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Traditional Agriculture Tools of Kashmir

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Abstract

Tools matter in agriculture. Without them agriculture is not possible. Whether it is sowing of seeds or harvesting crops tools play crucial role in every operation of cultivation. They make the hard task of farming easy for cultivators. Given their enormous role in the agricultural activities this paper makes a modest attempt to study the tools peasants traditionally used in agriculture in Kashmir. So far as the methodology employed to develop this paper is concerned, besides primary literature such as archeological evidences and written accounts, we have consulted secondary sources to get required knowledge about tools. Field work and interaction with the users & makers of tools living in villages proved rewarding; the live scenes of tools being utilized to crack soil in the open fields showed that tools mediate man to negotiate with mother earth for survival. No less help has been taken from traditional knowledge coded in folklore & fables.

Key Words: Agriculture, Crops, Cultivator, Land, Tillage, Food, Village, Implement.

Introduction: The traditional tool kit of cultivators in Kashmir was prepared in tune with the requirements of work at the field. It included more than half a dozen tools. The tools were made in accordance to the land form, crops cultivated and the material available. Procurement of tools was an important issue. The woods used for tool making were put in water then made bone dry so that after turning it into required tool the wood do not shrink. It was a general practice to use the wood procured previously a year or two ago. Fresh material was avoided. Different parts of the same tool were made out of different plant types. For example the sole of the plough was made of *tul* (mulberry), the handle of *kiker* (acacia), the yoke of *brimji* (celtis australis), the pole of *poshu* (yew) or *cheeru* (apricot), and the pegs of *kiker* wood. The strength of the stuff and the exertion at the time of use were main reasons for selecting different woods.

What is interesting to know that all tools were manufactured locally by carpenters (*chhan*) and iron smiths (*ahangar*). They were an indispensable component of village social structure. They were present in all localities and in lieu of their services they were paid in kind [rice] at the harvesting season. Even the tools of the smiths were also manufactured locally. Traditionally there was an established system of tool manufacturing and sale. The shrines served markets where tradesmen stalled their products and the rural folk bought

them. It was a certificate of durability of a plough or a hoe, yoke or a handle (*dun*) to have been brought from such places. While the implements were not in use during off season every care was taken for their safety. It was always avoided to keep them in the open. Continuous sunshine and rains destroyed the material of these tools and shorten their life span.¹

Use of wood was the common peculiarity of the tools. The woods used included mulberry (*tul*) apricot (*cheru*), yew (*posh*), cellis australis (*brimij*) and birch (*burza*). Baring a few, all these plants were grown in the agriculture land of the cultivators. It was only *posh* and *linu* that were brought from the forest. These woods were light, soft, strong and durable. The metal used in these tools was iron. It was produced locally in the neighbourhood of Sof village. Sof iron was regarded superior to the iron imported from India for the purpose of agricultural implements, and the blacksmiths always spoke of it most favourably.² Besides using a black substance like fossil peat blacksmiths used coals to mould the raw iron into various tools. These coals were available in abundance.

The tools conventionally used in agriculture in Kashmir were:

Tillage Implements

Plough (*albain*). Plough is believed to have originated somewhere in the lands between Egypt and Persia and spread gradually thence over much of Europe, North Africa and the east. The earliest evidence we have of plough comes from Mesopotamian cylinder seal at Ur and Egyptian paintings going back to rather before 3000 BC.³

It is interesting to know that in many of the older civilizations the origin of the plough is attributed to a god of some legendary character. According to a Chinese myth Shen Nung the heavenly husbandman was a sage emperor who lived in the 3rd millennium BC and taught his people the use of plough and the cultivation of cereals.⁴ In India plough is ascribed to Balarama who is also called haldhar.⁵ In one of the verses of *Nilamata Purana*, Baladeva is said to have broken forth Himalayas with plough.⁶

Scholars who have worked on technology hold different opinions regarding the origin of plough. Some have maintained that all ploughs are derived from the hoe,⁷ some claim it to be the elaboration of the digging stick,⁸ while others believe that it derived from the spade.⁹ On the other hand Francesca Bray, Haudricout and Delamree considered plough as an independent invention rather than a development of a simpler tillage tool.¹⁰

It is generally believed that plough was developed as a result of the adaptation of a digging-stick or of a hoe, so that it could be dragged continuously through the ground.¹¹ This viewpoint is also subscribed by authors like Clive Ponting who writes 'the earliest ploughs were simply an enlarged digging stick dragged by a single animal or a pair of oxen'.¹² There is all probability that it would have passed through the various stages of evolution. Leaving plough aside which is comparatively a most complex tool so far as traditional tool kit of agriculture is concerned, other tools like hoe and sickle so simple than plough also did not emerge independently and evolved from a simple curved tree branch [hoe] and flint.¹³ Besides an interesting point is that it is said that plough 'must rather have

been made by men-probably by the priests, for it was anciently said that the plough was the gift of the gods-as a means of increasing the production of grain for the purposes of taxation and export.¹⁴ The origin of the plough is far from clear. Its complexities indicate that it probably had a single centre of origin & diffused gradually through the rest of Neolithic Old World along with the idea of animal traction. It seems to have spread rapidly throughout West Asia, South Asia and Europe in the Neolithic and early Chalcolithic period.¹⁵ The invention of plough was an major land-mark in the history of agricultural. It was one of the leading implement associated with agriculture. It heralded an agricultural revolution.¹⁶ More and more land came under cultivation, production multiplied and population increased. Plough was the first application of non-human power in agriculture¹⁷ and humanity's first step towards the use of machine.¹⁸

Kashmiri Plough-Types, Sources and Importance

*We remember your many many favours
 Oh! Our beautiful plough
 We see you and feel hopeful and happy
 Oh! You my beautiful plough.
 You the bow of chandandar
 You the fairy and pearl of heaven
 All your enemies succumb and perish
 Oh! You my beautiful plough.
 Oh! You the smiling flower of flower garden
 Oh! You the bride of Land
 It is you that all afford to talk
 Oh! You my beautiful plough.
 Peasant's heart throb in your love
 Fondly he looks after you
 He places you on his head
 Oh! You my beautiful plough.
 The house in which you stay
 There can never be 'food calamity'
 Is it possible to live without you?
 Oh! You my beautiful plough.
 The way on which you walk
 That way produces pearls
 As if land produces the diamonds of Badakshan
 Oh! You my beautiful plough.¹⁹*

There is hardly any doubt that plough was a leading tool in the agricultural operations in Kashmir since remote past. To discuss the possible origin of Kashmiri plough it is pertinent to present a description of ploughs that were common in different parts of Kashmir and compare them with the ploughs of the bordering civilizations.

Traditionally there were four types of plough used for land tillage in Kashmir. All had difference in structure and were used on different soils in different parts of Kashmir. Two were known as *albain*, third was called *batij* and the fourth was called *heej*. *Albain* was common throughout Kashmir, *marazi* plough and *batij* in certain parts of south Kashmir, and *heej* in the damp land.

***Albain* [plough].** *Gulzar-i-Kashmir* a late nineteenth century source has presented a graphic description of ploughs both *albain* and *heej*. The said document exists in the Persian script. Here we present its English version. It writes:

“Plough (albain) consists of all these parts. A sole (kurheit), of the shape of bow. At its front tip iron ploughshare (phaal) is adjusted. It is adjusted by a two pronged nile (wangin). So that agriculture land is ploughed. A socket is made on the back of sole. Two wooden logs are pinioned in it. One log is called handle (laratha). It is a straight log of wood. At the top of it has a branch towards peasant [used for grip]. During ploughing land the pressure of the hand of the peasant falls on it. The other log is called pole (lanz). It is curved log, long up to the head of the oxen while in traction. On the shoulder of the oxen a yoke (yepiet) is put. Yoke is a board of wood. In the middle of the yoke a peg of wood is fixed. It is called ahkij. Then lanz [pole], yoke and ahkij [peg] are tied with a mitlier [a leather loop]. Four wooden pegs, two on each side of the yoke, are put in the yoke [holes] so that the shoulders of the oxen are adjusted. These are called hamchoor. Then two ropes tied to the pegs are adjusted around the neck of the oxen so that plough is adjusted to the oxen. This tool [plough] is used for furrowing the land.”²⁰

***Marazi* plough.** The plough used in south Kashmir or *marazi albain* varied in its shape and structure with the one mentioned above. It had a thin sole of 2.75 ft in length and 9.4 ft long traction pole. The most characteristic feature that differentiated it with the other three ploughs was *voun* (peg) and *kien* (stone) adjusted in between beam and stilt. Beam and stilt were inserted in two separate holes. *Voun* was fitted in the sole cavity in which traction pole was inserted. *Kein* a small boulder stone was fixed between peg and handle. The function of the *voun* and *kien* was to provide additional strength to beam and pole and avoid their wavering which caused due to the pressure exerted by soil while in work. This plough was used in certain villages of the districts Anantnag and Pulwama.²¹

Batij. *Batij* was altogether different in look, size, weight, and structure from other ploughs used in Kashmir. The sole and stilt of this plough were carved out from single piece of wood. The grip of stilt tilted forward than backside as was generally the case with other ploughs. It was so because unlike other ploughs whose stilts stood in right angle the stilt of *batij* was obtuse. On obtuse posture grip ploughman put constant pressure on sole. The sole was small in size which cut small furrows. Draught pole was always straight and pinioned into single piece of sole and stilt wood not much different from other ploughs in shape and size. However what made it different was its area of use. It was used in certain parts of

south Kashmir.²²

Heej. This plough was used for plowing the land under water. Its sole had no iron ploughshare. Rest it was same as *albain* in shape and structure.²³ However in size it was smaller than other ploughs. Besides, its sole too was comparatively smaller than dry land plough. It was because a large sole exerted more pressure on bullock and required large amount of energy to haul the plough. Since ploughing continued for almost one month that too in water more exertion exhausted the animals. Thus it was thought more prudent to have a plough that do not tire the bullocks.

In all ploughs of Kashmir the traction pole (*lanz*) had one to three holes for the adjustment of the yoke. The selection of the hole at the time of ploughing depended on the size of the bullocks and the depth of furrows. Besides in the areas where ploughing was done in water, strings were tied to the tails of the oxen and the other side of the string was tied with yoke. This saved the ploughman from the irritation caused by the tail of the traction animal. It also happened that a yoke had more than two cavities at the centre. This mechanism was adopted to cop up with the difficulty caused in ploughing the land by the animals that differed in size or strength. The taller or the stronger the animal, the more pressure shifted to the weaker or the dwarf one. With the result he give up and sat amid ploughing. To avoid this awkward and awesome situation the peasants tried to maintain a balance. This was attained by keeping more space of the yoke toward the weaker and less toward taller or stronger. It was for this purpose that cavities in the middle of the yoke were used for. Inches mattered. By tilting the yoke a little the animal tracking on the side where the span of the yoke remained comparatively less, the animal faced more pressure. It was on this side that the stronger, healthier or the taller animal was adjusted.²⁴ It is important to mention here that for safety of bullocks ploughman had always a knife in his pocket. Sometimes bullocks fought with each other or by some other reason the noose around their neck tightened creating possibilities of their death, on such emergencies knife proved quite useful.

So far as ploughshare is concerned two types were used in Kashmir. One was called *turka phal* and the other *basti phal*. The former was triangular with a two-three inch tail. The tail was turned red hot into fire and then inserted at the concerned point. This technique saved the front portion from cracking and added more strength to adjustment. Further a pronged nail was used for the durability of the ploughshare. It may be added here that this ploughshare was stamped on the tip of the sole. The *basti phal* or sleeve share covered the tip of the sole from all side. It was the *turka phal* that was more common than *basti phal*. Perhaps it was lighter than the other, easy to forge and consequently not costly also.²⁵

A ploughman could plough three *kanals* of *abi* land at the time of *voobi* (first plough) and six *kanals* at the time of second *ull* (ploughing) and two *kanals* *khushik* land at *voobi* and four at *ull*. *Khushk* (dry land) involved more exertion and more perspiration because of hot temperature.²⁶ The peasants didn't stop with a single plough. A couple of ploughs was a safety so that in case of any damage to one the other would be readily available. Besides,

the nature of cultivation too demanded that. For *khushki* lands and *abi* lands different ploughs were used.

Ploughs of the Bordering Civilizations: Let us have a brief look on the ploughs operating in neighbouring world of Kashmir and ascertain the possible links of local ploughs. As for Chinese plough *li* is concerned it has no resemblance with any Kashmiri plough. Plough parts like sole, handle, beam and yoke had no similarity with Kashmiri plough, neither outwardly nor in adjustment pattern. The frame of Chinese plough was square; the handle was leaning toward backside and had no grip. The beam had a bend and was adjusted with stilt and strut. A skate or shoe was attached to the beam at the front. Besides the Chinese plough had a mould board.²⁷ Ploughs used in Kashmir had no such features. Neither was there any skate nor struts nor mould board. The frame was angular or bow. The handle was perpendicular or obtuse in case of *batij*. Handle possessed a grip and the beam and sole formed an acute angle. Contrary to the Chinese plough where team size was usually single buffalo or sometimes three or even four oxen in Northern China, in Kashmir only two oxen were used for traction. In view of these major differences we find no influence of Chinese plough on Kashmiri plough.

For reasons of regional variations a number of ploughs-*desi*, *kushna*, *muna*, *hal*, *dubehri*, *nayra*, *lotan*, *adha hal*, *pakka* etc.- were used in India.²⁸ The Kashmiri ploughs-*batij* and *albain* [discussed first] closely resembled with *muna* and *hal* used in Assam, Himachal Pradesh and Maharashtra. *Muna* used in Assam and *batij* used in Anantnag district of Kashmir resembled with each other in shape and size. The Kushana plough presently used in Himachal Pradesh and Maharashtra looked like *albian* of Kashmir.²⁹ In both these ploughs there used to be a gape between stilt and beam and sole happened be long. However in *albain* the gape between stilt and beam was filled by a peg (*von*) and round stone which was not the case with Kushana plough. It seems that this plough was introduced in Kashmir by Kushanas who ruled over this land for a considerable period of time. Another dominant source of Kashmiri plough was Persia and Central Asia. A number of ploughs were found in this region but except *gajemeh* which is also known as Caspian plough, all other ploughs were quite different from Kashmiri plough. The Caspian plough was widely used for rice cultivation in Caspian provinces and outside Persia in India and south-east Asia. It was a suitably trimmed tree fork. One branch formed the plow beam and the top of the branch hook protected by a socket type plough share. A stilt with a handle was mortised into the rear of the plow.³⁰ It is not without interest to know that same structure was adopted in the Kashmiri plough. Moreover the handle, sole, and beam of the latter resembled with *gajemeh*. In addition to this there was a close terminological resemblance between Persian and Kashmiri plough. The terms used for sole (Pr.-*koreh*, Kr.-*koreh* *heit*), forged nails (Pr.-*mekh*, Kr.-*mekh*) and yoke (Pr.-*yo*, Kr.-*yopeit*) were same in Persia and Kashmir. Beside the loop was made from animal skin and the material employed for construction of plough was identical. Like Persia and Central Asia mulberry wood was favoured for the sole for it was durable and light. However despite these similarities Kashmiri plough differed in certain respects from Caspian plough. The adjustment pattern

of yoke and beam in both ploughs was not same. In Caspian plough yoke and beam was connected by a loop that run over a peg or through a hole. A space was left between yoke and beam. On the other hand the yoke of Kashmiri plough was placed on the beam and a folded circular loop ran round the beam and yoke. A peg was penetrated through a hole in the beam that tackled the pull of the bullocks and simultaneously prevented the yoke from sliding down.

The Kashmiri ploughs thus resembled with the ploughs operating in Persia and Central Asia. The *albian* and *gajemeh* were same, only adjustment of yoke differed. At the same time *batij* and *muna*, *albian* and *hal* also resembled with each other. A few additions that we find in local ploughs, had been developed indigenously to adjust it with certain local requirements.

It is important to note here that there was a practice among rural people in Kashmir that whenever any person suffered from eczema disease (skin infection locally called *dideir*) he used to visit priests who suggested him to bring some soil fixed on the sole of the plough and advised the patient to massage it on the infected place.³¹

Hand Tillage

Hoe [*tangur*]. Hoe seems to be a truly universal tool found wherever there is agriculture. It was essential to the earliest farmers, as is clear from the numbers found in early Neolithic sites all over the world and is still essential to most farmers today. While in certain places it is the chief implement used for the cultivation, in most areas it is used principally for weeding, earthing up, tillage, or cultivating small patches of ground. It occurs in enormous variety of size and forms-rounded, pointed and square. But nowadays the square type is the most common. It seems impossible to postulate any single date or point of origin of hoe, which must have been as universal as the knife and chopper ever since Neolithic times.³²

Hoe has passed through a number of stages before reaching its present form. The earliest hoe recovered from Egypt dates back to more than four thousands B.C.³³ It was a single piece of wood with a curved front which acted as a blade. It had no joint and seems to have been framed from a tree ranch. Probably some earliest hoes were not hafted but simply held in the hand through the smaller or narrower ones could well have been bound to an angled wooden haft.

Hoe was the most common percussion implement used for agricultural activities in Kashmir. Evidence of this tool comes from the Neolithic site of Burzohom dating back to second millennium B.C.³⁴ Two groups of hoes were recovered. One group was large oval 25cm long and 7.5cm broad. The underside was roughly packed, but the out side as well as ends were ground. The butt was hammered and the edge was convex. Group second was similar to group first but small in size. They were not hafted and seem to have been directly used by hand. Keeping in view the evidence of agricultural activity and cultivation of varied crops it can be inferred that in Kashmir hoe had a primary place in the farming activities from the early times.

A Number of hoes were used in Kashmir. They differed in size and structure because of technical considerations. Generally Kashmiri hoes of traditional agricultural could be divided into following categories:

Small hoe (*khanī*). It was almost one and a half feet long with a blade three inches wide and five inches long. The blade had a tail that was inserted into the head of the handle. Sometimes instead of a tale, a hoe had a head with a round socket for a straight wooden handle. This hoe was mainly used for weeding and heaping the soil up round the root of the crops like garlic, chili and other thickly grown vegetables.

Large hoe (*patir tongur*). Much like the small hoe in shape, this hoe was a little bigger and differed in operational purpose. With a four inch wide and six inch long blade, it was generally used for tilling and smoothing ground after ploughing. Clods were also crashed and crops such as maize and pulses were weeded by this hoe.

Large irrigation hoe (*kahi*). This hoe was used for digging canals, mending the edges of grassy boundaries and cutting turfs or clouds left after ploughing if the land was too weedy. It had a wider blade than other hoes. Instead of a tail it had a socketed head and the handle was inserted into it.

Nail hoe (*kili tongur, skuil*). Iron pronged nail hoe was another percussion tool. It had two sharp and slightly hooked teeth with a tail grafted into the handle. This implement was employed for digging mounds of manure especially cattle refuse like dung etc. Due to compactness and presence of grass in manure a spade or a blade hoe could not function smoothly, where as a nail hoe with its sharp teeth went deep into the manure. Another nail hoe was a small one. It had a narrow blade of about two inches wide and was used for weeding thickly grown vegetables. A special method was adopted in a hoe while fitting a blade to the handle. In case the blade being more angular or less than sixty degree it created difficulty for a user and could not penetrate deep unless a peasant bowed or sat down completely. On the other hand if the blade was fitted to the handle perpendicularly it didn't dig or turn colds well. To overcome these technical problems the blade was so adjusted as to form a sixty degree angle. But all this was furnished without any geometrical instrument. The distance between the edge of the blade and the handle should have been equal to the length of the blade. Therefore, the handle, blade and distance between blade edge and handle made a triangle where in all sides were equal.³⁵

Weeding knife (*khruva, ramb*). Weeds short enough to be pulled out by hand or mowed by sickle were cleared by a weeding knife known as *khruva*. It was operated in push and pull manner at the ground near the roots of the weeds. The handle was curved which helped it to run parallel to the ground.³⁶

Spades (*beil*). The long history, wide distribution and enormous typological variation of the spade in both the Old and the New World indicate that it would be difficult to trace any signal center of origin, but as an agricultural implement spade was traditionally less important than hoe or plough.³⁷

Spade is supposed to have evolved from the digging stick.³⁸ Some scholars believe that it is the earliest form of plough.³⁹ However, spade seems to be an independent invention rather than the basis of some latter development. Its structure was less complicated than hoe or plough and operationally it had a minimum use and different pattern of function. Neither it made continuous furrows like a plough, nor was it percussed like a hoe. Rather it was thrust into ground by the right foot and the hands swung or pressed the handle back. The hands and feet played equal part in this activity. A distinct feature concerned with spade was that while digging earth a person walked in a reverse direction and thus the tilled land was not trampled.

There were different kinds of spades used in Kashmir.⁴⁰ They were framed in different designs in view of their use. The spades of Kashmir can be divided into three categories: (a) square blade with turned over edges and a round cutting edge spade. No considerable difference existed in these two designs. Both possessed turned over edges. For the comfort of foot, sometimes a wooden footrest (*lutwuth*) was pushed over the handle. For the adjustment of handle two semi-circle pieces of iron, one in front and the other at back side, were stamped at the center of the upper part of the blade. Both these pieces were encircled by an iron ring which sustained pressure when handle was pressed in. The square edged spade turned over less ground than round blade spade and at the same time left behind little powered ground while digging a ditch or carrying earth from one place to another.

Wooden spade (*livaen*). It was a wooden spade shod with a thin socketed iron blade.⁴¹ The wood used for it included mulberry and *cellis australis*. Unlike other spades *livaen* had neither a plane nor a crescent but a pronged blade and the whole implement was carved out from a single piece of wood. Sometimes the handle and blade (*potur*) were nailed together. It was mainly used for rice cultivation, clearing water channels, shaping field boundaries or digging wet land. Because of less use of iron it was lighter; secondly the wet soils get stuck with the iron and create hurdles to shift the soil, whereas this is not the case with wood.

***Reimb*.** This tool was used in rice cultivation. It looked like spade but its size was small. It had a blade about five to four inch with a socket type tail in which a handle was pressed in. It was used to avoid the seepage in the terraced rice fields.⁴²

Smoothing and Leveling Implements

Harrow (*maj*). Harrow was an animal drawn implement used after ploughing to break up clods and level the furrows in the wet rice field.⁴³ It consisted of a square beam about five feet long to which a row of sharp wooden tines were attached. A handle fixed at the middle of the beam guided the harrow which was drawn by a pole attached to the yoke. Harrows with no handles were also used. For the smooth level of rice fields the beam was often weighted down by mud & clods.

Mallet (*yetfur, yubchut*). Mallet is a very ancient agricultural implement and can be seen in operation for land preparation in the Egyptian tomb paintings dated 1420 B.C.⁴⁴ In China the oldest surviving example is a western Han maul from Niya Sinkiang and the implement

is still in common use in north China today.⁴⁵ Mallet was also used in Persia,⁴⁶ India⁴⁷ and in Western countries like Rome.⁴⁸

Mallet had a similar shape and mode of operation everywhere. It was used for cold crashing soon after ploughing the rather coarse soil. The work was often done in gangs.⁴⁹ Mallet had a simple structure. A long handle of four or five feet was inserted in the middle of a piece of wood. Mallet was all made of light wood for minimizing the workload on arms due to the continuous striking.

Ox drawn clod crasher (*patdah* or *mond*). Besides mallet there was another device for crashing clods and leveling ground. This implement was known as *patdah*. It was a log of wood attached to a draught pole and drawn over the furrows by bullocks. For complete crashing of the clods the driver stood on the log with the handle in his hand. *Patdah* was like a harrow in shape but it had no tines.⁵⁰

Harvesting Implements

Sickle (*droit*). Sickle was a leading harvesting implement prior to the introduction of modern methods. The earliest known sickles were used to harvest wild grasses in the Nile valley 12,000 to 10,000 but are not found elsewhere earlier than the Neolithic Natufian sites of Jordon (8000 to 7000 B.C). These early sickles consisted of a bone or wooden haft inset with small stones of flint blades. Their form has led to the suggestion that they were modeled on an animal's jawbone. Such sickles are characteristic of Natufian sites and have been found in several though not all Near Eastern sites. They also occur in European sites as late as -2000 but were quite soon replaced in Western Asia and the Mediterranean area by sickles of baked clay, bronze and eventually iron.⁵¹ In Neolithic Kashmir we come across tools that are believed to have been used for harvesting. These tools or harvesters are rectangular or semi-lunar in shape. There are two or four perfectly bored small holes along the long blunt side. Made of both stone and bone, the surfaces of the tool are ground.⁵² The earliest evidence of iron sickles comes from the archeological site of Avantipora, the capital city of Avantivarman.⁵³

The form of sickles had been almost similar in all civilizations. It had a blade that was bent back at the handle and then curved forward in a long sweep. This enabled stems to be cut with less strain on the wrist. The stems being cut mostly near the base. The reaping was done from a squatting position. It was customary to have serrated sickles and the teeth were kept sharp with a double edged file (*dund-vav*). Most cereals were reaped with a sickle after the crop was fully matured.

In Kashmir traditional sickles can be grouped into four categories on the basis of size and purpose of use; (a) pointed, hooked grain cutting sickle with a straight or curved handle. The curved handle protected the hand from being rubbed with the ground; (b) flattened balanced grass cutting sickles; (c) reed cutting sickles; (d) a long hooked peat cutting sickles. It was commonly used in the swampy areas.⁵⁴

Sickle used in Kashmir had a considerable resemblance with the sickles of other civilization like India, Persia, China and European. The grain cutting sickles not heavily curved took after one of the kinds of Indian and Chinese sickles. The grass cutting balanced sickles found in hilly areas resembled with Persian sickles.

The long peat cutting sickle was confined to Kashmir only and in Kashmir also in those areas having marshy land (*numbel*). This sickle was used neither in mowing nor in slashing manner. Rather it was inserted into the peaty land and then handled up and down. As such big clods of peat were let out. It is worth mentioning here that unlike Persian or China no harm-protector or bamboo finozer stilts were used in Kashmir while handling sickle during harvesting crops.

Threshing stick. Threshing stick or *loor* was used for beating crops at harvesting time. It had two types; one small, used while sitting and the other longer one used with full power in a standing posture for beating larger quantity. This tool was prepared when needed & after use it was put for some other use.

Threshing wooden blade (*chall*). Wheat and some varieties of rice were very hard at threshing. Even after striking several times against a threshing board, there remained several grains on the sheaves. To thresh all the grains the sheaves were struck and scraped by a small piece of wood measuring about one and half feet long and three inches wide. This implement was known as *chall*.⁵⁵ It was an effective tool for hard threshing cereals.

Threshing pin (*chulin*). Threshing maize needed a quite different method. Neither it could be struck against a threshing board by sticks nor trampled under the foot of oxen. It had to be peeled and peeling simply by hands was a hectic job. To facilitate the task a sharp pointed stick was framed. The pointed side was inserted into the cob at the top and forced upwards. With the result cover of cob got divided into two parts. Both the sides were then held by hands and pulled apart consequently the cob came out of its cover.⁵⁶

Threshing spade (*fuh*). *Fuh* had a close resemblance with spade. It was used to arrange the grains heaped in front of threshing board while beating the sheaves. It had a broad blade and long handle.⁵⁷ It was made of wood.

Veitrain. It was a sack made of grass. Rice seeds were kept in it.⁵⁸ Smaller size sacks also made of grass were called *thichnur*.

Threshing board (*vaan mund*). This device was made of pear and willow wood and used for threshing rice.⁵⁹ It was about ten feet long & accommodated about seven people to thresh the rice. Each sheave was beaten against board three to five times. The breadth of the board was two to three feet.

Broom (*mazan*). Broom was used for sweeping chaff on rice while threshing it.⁶⁰ It was made from *mazan* (a plant). Small branches of plum tree were also used as broom.

Pruning-hook (*aeind*). Hooking axe was used for cutting the braches of willow. Its main advantage was that there was no need to climb the trees for getting leafs for goat or sheep.

This was done while standing on ground. Women could also use it as they were not used to climbing trees. Secondly this curved blade was of great help for pruning the higher branches of willow trees where a person could not climb.⁶¹

Fork (*trashool*). Fork was used for gathering straw or stalk of crops at the threshing time. It was a simple tool. A four or five feet tree branch with few offshoots at the end.⁶²

Implements and Equipments for Carriage: The muscular strength of the village people of Kashmir has long been testified by the people who visited this part of world from time to time. One of the travelogues mentions that ‘the ordinary Kashmiri villagers.....physique of both men and women is excellent. They are of medium height, but compared with the people of India of exceptional muscular strength. The men carry enormous loads.’⁶³ As for women are concerned they too carried heavy loads & certain jobs like carrying water buckets and firewood were mainly meant for them. They carried loads on head. Various methods were devised to ease the hazards of burden. These included; creel, (*yat or kajawa*), carrying club (*shiru*), *kunzier* and bullock carts trolley (*hagur*).

Creel (*yat, kajawa*). This basket like equipment made of osiers was used for carrying manure.⁶⁴ It differed from other baskets in shape and size. It was narrow at the bottom and broad at the top and had two grips. Instead of carrying on head or shoulder it was carried on back and held by shoulders with the help of two grips made of grass. It was long enough to allow a person to land it and take rest and stand up with out much difficulty. The vegetable gardeners of Srinagar used to employ this basket. Early in the morning they walked from street to street to collect manure.⁶⁵

Sheru (carriage club). It was used for the carriage of rice and grass. In shape it was like a club with a height of about five feet. At the head end it had an eye in which a rope, double on front side and single on the back side, was adjusted. Rice used to be fixed in such a manner that the pole stood in the middle of the crossly put rice sheaves. The ropes were knotted. The two front ropes served as belts (*randaks*). One of the main advantages of this method was that instead of shoulder the burden hung on back. At the same time it was quite easy to have rest and then start again without some body’s help.⁶⁶

Kunzier. It was used for the carriage of dung. It had four stilts adjusted on a round base. Besides there were two ropes used to carry it.⁶⁷

Shoulder clothes (*nakhpatij*). It was a piece of cloth used for covering shoulders during carrying loads. It saved skin from the exertion of ropes.⁶⁸

Bullock carts (*hagar*). Bullock carts were used in plain areas. They were used for the transportation of agricultural products like rice & maize.

Other Implements

Axe, Hoop (*chaeil*), Stick; In addition to the above mentioned tools there were some implements that were used for agricultural as well as other works. These included axe and stick.

Axe (*tbar*). Axe was used for pruning & cutting of trees. It had two types. The smaller one was used for light tasks whereas the bigger one known as *makitz* was employed for cutting trees and cracking logs.

Hoop (*chaeil*). Once the sheep were brought back from the pastures they were washed. Washing took place in the river or lakes. They were then roughly rubbed down with a hoop of iron. This made the wool clean and clear and then shearing was started.⁶⁹

Stick (*lour*). Stick was so familiar, common and so readily available that the cultivators never bother to include it in the tool kit. However, the fact remains that it qualified all the requirements of a tool. It had a number of advantages. It was used by ploughman to handle the bullocks. Shepherds kept it always in hand to control the cattle; milkmen selling milk in countryside had it always in hand to keep the dogs at bay. It enhanced strength and gave confidence to the people traveling alone in the thinly populated valley when foot and horse were the only means of travel. It was a great support for the aged people. For best and durable sticks branches of yew trees were used. The advantages of stick have been tersely summed up in a local riddle:

maars mare, taraas taari,
haaras khaveyi tzoont ti taange,
aath maali chi dapaan trayim zannng ,
 [it turns you fearless, it takes you to the shore,
 in summer it brings you apples and pears.
 Dear, these are the advantages of the stick.]⁷⁰

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8. Thomas Hugh, *An Unfinished History of the World*, p. 76
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18. Maurice Daumas, Vol. I, p. 145.
19. *Kulyati Mahjoor* [Kashmiri], Cultural Academy, pp. 32-38.
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21. Based on field study and information gathered from peasants.
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28. Kumar, *Agriculture in India*, Vol. I, fig. 86.
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34. Aijaz Bandy, *Prehistoric Kashmir*, p. 161, plate xxii.
35. Personal observation
36. Personal observation
37. Needham Joseph, op. cit, Vol. VI, part. II, p. 136
38. Ibid., p. 137.
39. Ibid., p. 133.
40. Diwan Kripa Ram, op. cit, p. 486.
41. Lawrence, op. cit, p. 325.
42. In village Lolab District Kupwara cultivators use this implement.
43. *Gulzar-i-Kashmir*, op. cit, p. 286.
44. Singer Charles, op. cit. Vol. I, p. 540. See also *Short History of Technology* by Derry and Williams, p. 51.
45. Needham Joseph, op. cit, Vol. VI, p. 222.
46. Hans E. Wulff, op. cit. p. 266.
47. Kuppuram & Kumudamani (ed.), *History of Science and Technology in India*, Vol. V, p. 131.
48. Derry and Williams, op. cit, p. 57.
49. Lawrence, op. cit., p. 324.
50. Diwan Kripa Ram, op. cit., p. 286.
51. Joseph Needham, op. cit, Vol. VI, part ii. p. 321
52. Aijaz Bandy, op. cit., p. 163.

53. Other tools recovered from there include plowshare and spade. They are presently preserved in S.P.S Museum Srinagar.
54. Local informant
55. Diwan Kripa Ram, op. cit., p. 487.
56. Based on information collected from an interview with Mohammad Shaban Bhat of village Malur Srinagar.
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58. Ibid.
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60. Ibid.
61. Local informant
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63. Francis Younghusband, *Kashmir*, p. 13.
64. Diwan Kripa Ram, op. cit., p. 487.
65. Interview with Abdul Rahman Dar resident of Bangar Mohalla Dana Mazar Safa Kadal Srinagar.
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70. Ghulam Nabi Nazir, *Kashir Looki Baaith* [Kashmiri folk songs], Cultural Academy Srinagar, pp. 72-73.