

“Origin and development of rice culture in Kashmir”

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ABSTRACT

The history of agriculture in Kashmir is essentially the history of the development of rice cultivation. The agricultural way of life revolved around rice. The word bata (cooked rice) is identical with food, and paddy land or aabi zameen (wet land), as it is called, alone had the status of fully cultivable land. Only cooked rice made a meal and rice cultivators had a decided advantage over the cultivators of other crops. Of the whole material culture it has exercised the most predominant impact, not only on the economic but over all cultural development in Kashmir.

Introduction

The origin of agriculture in Kashmir goes back to early Neolithic period. The Neolithic site of *Burzahom* has brought forth evidence of cereal cultivation during the earliest a-ceramic phase (C.2324 B.C.), similar evidence has come from the second oldest site of *Gufkral* (C. 2100 B.C.)¹. Wheat barley and lentil were the earliest crops cultivated in Kashmir. The hexoploid naked variety of wheat cultivated in Kashmir is almost of the same date as reported from the Indus valley (2300 B.C)² and predates that of China (1300 B. C.)³ by a thousand years. The evidence of wheat cultivation of this variety is the earliest from whole of Indian subcontinent⁴. Another distinct feature of the Neolithic agriculture of Kashmir is the cultivation of lentil (*lens esculenta*), which again comes from the a-ceramic Neolithic phase at *Burzahom*.⁵ It is the only evidence of its kind from north/west Asia⁶. These crops remained predominant during the Neolithic period and rice, which in the global context is a late comer among all the cereals, was introduced in Kashmir towards the close of the Neolithic period.

Out of twenty three species of the swampy grasses *oryza* recognized taxonomically by the scientists only two have been domesticated of the domesticated species *oryza glaberrima* is strictly a regional crop confined to Africa and only *oryza Sativa* has the world wide significance. The regions where the species of rice has been discovered are India, Indo-China, Indonesia, Taiwan, Western Africa Madagascar, Central and South America and Australia In view of the world wide significance, particularly in this part of

the world, we find with little surprise that the earliest rice reported from Kashmir is the same species *oryza Sativa* (*o. Sativa-P*). The Neolithic sites of *Burzahom* (2324 BC) and *Gufkral* (2100 BC) in Kashmir did not reveal rice in the early Neolithic levels. The rice findings at *Semthan* (1500 BC)⁷ are the earliest. It appears at *Gufkral* towards the end of second phase datable to 1000 BC⁸ and in the Megalithic period at *Burzahom* C. 1000 BC⁹. This shows that the rice was introduced in Kashmir somewhere around 1500-1000 BC. A glimpse of the cropping pattern can be had from Table¹⁰, which shows percentage of various crop remains found from the two major Neolithic sites of Kashmir.

Table showing Percentage of cereals in agriculture on the basis of crop remains recovered from *Burzahom* and *Simthan*.

Site	period	wheat	barley	rice	oats	total % of cereals
Burzahom	Phase 1 aceramic Neolithic 2350-1700 B.C.	78.5 %	21.5 %	*	*	73.6 %

Burza hom	Phase II mature Neolithic 1700-1000B.C	73.68%	26.32%	*	*	67.50%
Burza hom	Phase iii Megalithic 1000-600 B.C.	65.95	25%	9.15	*	62.85%
Simthan	Phase I pre NBPW 1500-600 B.C.	30.8%	14.4%	55.6%	*	85%
Burza hom	Post Megalithic phase iv 600-200b.C.	60%	25%	14.50%	8	54.4%
Simthan	Period ii NBPW phase 600-200 B.C.	25%	56.25%	17.5%	1.1%	78.8%
Simthan	Period iii 200B.C 001 A.D.	44.8%	67.65%	23.5%	4.4%	80%
Simthan	Period iv Kushan 001-500 A.D.	39.3%	27.8%	28%	4.5%	72.3%

As indicated by the Table the overall share of rice, even by the beginning of Christian era, was supplementary. It took many more centuries of gigantic effort to transform Kashmir's agriculture into a full-fledged rice culture which not only influenced every aspect of the life but also configured new relations between the rulers and subjects. How and why this transformation took place is what the paper attempts to explore.

Neolithic man's choice of Wheat and barley cultivation no doubt suited the karewa land, which he

chose for his settlements, but this cropping pattern did not suit the overall physical characteristics and the climate of the valley. Submerged land, abundance of water, moderate climate and fertility of the lowland needed a different cropping pattern. But as the rice cultivation which is suitable to this type of land was not well known and most probably would not have been known to the early settlers, there was virtually no choice except the crops he opted for. Once the rice cultivation, which was made in the submerged land, developed and became wide spread in the region around Kashmir, a better and more suitable option became available and was immediately introduced.

Apart from its suitability to the physical characteristics and climate of the valley the rice cultivation had some more obvious attraction. While the dry land needed some sort of tools for working the ground, be it only a digging stick, for rice cultivation in the submerged land no such tool was needed. Even today in South East Asia, the rice field is neither ploughed nor spaded nor hoed. The soil may be fairly puddled and all the weeds destroyed. The farmer can accomplish this purpose by splashing around in bare feet¹¹. Such practice is still common in Kashmir for preparing rice fields. The only difference is that these days it is done in addition to ploughing. The description of primitive rice cultivation by Chau chu fei a twelfth century AD official in Southern most China¹², so exactly fits in with the pre modern marshy land rice cultivation of Kashmir as if it pertains to the same.

"In preparing the field for rice planting, the peasant chose only the kind of land that is evenly submerged under water all year round. If the land is but a too high to be submerged constantly, they would reject it. Even when they do cultivate, they would barely, break up the ground. Without deep ploughing and hoeing they simply broadcast the (rice) seeds never transplant the shoots. After the seeds are broadcast they don't water the fields during draught nor do they drain off the surplus) water after excessive rain, caring nothing about manuring, ploughing and weeding they leave everything to heaven"

This was of course the rudimentary state of rice cultivation but as the population increased, more

inhospitable land had to be brought under cultivation. Arrangement of the irrigation facility, drainage of excess water, protection from recurring floods and reclaiming the submerged land were such daunting tasks, that the agricultural history of Kashmir has been a history of struggle against these odds. As a result new technology had to be put to its use besides creating and institutionalizing the system of forced labour.

The agricultural land of the valley comprises of three distinctive parts. The first is the plateau land locally known as Udder or karewas on which the Neolithic man started his settlements, the second is plain area along the two banks of river Jhelum which by Neolithic period was still mostly submerged and third are the ravines between the karewas, or the side valleys created by the streams running through them, which are almost of the same shape as the plains along the river but were not submerged because of their comparative elevation. It is from this land that the earliest rice cultivation is reported, however it does not make the main rice belt of the valley. The main rice belt comprises of the plains along the river which is continuously enriched by the silt brought by recurring floods. For this land the main problem was drainage of excess water and protection from floods while in the ravines it was the irrigation. As the irrigation was easier than dealing with access water and floods, construction of canals preceded drainage and flood protection projects and rice cultivation first started on the ravines and gradually spread to lower lands.

We do not exactly know when the activities of irrigation and drainage started in Kashmir. The earliest literary works of Kashmir, which do not date earlier than 8th century A.D. are full of terms related to irrigation and drainage like stream (*Kula*), embankment (*sethu*) or dyke, and dam (*gund*)¹³ but this information is only useful if it is verified on ground. Only then can it help in reconstructing the agricultural history of Kashmir. It is only the physical identification of this evidence which makes it meaningful. Thankfully a good amount of this information has been already verified on ground which provides a good insight into the development of irrigation and agriculture in Kashmir. The nomenclature which luckily has by and large

remained unchanged also helps a great deal in locating the evidence.

The first textual evidence to an irrigation canal provided by Kalhana, is about King Suvarna, who ruled Kashmir before Ashoka and is said to have brought to Karala the canal (Kulya) called savarnamani Karala. It has already been identified in modern Zainpor¹⁴ where a large irrigation canal named Sunman Kul the exact derivative of Suvarnamani Kula still exists which flows along the east scarp of the Zainpur Plateau The importance and usefulness of the canal can be easily imagined by the fact that it has survived all the plus two thousand years of our known history of irrigation. This is a clear example that rice cultivation had assumed priority over other crops so early in Kashmir and caught special attention of the rulers to contribute to its development.

Similarly we have information about king Damudra, who ruled around the beginning of Christian era, to have construction of a long dam called *Gudda Setu*¹⁵. He is also said to have built a town on this plateau and is thus named after him as damudar plateau. The plateau still retains the same name thus is not difficult to identify. At the south foot of the plateau is situated a small village called *Gud Suth*¹⁶. The name *Gud-Suth* also means in Kashmiri the first dam, *Gud* (First), *Suth* (Embarkment) but at present no such arrangement survives. The same king is also said to have built long stone lined dykes in Kashmir to guard the city against inundation.¹⁷ The dykes were protected by constructing stone sets on their slopes.

Thus a network of canals was already in place, irrigating large parts of the plateau lands and the ravines by the time we reach the historical period of Kashmir, but not much headway had been made in reclaiming the lower land without which rice could not become the backbone of its food economy. It was by reclaiming this fertile land and protecting it from the floods that a true rice culture could be brought about in the valley.

In the development of rice culture the rule of karkota (C. 600-855 A.D.) and Utpala (C. 855-939 A.D.) dynasties, particularly that of the later, is of great significance. Being the first local ruling dynasties they could better realise that development of rice cultivation was the only way out to achieve food sufficiency which was so crucial to autonomy. This

period is also important in the sense that historically we reach safer grounds to explore the development of rice cultivation.

From late Neolithic up to the rise of karkotas, Kashmir had a long spell of foreign rule either ruled directly or acted as paramount power. It is well established that Mauryans, Kushans and Hunas directly ruled over Kashmir, while the impact made by Indo-Greeks, Parthians and sakas is so tremendous that even their occupation of the valley does not look improbable. However these foreign rulers, some of whom like the Kushans were proficient in canal construction, seem to have made good contribution to the development of irrigation canals.

By the time we reach the Karkota period rice cultivation seems to have become the foremost choice and received full state attention for its development. Lalitadytia (699-736 A.D.) the greatest ruler of ancient Kashmir made vital contribution to the development of agriculture particularly with regard to irrigation. He is the first ruler referred by literary sources to have introduced water wheels (arghatta) to irrigate the lands, where ordinary means of irrigation were not possible. To quote Kalhana, "At Cakaradhara (Modern Taskhadar below Vijbror) he made an arrangement for conducting the water of the vitasta (Juhlum) and distributing it to various villages by the construction of series of arghatta¹⁸ (water wheels).

The most outstanding contribution in ancient period is, however, that of Avantivarman (855-883 A.D.) the founder of Utpala dynasty who with the help of his minister Suyya made a lasting impact on the development of rice culture in Kashmir. In a systematic manner he not only saved large tracts of land from recurring devastation of floods but reclaimed vast tracts of land which had hitherto remained perennially submerged under water. The projects undertaken during his reign include flood protection, reclaiming more land, providing and regulating irrigation facility to hitherto un-irrigable land and clearance of the bed of the river Jhelum (Vitasta) to regulate the course of water. However the most massive project was to change the confluence of two rivers in the valley: the Jhelum (*vitasta*) and Sind (*sindhu*)

Before taking up his mega project of changing the confluence of the two rivers Suyya first regulated the course of the river by removing the temporary blocks created by rolling down of the stones into the river and by accumulation of silt. For this purpose he adopted different methods at different places. He made a survey of the river on boat from south to north and found that at the two ends of the river, within the valley, where the river is flowing through the mountains, the stones have blocked its course. He threw pots of money in the river. The famine stricken villages then searched for the money dragged out the rocks from the river and thus cleared the bed of the Jhelum (*vitasta*)¹⁹

In order to bring more land under cultivation people were settled close to the submerged land and dykes were built around the villages²⁰ to save them from floods giving them the shape of a round bowl after which they got their names. These villages still survive with the same names as Kalhana mentions in his Rajatarangni²¹. Soil tests were conducted to ascertain the water consumption characteristics of different soils and irrigation facilities were arranged accordingly for them

These tests of water consumption carried on by Suyya find special mention in Rajatarangani which says, "After watering all village (lands) he took from each village some soil and ascertained, by (observing) the time it took to dry-up the period within which irrigation would be required (for each soil respectively). He then arranged accordingly on permanent basis for the size and distribution of the water course for each village²². Suyya's categorization of the lands on the basis of their water consumption has become an established basis for the recognition of various types of land in the valley. Even today soils are recognized in Kashmir according to the quality of their water consumption. These types are known as *Grutu*, *Bahul*, *Sakil* and *Dazanlad*²³. *Gurtu* soil contains largest portion of clay. It holds water and in years of scanty rainfall is safest for rice cultivation. *Bahil* is a rich loam of great natural strength, *Sakil* is a light loam with a sand sub-soil and it needs sufficient irrigation. *Dazanlad* soil is chiefly found in low-lying ground near swamps. But it sometimes occurs in the higher villages also

With these developments Avantivarman changed the very complexion of agriculture in the valley by virtually transforming it into rice culture. Kalhana informs us that, "There were previously from the beginning of things the purchase price of a khari²⁴ of rice was two hundred Dinnars in times of great abundance, in that very land of Kashmir henceforth – O wonder! The Khari of rice came to be bought for thirty-six Dinnars."²⁵ The reclaiming of the most fertile land around Jhelum River and construction of dykes to guard new settlements against water must have induced people to shift to this land with much more potential for good produce.

Soon after Avantivarman we come to know about king Samkaravarman (893-902 A.D) that he "himself cultivated the land as if he was an agriculturist²⁵." this shows the importance which the kings gave to the agriculture during the region of King Abhimanya (958-972) the new post of revenue officer was created²⁷. Rice culture flourished with all its associated traits and taboos. It acquired a nomenclature of its own and exercised a remarkable influence on all other aspects of the life. New words like *Catusa*²⁸, *Khal*²⁹ and *Armica*³⁰ became the domestic words of Kashmiri language with multiple connotations. The *catusa* modern *Kuth* (granary) is a four pillared paullion which is made above ground, an all wood hut to store the paddy after it has been thrashed in the autumn. Its size had a close correspondence with the economic status of the peasant. The importance and reverence with which the granary was held can be had from the observation of Jonaraj, the 15th century court chronicler. "The granaries are indeed like the breasts of the earth from which the people derive their nourishment³¹ Similarly *Khal* (the threshing floor) a track of land kept by every peasant family besides the residence to store the paddy before threshing, was an important item of peasant culture. The crops stored in *Khal* could not be removed unless the state share had been taken from it

1. Bhat, G.M. and R.N. Kaw, Plant Husbandry in Neolithic Burzahom, Kashmir, 1985. Current trends in Geology, Vol. VI (Climate and Geology of Kashmir), PP. 109-113; Sharma, A. K. 1982

2. The earliest evidence from India is from Mohanjodaro (2250-1750 B.C.), Harappa, 2250 B.C. Paleoethnobotany, op. cit, P.118.
3. Ping Ti-Ho. "The loess and the origin of Chinese agriculture", in American Historical Review, Vol. LXXV, Nubmer I, October, 169, P.2
4. Farooq A. lone, Maqsooda, Khan, Buth G.M., Palaeoethnobotany, Plants and ancient man in Kashmir, CSR press, 1993, p. 121
5. Indian archaeology (a review), 1982-83, p.20
6. Lentils were associated with the start of agriculture in the east, while in India the earliest evidence is from Chirand 1800 B.C. and Navdatoli Maherhwar 1550-1400 B.C. Palaeoethnobotany, op. cit, p. 138
7. Palaeoethnobotany, op. cit, P.112
8. Indian archaeology (a review), 1981-82, P. 21-23
9. Palaeoethnobotany, op. cit, P. 112
10. Palaeoethnobotany, op.cit, p. 112
11. Ping, Ti. Ho, The Loess and the origin of Chinese Agriculture, The American Historical Review, vol. Lxxv, oct. 1969, P.25
12. ibid, P.25.
13. Kaklhana, Rajatarangni, Trans. M.A. Stein, Vol. I Reprint new Delhi, Book 1; V. 156; Book 2, V. 274; Book 3, V. 345, 383; Book 5, V. 120. Hereafter referred to as Rajatarangni
14. Rajatarangini, op.cit, Vol. I, P.17n
15. Ibid, Book 1, V.156.
16. The small village of Gudsuth, is situated 700, 50, long and 33 0, 58 lat. Rajatarangni op.cit, Book I, P.28n.
17. Ibid, Book 1, V. 159
18. Ibid, Vol. I, P.141n.
19. Ibid. book 5, V. 90-91
20. Ibid. V. 106
21. Ibid, vol. 1. P.199n
22. Ibid, book 5, V.110-12
23. Walter R. Lawrence "Valley of Kashmir", p320
24. Eighty seers make one Khari and one seer is equal to 8/10 of a kg
25. Rajatarangni, book 5, V. 116-7
26. Ibid, V.170
27. Ibid. book 6, V.264
28. Ibid. book 7, V.1024
29. Ibid. book 8, V.23, 1245.
30. Ibid. book 7. 39-40
31. Jonaraja Rajatarangni, tr. J.C. Dutt, p.140