

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1 *Vasiṣṭha’s Dhanurveda samhita*, p26
unsteady object). When the archer is himself in a moving or walking condition and tries to pierce a steady object, then it calācala but this is a very difficult position. When the shooter and his aim both are in moving state and the archer shoots his aim, then he is dvayacala. This can be learnt only through a hard labour and practice. Through labour and practice one learns to shoot perfectly and quickly.

One becomes a successful citrayodhi and can win battles only through industry. To become a perfect archer one should practice archery only under the guidance of a teacher. Sanskrit texts mention a variety of weapons, the production, teaching methods and the place and time of learning arms in detail. From this we can safely conclude that our ancestors were well aware of not only spiritual but also physical world and the problems of the society life.

**SWORD- The royal weapon**

Sword is a long, edged piece of forged metal, used in many civilizations throughout the world, primarily as a cutting or thrusting weapon. Sword fundamentally consists of a blade, a hilt, and a cross
guard, typically with one or two edges for cutting, and a point for thrusting\(^1\).

In ancient times, sword was considered as the Royal weapon. In

*Dhanurveda* sword is attributed to *Kṣatriyas*. "खड्गं वै क्षत्रियाय च".\(^2\) According to the *Agnipurāṇa*, sword is born from the *yāgāgni* (sacred fire) of Lord Brahma.\(^3\)

\(^1\) [http://en.wikipedia.org/wiki/Sword](http://en.wikipedia.org/wiki/Sword)
\(^2\) Vasiṣṭha’s *Dhanurveda samhita* p5
\(^3\) *Dhanurveda* p116
Divisions of swords

Ancient scholars divided sword by its shape, length, weight, colour, smell and the like. Gargacarya, Parasara, and Kasyapa had classified sword by its length\(^1\). *Auśanasa Dhanurveda* classified sword into four by its shape. He says:

अग्रपृथुमूर्लपृथुः संक्षिप्तमध्यः समकायश्रेति खड्गाश्चाध्विन्धा: वेदितवयः ।

पिण्डित: पत्रा इति तेषां द्विविध: कायो भवति एकधारो द्विधारः ॥\(^2\)

From the above statement of *Auśanasa Dhanurveda* one can understand that sword is classified into four by its shape. i.e. Agrapṛthu, *Mūlāprthu*, *Samkṣiptamadhya*, *Samakāya*. The Agrapṛthu type is big shaped sword, *mūlāprthu*’s width is less than that of its edge. In other words its sharpened edge is very thin and narrow. *Samkṣiptamadhya* has a narrow middle portion than its edge. *Samakāya* has same width in its all parts.

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\(^1\) *Kalāvidyāvivarana* p 231

\(^2\) *Dhanurveda* p 117
Besides this classification, there are many other types of swords, they are śūlāgra, samāgra, mandalāgra, gojihvāgra, paraśvāgra, kutilāgra and the like. The edge of some sword is in round or śūla shape, which is considered as the best type. The shape of the sword blade must be the shape of cow's tongue or the bamboo leaf.

Auśanasa Dhanurveda also classified sword into three by its length. They are laghu khadga, madhyama khadga and uttama khadga. Again these three types are divided into five varieties. The classification is based on the size of the sword. Kriya, maraka, māra, mārgastha and citratālita are the divisions of lakhu type swords. Sukhasancāra, sukhasannāhyā, madhyama, atimadhyama and uttama are the divisions of the madhyama type swords. Durdharṣa, vijaya, sunanda, nandana and sreṣṭha are the divisions of the uttama type of swords.¹

शतार्यमुगलात्व तु श्रेष्ठः खड्गः प्रकीर्तितः ।
तद्धो मध्य संज्ञाकं ततो हीनं न धारयेत् ॥ ²

¹ Dhanurveda p117
² Kalāvidyāvīvāraṇaṃ p 231
This verse narrates the acceptance of good sword. According to the length, sword is also classified into three. If the sword has a length of 50 angulas; it is very precious and famous. This sword is considered as uttama (best). If the length of the sword is about 25 angulas, it is not good and it must be avoided. The length in between 25 to 50 angulas is considered as the madhyama or second category.\(^1\) According to Gargācārya, the sword which has a length of 50 angulas is the best one and that of the length in between 25 to 50 angulas is the madhyama or secondary type. The sword which has a length below 25 angulas is adhama or the bad one.\(^2\)

According to Parāśara muni, if the length is 40 angulas, that type is the best sword and if length is 30 angula, it is madhyama (secondary) type. If the length is 25 angulas, it is adhama type of sword.\(^3\) From the above references it can be concluded that the sword must have at least a length of above 25 angula.

\(^1\) Kalāvidyāvivarānam p 231  
\(^2\) Ibid p231  
\(^3\) Ibid p231
तस्मान छेदयेतु खड्गं आत्मने शुभदं यतः।
निखर्षणे: प्रमाणस्य: कायों वेन शुभो भवेत् ॥

In the above verse, Kaśyapa says that for adjusting the length, the sword should not be cut. It is not proper. If it is needed to adjust the length, use the whetstone of the Blacksmith. In Brhatśamhitā there is a discussion about the sword’s length. If the owner of the sword cut the sharpened end of the sword, it may cause the death of his mother. And if he cut the back end of the sword, it causes his own death. The Agnipurāṇa, Brhatśamhitā. Parāśara samhitā also warn that never use sword for a mirror and never took the sword from the cover without any purpose².

According to the smell, the swords are again classified. If the sword has the smell of ghee, jasmine flower, or rutting juice, it is considered as the Uttama (best) type of sword. The sword with the smell of the fat in flesh muscle or cow’s urine is the adhama (worst) type. Such type of sword must be avoided. The sword having the smell of blood, salt etc. is also not good.

For empowering the performance of the weapon some special

1 Kalāvidyāvivaraṇam p 231
2 Ibid p 231
methods are used while manufacturing time. This is called pāyana kriya.

Some methods are mentioned here

क्षारे कदल्या मधितेन युक्ते दिनोषिते पायतमायसं यत् ।
सम्यक्क द्वितं चाश्मिन नेित भङ्गं न चान्यलोहेष्विपि तस्य कौण्ठयम् ॥¹

The above verse of BrhatSamhita narrates the pāyana of sword.

The ashes of plantain are mixed with butter milk and preserve it for one day and night. Then the ignited sword from the furnace should dip into the butter milk and plantain ashes mixed liquid. Such sword is highly hard and is considered as good.²

Considering the mark on them, swords are again classified as best and bad. The sword having the length of viṣamangala and the mark of flower of kūvalam in Malayalam, saravam, ātapatram, kundalam, lotus flower is very auspicious. According to Varāhamihira the marking in the sword like the eagle, kite etc. is not good.

अंगं रूपं तथा जातिरित्रयिति भुमिका ।
ध्वनिर्मात्रिति प्रोक्तं खङ्गजानायकं शुभम् ॥³

¹ Dhanurveda p 125
² Kalāvidyāvivaranam p 232
³ Dhanurveda p 127
The above verse of Yuktikalpataru deals with the eight guṇas of sword. They are anga; rūpa jāti, netra, arīṣṭa, bhūmi, dhvani and māna.

**Anga**

अभिषेक्षे दृश्यते यातृक् विभिन्न घटिते तथा ।

यदेव दृश्यते चिह्नं तद्भगं संप्रचक्षते ॥

The above verse of Yuktikalpataru narrates the anga quality of sword.

The anga is the marking or symbol which spread all parts of the sword.

_Lohārṇava mentions_ that about hundred types of angas.\(^2\) Čāndī, savarṇa, hāthi, eraṇṭa, damana, sthūla , anga, krṣṇa, aruṇa, śveta, kamala, gadā, tila, agni, pippalī, granṭhī, sṭhīra, titara, māla, jīraka, bhramara, ūrdhva, mirca, sarpa, khotā, mora, kajjala, madhu, kṣudraka, makhī, tuṣā, jau, cāvla, alasī, saraso, simha, taṇṭula, gau, śīrā, śvalinga, nakha, magaramaccha, aksi, keśa, upala, droṇī, kāka, kapāla, pankha, tuvari, bimbī, phala, puṣpa, nīla, rakta, baca, lahasuna, sumāna, jimgī, śamī, rohita, proṣṭhī, māriṣa, markava, khura, bijāli, meṣa, adri, gujjā, marjārika, ketakī, mūrva, vajra, kalāya, campaka, bālā, vaṭa, bāmsa, śālavṛkṣa, jyeṣṭī,

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\(^1\) _Dhanurveda_ p 128  
\(^2\) _ibid_ p129
jālā, pipīlikā, bala, raja, kuṣmāṇṭa, roma, spṛhi, karkandhu, bakula, rasāla, mahiṣa, svacchāṃga, ṛtu and cakra are the angas¹.

**Rūpa (colour)**

नील: कृष्णः पिशाँग्रं धूम्रंबेति चतुर्विध: ||
वर्णप्रकर्षः खड्गानं कथितो मुनिपुङ्गः: ||²

*Rūpa* is the colour of the sword. It is divided into four, i.e. *nīlam*, *kṛṣṇa*, *piśangam*, and *dhūmrām*. Mixing of two colours is known as *sankaram*. The mix of three colours is known as *triparam* and that of four colours is known as *caturam*.

**Jāti (class)**

ब्राह्मणः क्षत्रियो वैश्यः शूद्रेऽति चतुर्विधः ||
जातिचेदो चिन्तिदितः खड्गानं मुनिपुङ्गः: ||³

The above verse of *Dhanurveda* narrates the different *jāti* of sword.

The sword is divided into four *jāti* (cast) - *Brāhmaṇa jāti*. The Brahmins used the sword which have the good voice, colour, *jāti*, *rūpam* etc. this type of sword is called *Brāhmaṇa khadga* (sword). *Brāhmaṇa khadga*

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¹ *Dhanurveda* p 129
² Ibid p 128
³ Ibid p 129
reflects sun light and which may cause the fire in grass. But the user will have no effect on the heat. This type of sword is the best. The sword which has more strength and is in smoke colour and hard voice is known as \textit{Kṣatriya jāti}. \textit{Vaiśya jāti} is the sword with blue or black colour and this is very common in earth. Actually this type of sword is used in day to day purposes. The colour of \textit{Śūdra jāti} sword is like the black cloud. The wound by this sword causes not much pain. Actually this sword is not in used in war. From the above gradation of the sword it can be assumed that weapons for the lower communities were not much useful. Actually the first two types of swords, Brāhmaṇa and \textit{Kṣatriya jāti} were useful for fight. The other two types are for daily purpose. Ancestor’s attitude towards cast is revealed here. Ancestors have a tendency to achieve good weapons and equipments for their own purpose and that of with less quality were given to the lower communities.

\textbf{Netra}

चक्रं पद्मां तथा खड्गो डमरुधनरुक्कुः ।  
छत्रं पताका वीणा च मत्स्यलिङ्गध्वजेन्द्रवः ॥
The above verses of Dhanurveda narrate netra quality of sword. Netra is another important marking in the sword. The netra type is not spread all part of the sword, which is seen only in one place on the sword. According to Dhanurveda there are thirty types of netra in the sword they are cakra, padma, gada, śankha, damaru, dhanus, aṃkuśa, chatra, patāka, vīṇa and the like.²

**Ariṣṭa (marking)**

Ariṣṭa is a type of marking in the sword. Ariṣṭa also have thirty classifications. They are chidram, kākapadam, rekhā, bhinnam, bhekam, mūśika, viṭāla, śrkara, nili, maśaka, bhṛṅga, sūcaka, trivindava, kālika, dārī, kapota, kāka, kharpara, śakalī, kroṭī, kuśa, putraka, jālika, karāla, kanka,
khajura, srnga, puccha, khanitraka, hala, śūrpa, batarī and the like. The presence of Ariṣṭa in a sword is good. But two types of ariṣta in a sword is better. According to the scholars seven types of ariṣtas are possible in a sword.

**Bhūmi**

Bhūmi is another important quality of the sword. There are two major divisions in bhūmi, i.e. divya and bhauma. The divya types have prasastānga and good netra and also have good voice. The bhauma type is very thick. Bhauma again classified into two vridhaharita kalam and sudham. This is mentioned in Vṛdhaharita samhita.

पूर्व महेश्न विषाणि यानि भुक्तानि तेषां पतितास्तु बिन्दवः।
यस्मिन् प्रदेशे स एव देशः कलायसामाकरतां जगाम॥
पुरामृतं कीरसमुद्रवध्याद उत्पाद्य संगृहा ययुः सुरेन्द्रः॥
तद्विद्वो यत्र निपेतुरेष शुद्धायसामाकरतां जगाम॥

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1. Dhanurveda p 129-130
2. Kalāvidyāvivaranaṇam p 234
3. Ibid p 235
4. Ibid p235, see also Dhanurveda p 154.
The above verses deal with the origin of sword in a mythical way. There is a belief that, while lord Śiva drunk the kālakūdam poison, some drops of the poison fell on some places in the earth and they in turn became hard iron ore. At the time of churning the milky ocean some drops of amṛta fell on some places and that is the best type of iron, which has the colour of camphor.

वाराणसीमगधसिंहलभूमिभागे नेपालभूमिपु तथाइगमहःप्रदेशे ।
सौराष्ट्रकन्यतरधन्यमहीिवभागे शुङ्खायसां कृतिवरा: प्रवदन्ति जन्म ॥१

From the above verse one can understand that the ancient people had a clear and sufficient geological availability of core of iron. They know very well about the mining and ore of metal. The above referred verse mentions the places where iron ore are available in India, Srilanka and Nepal. From it, it can be known that Vārāṇasi, Magadha, Simhala (Srilanka), Nepal, Angadēśa, Saurāṣṭra are the places of good iron ore. By using the iron ore from Vārāṇasi for making sword, it should be more hard and easy to use. Iron from Magadha is also very hard and using iron from

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¹Dhanurveda p 154
Nepal for making the sword helps to maintain good shape. Swords from Kalinga are of much weight and size. There are four type swords made in Srilanka. First type is very nice shape, other one is heavy. Third type sword is very hard and the last one is easy to handle.  

**Dhvani (echo)**

The *dhvani* (echo) is one of the classification criteria (*guna*) of the sword. Here echo means the voice of the sword. Nāgārjuna muni mentions eight types of *dhvani*. They are-

हंसकांस्ये तथा मेघः ढक्का काक्ष्य तन्त्रिका।
गर्दब्ध: प्रस्तृतेश्व्र ध्वनिनिर्मितविद्वःस्मुतः। ॥

Hasta, kākāsyā, megha, dakka, kāka tāntric (string of veena), garddabha (donkey), aśman (stone) are the main divisions of *dhvani*. The voice of the sword is similar to above noted voices. If the sword has the voice of the first four, i.e. hamsa, kāmsya, megha, and dakka type of sword is good.

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1 ibid p 155
2 Dhanurveda p 156
The sword which has the voice of \textit{kaka}, \textit{tāntric}, \textit{garddabha} and \textit{aśman} (stone) are not good.\footnote{Dhanurveda p156}

\textit{Māna}

The next classification criteria of \textit{khadga} are \textit{māna}. The word \textit{māna} mentions weight of the sword. By the weight, the sword has two major divisions-\textit{uttama} and \textit{adhma}\footnote{ibid p157}. A large sword having less weight is considered as good and a small sword having much weight is considered bad. The quality of a sword is measured in \textit{Kalpataru}, less weight, length, width and strength and the like are the qualities of a good sword. Shortness and high weight and so on are the bad qualities.

\textbf{Usage of sword}

Some of the ancient \textit{Dhanurveda} texts narrate the sword demonstrations. \textit{Nītiprakāśikā}, \textit{Mahābhārata}, \textit{Mānasollāsa}, \textit{Bharatabhāvadīpatīkā} and the like have given instructions about the usage
Bharatabhāvadīpātikā gives instructions about the usage of swords as follows.-

मण्डलाकारतः खड्गश्रमणं भ्रान्तमुच्यते
तदेव बाहुनुमयं कृतमुच्यतम्।
श्रमणं स्वस्य परितः खड्गस्याविद्धमुच्यते
परप्रयुक्तशाल्लस्य वाराणार्थिमिदं त्रयम्॥

The above quoted verses provide a clear picture about the usage of the sword. Using the sword in an orbital shape is known as bhrānta. Using the sword in bhrānta type in the upward direction is known as udbhrānta. Using the sword in bhrānta type in all direction is known as āviddham. The above mentioned types of usage are for blocking enemies sword beat.

According to Nītiprakāśikā, there are thirty two types of usage of sword. They are bhrāntam, udbhṛāntam, āviddham, āplutam, viplutam, sritam, samyātam, samudīrṇam, nigraham, pragraham, pādāvakarṣam, sandhānām, śirobhramaṇam, bhujabhramaṇam, pāśam, pādam, vibandham, bhūmi, udbhramaṇam, gatam, pratyāgatam, ākṣēpam, utdhānakam, plutam, lākhavam, sauṣtam, śobha, sthiratvam,

\footnote{Dhanurveda p164}
Attacking techniques are generally known as *aplutam*. Touching the body of the enemy by using the edge of the sword is known as *prasrta*. *Gaḍitam* is that of beating the enemy by using deceitial method. Using the both sides of two enemies is known as *parivartam* and that of the usage of the enemies back part is known as *nirvāṇa*. *Sampātam* is the another type of usage of sword. Here the soldiers beat towards by using sword in equal speed and strength. In *sampāta* one person may get more strength or victory which is known as *samuderṇṇa*. *Bhrānta* is the usage of sword in to the enemy’s body part. *Kauśika* is the usage of irregular paths.

**CHURIKA (LONG SWORD)**

The *Churika* is the Sanskrit name of urumi (*Malayalam*) and it is a long sword made of flexible steel; sharp enough to cut into flesh, but flexible enough to be rolled into a tight coil. Originated in Kerala, it was popular in the North Malabar cost of Kerala state, India, and is often mentioned in the ballads of

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1 *Dhanurveda* p159-160
the region. It was later spread to Rajasthan and Punjab.¹ The *Churika* is still used in Indian martial arts, particularly in *Kalaripayat*. It was practised as a final device in the training because of the dangerous nature. The weapon is called *urumi* in northern *Kalaripayat* and *cuttu vāḷ* in the southern style². The word *cuttu vāḷ* is derived from the Malayalam words *cuttu* (coil/spin) and *vāḷ* (sword) and thus means coiled sword. The sword is a flexible band of steel three-quarters to one inch in width, and long enough to reach from the fingertip of one hand to the fingertip of the other hand when the hands are held outstretched (usually about four to five and a half feet). It has a small handle with a cover. Often there are multiple belts on a single handle, which makes it more dangerous to the opponents and wielders alike. In modern times it is often made from used band-saw blades. Ability and skill are much needed to master this weapon rather than strength or aggressive power. Twirling and controlling the *Churika* is a difficult and dangerous task, and is therefore taught only to the best pupils of the *kalarī*. Incorrect use of this flexible sword can result in the wounding of its wielder, and great concentration is required during use, even by experts.

¹ http://en.wikipedia.org/wiki/Urumi
²ibid
The *Churika* is most useful against multiple opponents. When not in use, the *Churika* is worn around the waist like a belt. Since women often wore it in belts. It is a convenient weapon for them to carry. Uṇṇiärca, one of the heroines of the ballads of the Northern Malabar coast was said to have been an expert at wielding the *Churika*. It was also a good weapon for duels since thrusting with the point of the sword was not permitted in duels in South India. In ancient India
Churika was not used in battle. The books Nītiprakāśika, Mānasollāsa, Aparājītapriccha, and the like have narrated the weapon Churika.

The above verse of Aparājītapriccha narrates quality of Churika into seven. They are kumāri, Lakṣmi, śanghinī, tundakā, pāpinī, śubhagā, and lakṣa. The sword has a length of six angula which is considered as kumāri and that of seven angulā Lakṣmi. The sword having a length of eight angula is śanghinī and that of nine angulā, tundaka. Swords, a length of ten angulā, pāpinī, eleven angula, śubhaga, twelve angulā, lakṣa.

According to Mānasollāsa, māntrika is the best type of Churikā. The total length or measurement of the Churikā is calculated and it is named as

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1 Dhanurveda p166
2 ibid 166-167
3 ibid p 167
4 Ibid p 167
aȘu, Lakmi and mṛtyu. Āyu and Lakṣmi type Churikā are considered as useable and the third one mṛtyu should be avoided.¹

From the above information it may be safely concluded that ancestors were well aware about Churikā battle and its manufacturing. The classification of Churika is different from each region of India. But there is no clear evidence of the usage of Churika in battle. Churika was used as a personal weapon against a group of enemies.

**KUNTA – The weapon of Vaiśya**

The kunta (spear) is attributed to Vaiśya in Sanskrit archery texts.² From the already quoted verse in Dhanurvēda, it can be realized that kunta was particularly for the Vaiśya community. The weapon includes a long stick and sharpened blade. The blade fixed on the one end of a long stick is called Kunta. Ancient archery texts also narrate kunta and its divisions. Auśanasa Dhanurveda, Nitiprakāśika, Šukranīti, Arthaśāstra of Kautilya, Rājavijaya and Mānasollāsa have discussion about Kunta.

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¹ ibid p 167
² Vasiṣṭha’s Dhanurveda samhita p 5
According to Auśanasa Dhanurveda, bamboo and sandal are good for making Kunta’s staff. If the length of the staff is seven hasta, it is considered as the best one and if the length is 6 hasta it is the madhyama type and if it is 5 hasta, the adhama category. Two types of metals are used to make the blade of Kunta. Metal from Puṣkalāvarta and Vinothi are used for making the blade. Metal from Vinothi is very hard and that of Puṣkalāvarta is soft. Soft metal is used to make the knife and hard metal is used for making the edge. Ancestors identified soft and hard metals from the sound. Soft metal produces high frequency of sound.

According to Šukranīti, Kunta should have a length of ten hasta and the blade should be made of iron. According to Śukrācārya the length of the long

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1 Dhanurveda p 94
2 Ibid p 96
3 Ibid p 99
staff must be seven hasta. Sandal, bamboo etc. are good for making the stick. If the length of the stick of Kunta is seven hasta, it is good and if six, it is called madhyama type. If the length is about 5 hasta, it is called adhama type. The blade which is fixed at the end of the stick is made up of iron. And iron from China is considered good for making the blade. The iron from China is said to be very hard.

The shape of the blade should be like the leaves of bamboo and such other leaves. The knife is classified under its measurement of 16 angula length, 2 angula width and thickness must be of two yava. This type of blade is the Uttama. The madhyama (second) type is that of 14 angula of length 1.5 angula of width and one yava of thickness. The adhama (third) type is that of 12 angula of length one angula of width and 0.5 yava of thickness. Good voice, softness, pleasant smell, good colour and the like are the qualities of the blade or tip of a good Kunta.¹ There is a belief that if the voice of the Kunta is similar to the voice of a golden vessel, that weapon is good. ² The colour of this weapon should be similar to the colour of the moon, which is considered beneficial in war.

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¹ Dhanurveda p 96
² Kalāvidyāvivaraṇam p238
According to the variation of measurement, Kunta is classified to three, Uttama, Madhyama and Adhama. The weight of a Kunta is about 60 pala, which is considered as the Uttama (best) type and if the weight is about 50 pala, it is considered as madhyama (second) type. If the weight is about 40 pala, it is considered as adhama (bad) type.

According to Nītiprakāśika, kunta is made up completely of metal. Kunta of a length of five hasta is considered as good. According to Rājavijaya, Kunta should be 11 hasta of length, 9 hasta long sārbala, 7 hasta long bhala and 5 hasta long Kṣēpiṇi. According to Kautilya’s Arthaśāstra, the face of Kunta, sakti, prāsa, hataka, bhintipāla, śūla, tomāra, varāhakarnaknaya, and karpana must be very sharp. Kunta should be made up by hard metal. The tip of kunta must be like the leaves of bamboo or similar trees. It must be a length of 4 hasta and praśa must be a length of 19 angula.

According to Kautilya, Kunta having a length of 7 hasta is good and that of 6 hasta is madhyama. The Kunta having a length of 5 hasta is considered as adhama type. According to Mānasollāsa, Kunta is of three different types. The cavalry used Kunta having a length of 7 hasta. Kunta

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1 Dhanurveda p93
2 ibid p 99
3 ibid p 99
having a length of 6 *hasta* is used by soldiers on horse. *Kunta*, with a
length of nine *hasta* was used the soldiers on elephant.¹

**PRĀSA**

*Prāsa* is a weapon similar to *kunta*. This weapon is shorter than
*kunta* in size. Generally a *Prāsa* is of a length of seven *hastas*.² The staff is
covered with metal. One end of the staff is sharpened. So both ends of
*Prāsa* can be used to attack or to throw.

**ŚŪLA**

*Śūla* is a weapon similar to *kunta*. The word *śūla* denotes *Trisula*.³

*Rāmāyaṇa*⁴ and *Mahābhārata*⁵ have narrations about *Trisūla*. The *śūla* of
Kumbhakarna is said to be made-up of iron and has a weight of more than
thousand *palas*. In *Nītiprakāśika*, *Triśūla* is named as *Pināka*. Its
sharpened edge is made-up of metal.⁶

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¹ *Dhanurveda* p100
² ibid P108
³ Ibid p 109
⁴ *Rāmāyaṇa Yuddhakāṇḍa* 101/30
⁵ *Mahābhārata khatolkhaca vaḍha* 179/57
⁶ ibid p 109
ŚAKTI

Śakti is a weapon similar to spear used in ancient times. According to the Auśanasa Dhanurveda, bamboo, devataru, metal or ivory are used to make the long stick of śakti. By the length of the stick, śakti is classified into three- uttama, madhyama and adhama. If the length of the stick is five hasta, it is good and that of four hasta, it is considered as madhyama type. If the length of the stick is about 3.5 hasta it is considered as adhama type.¹

GADĀ - The weapon of Śūdra

In ancient India Gadā type of weapon is attributed to the Śūdra community. The Gadā is seen used from a very ancient time. Ancient epics narrate gadāyuddha. Rāmāyana and Mahābhārata provide a clear picture

¹Dhanurveda p 104
about gadāyuddha. In Rāmāyaṇa, Hanuman is said to have used gadā in battle.

Mahābhārata also narrates Gadāyuddha between Bhīma and Duryodhana. Almost all of our ancient books have narrations about gadā. Agnipurāṇa, Śukranītī, Nītiprakāśika, Auśanasa Dhanurveda and the like deal gadā. In Agnipurāṇa 20th mandala deals with gadāyuddha.1 Mānasollāsa also narrates gadāyuddha.2

According to Auśanasa Dhanurveda gadā classified in to three- uttama, madhyama and adhama. The weapon having a length of 50 angulas is uttama and that of 40 is madhyama type. The gadā having a length of 30 or less is adhama.3 Auśanasa Dhanurveda has again classified gadā by its weight. The gadā having a weight of 1000 pala is uttama and that of 800 pala is madhyama. The gadā having a weight of 600 pala is considered as adhama type4.

राजविजये-

पञ्चाशंकुसुलो दण्डो दलेष्वकाङ्गुर्ला गदा ।
दलानि षोडशैव स्थु: कलशोइकुलिमात्रकः:॥५

In Rājavijaya, gadā having a length of 50 angula is considered good.

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1 Ibid p 173
2 Ibid p 177
3 Ibid p 173
4 Ibid p 174
5 Lakṣaṇa prakāśa, nāna yudha lakṣaṇam by Vīra mitra p325, see also Dhanurveda p174
According to Śukrācārya this weapon had eight angles. The gadā is the weapon of lord Viṣṇu. The gadā made up of both wood and iron. Soldiers used gada made up of iron and wood as per their health to bear the weapon. Mandalāghātam, Pratyāgātam is some methods of gadāyuddha. In gadāyuddha the soldier who revolving to his opponent or enemy is called Mandala. The soldier fought his enemies in a way of face to face is called gatam. The soldier changing his position from face to face in attack is called Pratyāghātam. Besides these three, there are a number of tricks in gadāyuddha. They are astra yantra; paridhāvana, abhdrava, ākṣēpa, avasthāna, savigraha, parivartana, samvartana, avapluta, upapluta, upanyasta, apnyastha, samthyāga, avadamśa, varāhodhutha, urolalātāghāta etc.

शुक्रनीतौ –

अष्टान्त्र पृथुबुधा तु गदा हृदयसमिता ॥

According to Śukranīti gadā had eight faces.

मानसोल्लासे-

गदां लोहयीं कुर्यांद् दार्सारयीं तथा ।

चनेन निर्मितां बापि रत्नकाश्चनभूषिताम् ॥

स्थूलोदरीं च स्थूलायां समदन्तं परां शुभम् ॥

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1 Dhanurveda p174
The above verses of Mānasollāsa narrate gadā and a variety of its application and manufacturing. According to Mānasollāsa gadā is made by wood or metal. Some times gadā is ornamented by diamond or such other precious stones. One side of it is big and the other side is sharp ended like a sword. Middle portion of the gadā is used to handle it. One can hold gadā either by one or both hands. A high physical power is needed to use the gadā.

1 Dhanurveda p177, see also Mānasollāsa bhāga 2,anga1 vimśati 4
The above verse of *Mahābhārata* narrate the different types of *gadāyudha*. *Mandala*, *Gātha*, *pretyāgātha*, *astra yantra*, *paridhāvana*, *abhidravana*, *ākṣēpa*, *avasthāna*, *avigreha*, *parivartha*, *samvartana*, *avapḷuta*, *upapḷuta*, *upanyasta*, and *kauśikan* are the main types of *gadāyudha*.

**DANDA (stick)**

The *Daṇḍa* (stick) is a weapon, which is very similar to *gadā*. Soldiers of a low rank in the army used *Daṇḍa* (stick). *Daṇḍa*, *parikha* or *mudār* etc. are used by soldiers in battle. *Gadā* and *daṇḍa* are similar in shape. The only difference is that *gada*’s one end is in sphere shape. *Athrava Veda*, *Rāmāyaṇa* and *Mahābhārata* have references about the usage of *Daṇḍa* in battle. In *Rāmāyaṇa*, soldiers of Sugrīva used *Daṇḍa* against demons. Śāṅtiparava of

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1 *Mahābhārata śalyaparvam adyāya 47, see also Dhanurveda p 178*
Mahābhārata narrates Daṇḍa. According to Mahabharata lord Śiva gave Daṇḍa to lord Viṣṇu. Then Viṣṇu gave Daṇḍa to Angiras and Angiras gave it lord Indra. Maṛića got this weapon from Indra and he gave it to Bhṛgu. Bhṛgu gave Daṇḍa to Rṣi and Rṣi gave it to Lokapāla. He gave it to Kṣupa and finally it reached Manu.¹

Ākāśabhairava, Aparājitapṛcchā and Nītiprakāśikā narrate Daṇḍa with equal importance of other weapons². Nītiprakāśika deals with Daṇḍa’s shape. According to this book, one end of Daṇḍa is a little bigger than the other end. And one end is covered with a metal ring. Nītiprakāśikā further narrates four type of usage of danda in battle³. According to mythology Daṇḍa is considered as the weapon of lord Yama⁴.

**War strategy**

In all our ancient Sanskrit texts there are descriptions of various kinds of military formations known as vyūha. From Aṭharvavēda we got first the technique of vyūha racana. Aṭharvavēda discussed about sarpa vyūha racana.⁵ Kautilya’s Arthaśāstra, Agnipurāṇa, Viṣṇudarmottarapurāṇa, Vīramitrodaya, Śukranīti, Dhanurvēda of Vasiṣṭha had detailed discussions

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¹ ibid p 180
² ibid p 180
³ Dhanurveda p181
⁴ Ibid p 181
⁵ Dhanurveda p243
about *Vyūha racana*. The major *vyūhas* are in the shape of *padma*, cakra, *ratha*, *sarpa*, *garuda*, *simha* and so on. This was the duty of the captain of the army to arrange the soldiers in various troupes for the victory. *Mahābhārata* has discussed such *vyūhas* in full detail. *Garudavyūha*, *Sarpavyūha*, *Śakatavyūha*, *Padmavyūha*, *Cakrayūha*, *Simhavyūha* and *Agnivyūha* are some important military formation in the war field. In *Rāmāyaṇa* Rāma arranged his armies in the form of *Garudavyūha* to defeat Rāvaṇa.

**Different Army Formations**

The greatest virtue of the *Kṣatriyas* is to fight in the battle and die. The most disgraceful for him is the death through disease and physical ailment. Various kinds of army formations are discussed in the texts of *Dhanurveda*. Some of them may be discussed in the next sections.

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1 *Dhanurveda* p243  
2 Ibid p243
Military Array

Each soldier, placed in the middle and having names which starts with yuvāsvara would come forward and fight. The king should keep two groups of armies on each side of him and one group at his back. One group of army should remain far and move here and there (mainly of vigilance).\footnote{Vasiṣṭha’s Dhanurveda samhita p66} According to svarodaya śāstras, certain alphabets in association with vowels turn into yuvāsvara. Person whose name begins with yuvāsvara plays a significant role in winning the battle.\footnote{Vasiṣṭha’s Dhanurveda samhita p 66}

Staff Array

In daṇḍa array, or staff like array, the commander-in chief remains in front, army –chief stays at the back. The king stands in the middle and has elephants on his both sides. Horses stand on each side of the elephants and lastly the infantry onside of the horse. If the enemy is all around then daṇḍavyūha should be created.\footnote{Ibid p 67}
Śakata (Car) array

In śakata or carriage array, a small part of the army stay at the front and large part at back. So as the car array give in a shape of vehicle. If there is apprehension of danger at the back then śakata or car shaped army formation can be arranged.\(^1\)

Varāha array

In Varāha or boar shaped array, a small group of army stays at the front and at the back, but remains a bigger number in the middle. If the danger is on the side ways, then Varāha or garuda shaped array is prescribed\(^2\).

Garuda array

Garuda array or bird array has almost similar arrangements as Varaha. The only difference is that it has greater number of armies in the

\(^1\) Vasiṣṭha’s Dhanurveda samhita p 67
\(^2\) ibid p 68
middle. If the danger is both from right and left sides, then Varaha or
garuda array should be arranged.\(^1\)

**Ant array**

A few armies should be take part in the battle and the major part
should move everywhere for vigilance. The cavalry should fight on the
plain. For fighting in the water one may ride the elephant, boat or *tumbi*.
The infantry can fight with the help of gun or bow and arrow after hiding
himself behind the tree or climbing on the tree. On the land, the army can
also fight with the help of shields, swords and spear. The warriors who are
skilled in war strategy should be kept at the forefront and the rest should
be kept behind. *Pipīlikā Vyūha* or ant array should be arranged if the attack
is on the front side.\(^2\)

**Padmavyūha**

The *padma vyūha* or *cakra Vyūha* refers to a military formation
narrated in Hindu epic *Mahābhārata*. The *Cakravyūha* or *Padmavyūha* is a
multi-tier defensive lotus-like formation, used by Droṇā, commander-in-

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\(^1\) *Vasistha’s Dhanurveda samhita* p 68  
\(^2\) *Ibid* p 68
chief of the Kaurava army after the injury of Bhīṣma. The formation is similar to a blooming lotus, since when viewed from the top the warriors at each interleaving position would be in an increasingly tough position to fight.¹ The Cakravyūha or Padmavīya was a special formation and only a few exclusive Pandava warriors, namely, Abhimanyu, Arjuna, Kṛṣṇa, Aniruddha and Pradyumna, knew how to lead an offensive attack against it. However to the Pāṇḍavas disappointment, Aniruddha and Pradyumna did not participate in the Mahābhārata war. Additionally, Arjuna's son Abhimanyu knew how to penetrate the Padmavīya but was not aware how to exit the formation. Abhimanyu was unaware how to escape from the Padmavīya. He was thus killed in Kurukṣetra war trying to break free from the Padmavīya. Mahābhārata also has references wherein the rules of war were broken by Kauravas to kill Abhimanyu. After Abhimanyu penetrated the sixth tier of spiral formation, all the Kaurava warriors attacked him in unison, though the main killer was Jayadratha. It was against the rules of Dharmayuddha that multiple warriors should not attack a single warrior

¹ [www.wikipeadia.the](http://www.wikipeadia.the) free encyclopedia/padmavīya
According to Droṇā, if this array of army formation constructed during the absence of Arjuna and Kṛṣṇa, then the war would come to an end as Droṇācārya could easily defeat the Pandavas. Further, Drōṇā was aware that only Kṛṣṇa and Arjuna could break a Padmavyūha formation and he was not aware of Abhimanyu's ability to break this formation. Arjuna was called away by the Samśaptakas, a group of warriors under the King Suśarma of Trigarta, who had sworn to kill Arjuna or lose their lives to the last man. Hence, Droṇācārya was astonished to see Abhimanyu advancing in Padmavyūha successfully.

**Animals in War**

In ancient warfare, animals had a great role to achieve the victory. Basically man used the animals and birds, for passing messages and transporting weapon from one place to another. Horses and elephants are used generally in the warfare.

The birds have an exclusive role in battle. They are passing the secret message in the warfare. To all battle groups, there is a collection of
birds for sending the message. The birds are doing the spy works in ancient warfare. They got special training for this. The high speed of horse and strength and big figure of elephant are the causes for using them in war. They got better training to face the war situation.

**Training of the horses**

In many texts on artillery, the training of horses is presented.

मण्डलं चतुरसङ्ग्ध गोमृत्वश्राटे चन्द्रकम् ।

नागपाशुंक्रेमणैव श्रामयेत् कटपश्रुकम् ॥

*Arthaśāstra* of Kautilya provides with a detailed account of the various movements employed for the various training of horses. ²The above verse describes the training of horses. They are movements circular, squire crescent shaped, cow’s urine shaped and snakes or sizing shaped, and then it will not be difficult to tackle it in battle field. The horse should also be trained to pull the chariots on the plane.³

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¹ Vasiṣṭha’s *Dhanurveda samhita* p 73
² Kautilya’s *Arthaśāstra* book 2 chapter30
³ Vasiṣṭha’s *Dhanurveda samhita* p 73
Training of elephant

The large size and strength are the main reasons that man used elephants in war. The utilities of elephants are narrated as follows.

गजानां पर्वतारोहणं, जलगमनं, धावनं, उत्थानम्।
उपवेशनं, अलातचक्रादिभितिनिवारणं कार्यम्॥¹

Arthaśāstra of Kautilya deals with the training of elephants in detail.² The military training of the elephants consists of mountaineering, moving through water, running, jumping rising sitting etc. The elephants should be made fearless by putting up fire circles.

From the information provided in this chapter, it can be safely conclude that ancestors gave very keen attention in weapon manufacturing, its training and practice. From the very beginning man used weapons for self protection. Stone, long stick, horn and the like were his weapons. Later on, however, man used weapon for his domination among

¹ ibid p 72
² Kautilya's Arthaśāstra book 2 chapter31
the various groups of the society. For that he developed new weapons of mass destructive power. Bow and arrow, sword, kunta, gadā and the like are his major weapons. Invention of fire and archery were the milestones of his development. Dual fighting was changed into group fighting. Here the concept of army arises. Gradually fighting techniques and rules were also formed. Then they began to use mass destructive weapons. For the sake of victory, they began to apply certain tricks in making of weapons. Poisoned arrows and such other tricks were applied by the warriors. The greediness of the power hungry men led them to engage in frequent battles. They popularized the message of patriotism through their sermons, in order to achieve the full fledged participation of the warriors in battle. The concept of vīramṛtyu and mythological beliefs haunt the warriors to engage in battle. The weapon manufacturing is a continuing process. Always they tried to develop more and more powerful weapons. There is a gradual change in the weapons from the beginning to the modern age. Some of the ancient weapons are mythical weapons like sudarśana cakra,
pāśupatāstra and the like. They called these as divine weapons. Actually these weapons are the product of ancestor’s imagination.