

An Ethno-Archaeological Investigation into Irrigation Agriculture and Water Systems in Mid-Western Nepal

(Continued)

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Chapter 5 . Ancient Water- conduits and Water Tanks

Introduction

It is unfortunate that due to the Nepali government's restrictions I had no chance to survey the waterconduits and water tanks of the region. My knowledge of them comes from the very brief mention given by Tucci and Sharma and from two all too restricted photographs. What follows is the small amount of information I have been able to glean from these source. I have summarised, adding what interpretation I can.

Stupas over Waterconduits

The local term for a waterconduit is a *mugraha* (Sharma, 1972, 11). Altogether two are known in the region; see Fig. 1, nos. 9 and 10. The waterconduits at Sampubada and Dasaundhibada which are along a valley north-east of Jumla, both have stupas

numbering five and two respectively. Interestingly there is a large group of stone pillars associated with the monuments. Sharma is unable to define the function here.

From the photograph (Sharma, 1972, plate VII) of Dasaundhibada, the waterconduit built of cut stone is only a few meters long. I estimate the width to be about 1.5m and the channel appears to zig-zag downwards. It connects to an elaborate waterpoint, which part of is observed by a cow. However it can be seen that it is of a similar type to the one at Sija. A large top mantle, bird motifs (though the water alights below them) placed straddling a central pillar reflect the arrangement at Sija. The waterpoint lacks the tier layering as at Sija, the construction of the back wall being straight. The waterpoint clearly shows a central Buddha between the two bird motifs. The first panel to the right of the bird motif shows two figures, perhaps in a kneeling position. The panels show other reliefs, but

from the photograph they are impossible to make out.

Interestingly the bench on the right hand side of the waterpoint clearly shows a bench topped with a paving slab decorated around the edge with amaluka-quinions like at Dailekh.

The waterconduit at Sampubada I have no more information on than above. Evidently there are less stupas and I would be surprised not to find a similar arrangement for the waterconduit at this site.

Interpretation

The sites are very important and show a clear association between Buddhist worship (pujaa) and the waterconduits/waterpoints in question. The situation of the stupas above the waterpoint at Dasaudhibada would have been convenient for worship. There may be a meditation involved in siting the stupas with a waterconduit, i. e. a connection with Buddha and the life-giving water.

The evidence that in the Malla period (for these monuments certainly come within the period) they had the technology to construct stone water channels is important, be it only over a short distance. Because Buddhist stupas are present the monument may come earlier rather than later in the Malla period.

Temples over waterconduits

There are two temples over waterconduits in the region. One at Rara or Raya, see Fig. 1, no. 11 and the other at Ukhadi, see Fig. 2, no. 12. Again, I have little information to go on. There is no photograph of Raya and the photograph of Ukhadi (Sharma, 1972) only shows the elaborate temples. Sharma mentions that the temple at Raya is particularly small (Sharma, 1972, 19) and that in both

cases they were built as crowning finials over elaborately made waterconduits. The suggestion that they are elaborate leads me to believe that they may be similar to the Sampubada and Disaundhibada. When Sharma uses the word elaborate I suspect he may be referring to a waterpoint connected with the waterconduit.

Interpretation

Again this is important evidence relating to the Malla organisation of water. In these cases Hindu/local deities are shown in association with the waterpoints. In the case of Ukhadi we actually have a firm date for the temples and waterconduits, that of Saku 1408 (=1486 A D). We know historically (Sharma, 1972) that at this time the Malla kingdom had divided into small principalities known as Baisi, and in 1450 AD, at the kingdom of Semja (Sharma, 1972, 19) Vatsaraja and Virokasahi in 1498 AD. I think it is likely that the waterconduit at Ukhadi and possibly Raya were built under the rule of Vatsaraja or Virokasahi or perhaps as yet an unknown ruler between them.

Watertanks

Stupas on Watertanks

The local name given to a watertank is vapi. There are two watertanks recorded in the region. One at Dullu Patharnauli, Fig. 1, no. 13, discovered by Tucci in his 1954 survey of the area. The other one is at Kuchi, see Fig. 1, no. 14. The Dullu Patharnauli is an imposing size being 5.82m long and 3.51m high, the building is square. The roof carries five finials of Buddhist chaityas and is low and is dressed in similar fashion to temples and is made of several receding steps towards the summit. There is a plain square headed entrance on the east side spanned by a flat and thick beam carrying an inscription of Devanvarma dated Suka 1276 (=1354 AD) in

the reign of Prithvimalla, the inscription is held in position by two large piers. Along the upper part of the structure a plain cornice runs all around.

The watertank at Kichu is very similar to that at Dullu with the exception that only one Buddhist chaitya is present. The structure is evidently a little smaller.

Interpretation

The above evidence demonstrates that the Mallas had the technology to construct watertanks. The Kuchi watertank lies within the dry zone, which may give some clue why there was need to store water. However, if the tanks are just purely for storing water in the dry season, this does not explain the situation of the watertank at Dullu since the area does not experience water shortage. Another explanation for the siting of the watertank at Dullu may be because of the Royal residence there, the water being reserved for court use only.

Chapter 6 : Conclusions

Looking at the pattern of waterpoints in the region, see Fig. 1, we can see that field survey revealed a concentration around Jumla. This pattern is perhaps not surprising, since I concentrated my survey around Jumla. I think it is likely that similar surveys around Malla centres such as Sija and Dullu would reveal similar patterns. What is perhaps surprising is the relative lack of major waterpoints along the "Royal Road", between Dullu and Jumla, a more intensive survey of the area is necessary to confirm this though.

Archaeological evidence demonstrates that stone waterpoints were constructed in the mid-western region in the Malla period. These early waterpoints were large and had a regular layout with many elaborate stone carvings. There is an association between

bird/crocodile motifs on the waterpoints, no doubt ornamental/ritual. There then follows a period of change in the region, when the Malla Empire breaks up and is replaced by a series of small states known as the Baisi period. It is likely that within this period or possibly the early borkha period new stone waterpoints were constructed. These waterpoints reused existing carved stone. These stone are likely to come from dismantled buildings, waterpoints and temples in the region. These waterpoints are smaller in nature than the earlier ones, there is a continuity in the use of bird/crocodile motifs. Lastly I suggest probably in the Gorkha period when the region is once again under central organisation, larger waterpoints were built, this time using a technique of laid paving slab on top of irregular boulders. Examples of this type can be seen in widely differing areas such as Dailekh and Tatopani. These last stone waterpoints do not contain any bird/crocodile motifs unlike the ones in the Kathmandu valley, secondary use of material is in evidence though. The idea of using paving slabs has its origin in some early Malla waterpoints whose use of it was limited. Modern Waterpoints of the region are built in concrete and are supplied by plastic pipes. The function of the older stone waterpoints today does not differ from the modern ones, supplying water for family needs as well as for the porters.

Archaeological evidence demonstrates that waterconduits and watertanks both in the Malla and early Baisi periods were constructed. These early structures were connected with religious monuments such as Stupas and temples. Stone waterconduits function was to supply waterpoints, the watertanks are connected with lack of water in the dry season, in the dry zone of north-western Nepal and a royal residence at Dullu. Stone coated

tanks are not constructed today in the region, but earthen watertanks may be still found in the Jumla irrigation agriculture system where the idea is preserved.

Pottery evidence points towards the canals in the Jumla area being ancient in construction. Further evidence from the stone waterconduits and indirect evidence from the watermill wheel near Dailekh show that in the Malla and early Baisi periods there was the technology in the region to construct the canals. Folklore tradition indicates that the earthen canals of Jumla were built by the Mallas. Malaybrani is remembered as a great hero in many legends. He was a King of Jumla. In a saying prevalent in Dahan in Kalikof dara, the King is credited with building the monastery at Khojarnath with hard teaks from Surkhet. Could it be that this King also built the Jumla canals? Other strong supporting evidence shows that a canal 17 km in length runs along the Siju Kola to Siju, the old Malla summer capital, this canal was constructed in the same fashion as the Jumla canals. So we have evidence of a large canal system connecting two important Malla centres. All of the above evidence leads one to believe that the canals were constructed in the Malla period.

There would appear good cultural continuity in the region. Continuity in irrigation, agriculture techniques and systems seems likely from the Malla period to the present day for a number of reasons. The climate has not significantly changed. The woods used in the tools are taken from locally available sources such as blue pine, that would have been available in the Malla and preceding periods, although today it is under great pressure due to higher and higher cultivation of the slopes. The metals have

been traditionally traded from India and today are still fashioned by local blacksmiths. The tools are not elaborate in construction and are suited to perform the basic functions necessary to till the soil.

There are interesting differences in the two systems I worked on. The Salkot system is clearly much later in origin and more sophisticated compared with the Jumla system, for example, waterights in the Salkot system were established through the ownership of shares, whereas in the Jumla system it was done by landholding. It is also interesting to note that though a committee system had been set up in Jumla, disputes which the committee were supposed to handle were in fact settled outside the committee, physically. The opposite occurred in the Salkot area, fines being levied there against offenders.

Other notable differences occur in the two systems in system operation. In the Salkot area saachos were much in evidence, whereas at Jumla tanks and a rotation system was used. It seems likely from the above evidence that the Jumla system is the more traditional in the region. Improvements in canal construction have certainly occurred. The use of wood to line canals allows up to 40% improved efficiency in carrying water. In Salkot the canals are lined on the outside with the boulder stones. The Jumla canals are however constructed of earth, this may be due to the infrequent breaks in the canals helped by the mild monsoon.

All the food stuffs with the exception of luxuries such as sugar, and tea, are produced locally. We know the seeds are local in origin and from evidence from the Dailekh watermill wheel foodstuffs must have been ground in the region in the late Malla, early

Baisi periods. Potatoes are certainly a new-comer to the area and resistance to grow and irrigate them is still strong. The crops the canals irrigated could well have been a rice similar to that of red rice grown in the region today. The properties of the rice are such that it only grows in this region, having adapted itself to the high altitude. I think, though, cultivation on the very high slopes of 9,000 ft are likely to have come within the last century, with increasing population pressure in the area.

The continuity for trading herbs (as a supplement to the irrigation agriculture) in the Jumla area is very good. I think this trade is likely to have been based on the herbs I recorded in my survey. The market in the past may well have been larger, since in recent times the economy of the area has relied heavily on government food aid.

I look forward very much to returning to the region and carrying out further research work. The region is certainly not easily accessible, but if the true nature and extent of the Malla Empire is to be discovered the difficulties and discomforts must be borne.

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Glossary

- Amalaka-quoins -A Particular style of stone decoration common on monuments of the Karnali Basin.
- Baisi -The twenty-two kingdoms. A period in Nepali history from the late 1300s to the late 1700s.
- Beri -Sloping land.
- Bigha -Term for a local measurement of paddy land.
- Brahmins -High caste group common in Jumla area.
- Dullu -Farmer winter capital of the Mallas.
- Gorkha -Period occurring after the Baisi period upto 1840s.
- Gum -Former capital of Mugu.
- Khet -Terraced land, usually for paddy.

Latikoili	-Temple near Surkhet.	Rana	-Period occurring after Gorkha period from 1840-1950. Rana is the name of the ruling family dynasty.
M alla	-Period in Nepali history of Mid-Western region - from 1100s to later 1300s. Common ruling family dynasty that gives its name to the period.	Saacho	-A horizontal weir made from a log with two or more notches of equal depth.
Mugraha	-Term in Nepali for a water-conduit.	Saga	-Local term used for plant with no specific name. It means 'green'.
Mugu	-Region to the north of Jumla which borders modern-day Tibet.	Terai	-The flat land of Nepal which has a tropical climate.
Pujaa	-Worship associated with either Buddhism or Hinduism.	Tila	-A tributary of the river Karnali that runs from Jumla.
Panchayat 'Petal'	-Local village council. -Nickname used to describe enlarged type of Amalaka-quoins decoration.	Thakuris Vapi	-Caste below the Brahmins. -Local term for a watertank.

(The End)