

# DWELLINGS OR GRANARIES? THE PIT PHENOMENON OF THE KASHMIR-SWAT NEOLITHIC

R.A.E. CONINGHAM & T.L. SUTHERLAND

## Introduction

During the expansion of the first food-producing communities within south Asia, a particular culture complex emerged in the fourth millennium BC in the northern valleys of the subcontinent. Commonly referred to as the northern Neolithic (Agrawal, 1982,94; Allchin & Allchin, 1982,116) or the Kashmir-Swat Neolithic (Parpola, 1994,142), this complex is characterised by pit dwellings, dog burials, ground stone axes and rectangular holed sickles. First discovered in the Kashmir valley in the 1950s, more recent evidence suggests that it extends as far as the Swat valley (Stacul, 1994). Many scholars have been struck by its similarity with aspects of the Neolithic of Inner Asia; in particular, its holed or notched sickles, dwelling pits and jade beads have been found in a number of Chinese Neolithic sites (*ibid.*). Building on these strong archaeological similarities, some scholars have even suggested that the inhabitants of the Kashmir-Swat Neolithic may have been speakers of a Sino-Tibetan language (Parpola, 1994,142). Amongst the most important lines of research arising from the study of this culture complex is the identification and interpretation of the pit phenomenon. The larger pits are currently interpreted as dwellings; this paper will offer an alternative model by reassessing them in the light of recent methodological and theoretical developments applied to a similar pit phenomenon in British Iron Age archaeology.

## The evidence

There are over 40 south Asian sites which share these cultural traits; unfortunately, only three sites have been excavated and published to any extent. These sites are Burzahom in Kashmir (IAR, 1961; 1964) and Loebanr III and Kalako-deray in Swat (Stacul, 1977; 1993; 1995). The first site to be excavated, Burzahom, remains the type site of this culture complex, but the excavation report from the 1960s is still pending and undoubtedly fresh excavations are needed to fully understand its sequence. Most of the available descriptions of the site's sequence and features are brief, and there is little data available as to the precise fills of the various pits (IAR, 1961,11). A series of flat-bottomed, circular and oval pits were excavated during the first season, containing ashy deposits which the excavators interpreted as "human occupation" (*ibid.*). A further 16 pits were excavated during the second season, of which the largest was bell-shaped, measuring 4.57m in diameter and 3.96m in depth (IAR, 1964,17). Plastered with clay, a number of these pits were also reported as

containing stone hearths (*ibid.*). In addition to the larger pits, a number of shallow pits, measuring between 0.6m and 0.91m were also excavated (*ibid.*). At the end of this occupation, it appears that all the pits were filled and sealed, and replaced by rectangular structures built on the surface. The pits have been dated to between c.3000-1550 BC, whilst the surface structures have been dated to between c.1550-1700 BC (Sharif & Thapar, 1992,147).

Similar pits were found in the valley of Swat at the sites of Kalako-deray and Loebanr III (Stacul, 1977, 1994). The latter was excavated in 1976; a total of 9 large pits and a number of smaller ones were identified and excavated in Trench A (Stacul, 1977,230). The large pits were divided into three groups; 1 shallow, large pit (Hut A), 1 deep, medium-sized pit (Pit 1) and 7 shallow, medium-sized pits (Pits 2, 3, 4, 5, 6, 7 & 8). The published pit sections demonstrate that it is possible to make sub-divisions in terms of pit shape: bell-shaped, irregular, barrel-shaped and concave (*ibid.*, 231-2). Further differences can be observed: for example, Pit 1 was the only one to have been plastered (*ibid.*, 232). Whilst the basal fills of most pits appear to be similar - a fine, grey, sandy clay, a number had significantly different contents in subsequent fills. Pit 1, for example, contained indicators of a fire-place, 5 bone objects, 1 human terracotta figurine, 6 ceramic vessels and animal bones in layer 6; Pit 2 contained 11 ceramic vessels, 5 miniature ceramic vessels, 2 human terracotta figurines, 1 stone celt, 1 grinding stone, three bone objects and animal bones in layer 5; Hut A contained a large fireplace, 24 ceramic vessels, 3 miniature ceramic vessels, 7 bone objects, 2 human terracotta figurines, 10 animal terracotta figurines, 6 terracotta objects, 1 stone celt, 1 jade bead and animal bones in layer 4 (*ibid.*, 232-4). Although circular alignments of postholes could be traced around some of the medium-sized pits (*ibid.*, 234-5), no such features could be detected around the largest, Hut A. The discovery of numerous fragments of daub within the excavations suggested to Stacul that "the use of roofing structures of reeds and stakes has been attested" (*ibid.*). As at Burzahom the pit structures were filled and sealed by walled rectangular structures on the surface.

The second of the Swat valley sites, Kalako-deray, provides the most detailed data. It was excavated between 1989 and 1993 and has revealed remarkably similar features and fills (Stacul, 1993; 1995). Seven areas were excavated, of which 6 yielded evidence of large pits, contemporary in date with those at Loebanr III. Four pits were excavated in Area A (Stacul, 1993,72) - A1, A3, A9 & A11; they varied in diameter between 1.6m and 2.2m, and in depth between 1.4m and 0.5m (*ibid.*). A further 2 pits, B5 & B7, were excavated in Area B. Pit B5 measured 2.5m in diameter and whilst the upper fill contained 2 rectangular holed sickles, the lower fill contained potsherds, miniature ceramic vessels, stone axes, bone artefacts and grinding slabs (*ibid.*, 75). Pit B7 was paved in schist slabs, measuring 4.7m in diameter and 3.6m deep, and contained ceramic vessels, miniature ceramic vessels,

bone artefacts, hammer axes and grinding slabs (*ibid.*). It is interesting to note that, unlike at Loebanr III, no postholes were identified (*ibid.*, 88). During the 1992 and 1993 seasons 3 new areas were opened - B1, B2-B3 and C, of which all but the latter revealed large pits in the earliest phases (Stacul, 1995). Eleven pits were identified and excavated in Areas B1 and B2-B3, ranging between 2.7m and 1.4m in diameter and between 0.55m and 1.4m in depth (*ibid.*, 110-112). Although special or small finds were recovered from the fills of almost every pit, the finds from two are described here as they demonstrate a great similarity with finds from Pits 1 & 2 and Hut A at Loebanr III (Stacul, 1977). Kalako-deray Pit B17, measuring 2.7m in diameter and 1.45m in depth, contained 1 holed rectangular sickle, 1 stone axe-hammer, 3 stone balls, 2 grinding slabs, 1 ceramic vessel, 2 terracotta animal figurines and animal bones; Pit B18, measuring 2.3m in diameter and 1.4m in depth, contained 1 rectangular sickle or saw, 1 hammer-axe, 1 grinding slab, 1 mortar, 4 ceramic vessels, 1 miniature ceramic vessel and animal bones (Stacul, 1995, 110-111). All the large pits from the Swat valley sites are attributed to Period IV of the Ghalegay sequence, and thus date to between c.1700-1400 BC (Stacul, 1994, 708).

## **Current interpretations**

The excavators of Burzahom were in little doubt as to the function of the bell-shaped pits stating that “dwelling pits of Period I were invariably cut into the Karewa soil...while postholes on the periphery of the mouth suggest the likelihood of a superstructure of perishable material” (IAR, 1964, 19). They further suggested that during the winter the inhabitants of the settlement lived in the pit-dwellings cut into the loess and that during the summer they lived above ground (Bala, 1978, 2). This identification was further stressed in attempts to summarise the main aspects of the Kashmir-Swat Neolithic (Sharif & Thapar, 1992, 141; Allchin & Allchin, 1982, 112); Agrawal stated that the “Pit dwelling is the most distinctive trait of Period I (at Burzahom)” and that “Deeper pits must have been used during the winters when the valley becomes snowbound” (Agrawal, 1982, 98). Moreover, as most of the 45 excavated ‘pit-chambers’ were located in the centre of the site and the 37 smaller pits were on the peripheries it has been suggested that this represents differing social affiliation, with one group in one type of pit and another group in another (Sharif & Thapar, 1992, 143). It is clear from the title of the 1976 Loebanr III report that a dwelling function was also attributed to the various pits encountered there (Stacul, 1977). Indeed, the commentary summarises the evidence presented and states that feature A was “used for dwelling purposes and probably as sleeping quarters”; Pit 1 was originally a storage pit and then reused as “a fireplace and maybe for other dwelling activities”; Pits 2 & 5 formed one composite room and “it seems evident that the artefacts and faunal remains at the base of layer 5 are indicative of intensive settled activity”; Pit 4 was a fire-place but the functions of

Pits 3, 6, 7 & 8 were unclear (ibid., 250). The 1993 report of Kalako-deray again stresses the dwelling nature of a number of the excavated pits stating that the discovery of faunal and floral remains within their fills suggested “intensive occupation of the cavities” (Stacul, 1993,89). Furthermore, it stresses similarities between the Swat valley pits and the ‘Dwelling-pits’ of ‘Inner Asia’ (ibid.). In a later synthesis Stacul concludes that whilst the function of all of the excavated pits remains in debate “the large cavities featuring floor-levels, fire-place remains and a set of finds such as jars, vessels, miniature pots, stone tools and clay figurines, mostly suggest a dwelling place” (Stacul, 1994,708). It is thus clear that most scholars have accepted the ‘dwelling’ hypothesis for the function of the Kashmir-Swat Neolithic pit phenomenon as the most likely explanation. However, the use of words such as ‘presumably’ and ‘probably’ (Allchin & Allchin, 1982,111) or ‘suggest’ and ‘tentatively’ (Stacul, 1994,708) indicate an openness to new interpretations.

### **The pit phenomenon of the British Iron Age**

This south Asian phenomenon bears a close resemblance to that of the British Iron Age in terms of the size, shape and contents of the pits. Whilst it would be impossible and imprudent to draw formal analogies between the identification and interpretation across continents, it may be of benefit to apply the methods and theories which have been applied in reassessing the function of British Iron Age pits to south Asian Neolithic ones. The dwelling pit interpretations held by south Asian archaeologists are remarkably similar to those traditionally held for the British Iron Age pits - these similarities are even more striking when one considers that some of the earliest identifications of pit-dwellings in the latter can be attributed to Sir Mortimer Wheeler, one time Director-General of Archaeology in Pre-Partition India! One of the most illustrative examples is furnished by Wheeler himself. At the Iron Age hillfort of Maiden Castle he excavated a number of barrel-shaped or bell-shaped pits, varying in diameter between 1m and 2m, and in depth between 3.35m and 0.6m (Wheeler, 1943,51). In many cases traces of postholes were identified on the margins suggesting to the excavator that they were furnished with a wooden super-structure or roof (ibid.), as suggested at Burzahom (Allchin & Allchin, 1982,111). Wheeler attributed the function of some of the larger pits to stores, dining-rooms or living-quarters (ibid.); for example, Pit B1 was interpreted as a dwelling as it had a central fireplace (ibid., 52).

Since Wheeler’s time advances in excavation techniques, improved recovery of organic remains and the increased use of ethnoarchaeological and experimental studies have allowed archaeologists to re-evaluate the function of such Iron Age pits. Many scholars now argue that the pits were used for the storage of grain (Fowler, 1983; Reynolds, 1974; Cunliffe & Poole, 1991). It is notable, however, that as early as the 1930s Bersu was advocating such a hypothesis for the pits excavated at Little Woodbury in Wiltshire (Bersu,

1938; 1940). An example of the benefits of modern excavation and the recovery of organic remains can be seen in the report on Danebury, an Iron Age hillfort in Hampshire (Cunliffe & Poole, 1991). Although little organic material had actually survived, the presence of slumping within the fills of many pits indicated the rotting and subsequent compaction of layers of perishables - corn (ibid., 161). Such evidence enabled the excavators to attribute a function of underground corn storage to most of the 645 pits excavated (ibid.). A similar storage interpretation was reached by Reynolds through the use of ethnoarchaeological evidence from modern grain storage pits in the Chibi district of Zimbabwe (Reynolds, 1974, 119). More recently, experimental work carried out by Reynolds at the Butzer Ancient Farm Project in England attempted to replicate the living conditions within a typical 'pit-dwelling' of typical dimensions. This experiment demonstrated that as soon as a fire was lit in the base of the pit, the atmosphere became "completely intolerable due to the intense smoke produced in the reduced environment" (Reynolds, 1995, pers. comm.). Thus it seems highly unlikely that such pits could have been occupied during winter months. The presence of fireplaces need not necessarily indicate domestic use. The firing of pits has been demonstrated to prolong the life of a pit considerably (Reynolds, 1974, 128) as well as having the advantage of clearing mould or dampness, or speeding up the drying process if plastering had been carried out. Moreover, if repeated and frequent fires had been lit within the pits one would expect their sides to have become impregnated with layers of soot - no such examples have been forthcoming from the subcontinent. The functional advantages of the underground storage of grain are clear, as illustrated by Cunliffe and Poole (1991, 162). Pits, once sealed, perform well as functional containers due to their reduced atmosphere but as soon the seal is broken the contents tend to rot rapidly. This factor has led to a hypothesis that the pits were used to store grain seed whilst grain for consumption was held in surface granaries (ibid.). Furthermore, the underground storage of grain seed would also protect it from destruction by raiders or chance catastrophe as no evidence of their location need be indicated above ground (ibid.). Although there is still debate as to the pits' exact function, most scholars now refute the traditional interpretation of dwelling pits. Fowler, for example, states that "despite the unequivocal evidence...the British storage pit was for long accepted as the actual dwelling place of the Celtic farmer" (Fowler, 1983, 182). In the light of the above discussion, the hypothesis that the function of many of the 'dwelling-pits' of the Kashmir-Swat Neolithic might also be re-assessed as grain stores should not be disregarded.

### **Towards a new model**

In order to test this new hypothesis, there are a number of associated methodological and theoretical problems which must be addressed. Evidently, fresh problem-oriented

excavation is the most immediate need; until then, however, we are restricted to working with the available data. The methodological questions include pit phasing, pit profile erosion, the differentiation of fills and the identification of organic remains. Undoubtedly the Swat valley examples provide the most accurate dating, but their dates cover 400 years (Stacul, 1994,708) and there is no inter-pit phasing of this period provided. At Loebanr III, for example, we have no idea as to the contemporaneous nature of the pits, nor for how long they were open. Undoubtedly all were sealed by layer 3 but inter-period phasing is only suggested by the cutting of Pit 5 by Pit 2 (Stacul, 1977,230). This problem of the contemporaneousness of adjacent pits is also encountered whilst looking at the sections of the pits; the section of Pit 4 appears very clean and is bell-shaped suggesting an almost immediate filling, whilst the sections of Hut A, Pit 2 and Pit 5 appear to be very badly eroded (*ibid.*, 231-2). At the British site of Danebury, for example, some 60% of the excavated pits had suffered from some erosion which had significantly altered their upper profiles (Cunliffe & Poole, 1991,159). Further confusion may arise from problems with the identification of taphonomic processes - it may be difficult to differentiate between an 'in situ' fireplace within a pit and a dump from a surface fireplace within the fill of a pit. There has also been a general absence of the recovery of organic remains from the pits. Further identifications, as of wheat and barley at Kalako-deray (Stacul, 1993,75), combined with micromorphological analysis of pit fills and the recording of slumped sections during excavation would allow additional testing of the storage hypothesis. Although many of the pits may not contain macro carbonised remains, phytolith studies may contribute to a fuller representation.

The largest problem remaining is that even if one accepts a storage hypothesis, one still has to explain the placing of artefact assemblages within the pits. Undoubtedly in the Kashmir-Swat Neolithic some of the fills indicate a reuse as a refuse dump; however as at the British example of Danebury, a number appear to have gone through a series of decay and secondary use, often interspersed with periods of inactivity (Cunliffe & Poole, 1991,161). Cunliffe and Poole have further suggested that "phases of activity may be defined as reflecting a deliberate act of deposition", often involving the placing of faunal remains or the deposition of single artefacts or artefacts groups (*ibid.*, 161-2). They also advance the hypothesis that such deliberate depositions may be connected with rites associated with the storage of goods below the surface, and that their retrieval might necessitate some acts of propitiation. Such a model of deliberate deposition might also begin to explain the various fills of the Kashmir-Swat Neolithic pits previously identified as house floors. Certainly the assumption that the presence of floor-levels, fireplace remains, jars, vessels, miniature pots, stone tools and clay figurines indicate a dwelling-pit (Stacul, 1994,708) must be reassessed as such finds were also recovered in 'storage pits' in the succeeding periods, VII and VIII,

at Kalako-deray, when occupation is assumed to have been above ground. The upper fills of Pit A6, for example, yielded charcoal, 1 human terracotta figurine, 1 iron object and 2 stone, beehive-shaped spindle whorls (Stacul, 1993,74). These later pits also suggest that size is not an indicator of whether a pit is a 'dwelling-pit' or a store. Period VII & VIII Pits A10 and B6 measured respectively 1.6m in diameter and 1.25m in depth and 2.7m in diameter and 1.6m in depth (ibid., 74-76). Both were interpreted by the excavator as stores or mills (ibid., 91), although similar features belonging to Period IV were interpreted as 'dwelling-pits' (ibid., 1994,708). Similarly, the deliberate placing of artefacts within a pit may signify the ending of that pit's role as a store and the beginning of a new role. Attempts to attribute a single function to a single archaeological feature have the danger of creating non-valid typologies or schemes of classification. A pit may therefore have as many changes in role or persona as a human may experience over a lifetime, although these may be non-functional roles of which we have no current understanding. Indeed, the general explanation, both functional or utilitarian and non-functional, of pit fills within the subcontinent needs overhauling, as demonstrated in some of the Iron Age pit fills at the settlement site of Anuradhapura where human and animal remains have been recovered from 'refuse pits' (Coningham, Knusel & Mann, in prep.).

If we accept that the pit features of the Kashmir-Swat Neolithic may have been grain stores, does this challenge our understanding of the culture complex as a whole? Two initial questions are raised, firstly, why have the inhabitants chosen to store grain below ground? We have already cited some of the functional advantages of underground grain storage, but there are numerous modern and archaeological examples of grain storage above ground in south Asia (Dhavalikar, 1995; Khan, 1995; Coningham, 1995). Therefore, the choice of underground storage may have been associated with a particular over-riding factor. Scholars have always approached the Kashmir-Swat Neolithic as a sedentary culture as indicated by pit dwellings suitable for habitation throughout the year, including the very cold winters in these two regions. If one now accepts that the pits were not inhabited but used for storage, one may hypothesise that a transhumant, or semi-sedentary, subsistence strategy is equally possible. In such a scenario the major nuclear sites of the higher valleys would be occupied and cultivated during the spring and summer seasons. Following the harvest, grain seed would be deposited in underground storage pits which were then sealed in order to produce a reduced atmosphere which would prevent micro-organisms attacking the grain. With the onset of the winter season the nuclear settlement would be abandoned as its inhabitants left to winter in the less severe conditions of the lower valleys and plains, leaving the underground grain stores, safe and unmarked on the surface, to be reopened in the next spring for sowing. Certainly this was the case with one of Reynold's modern experimental pits at Little Butser, when surface trampling caused it to be "temporarily lost"

(Reynolds, 1974,123). Secondly, we must consider why we now have no evidence for habitation if all 'dwelling pits' are redesignated, unless dwellings were built over the pits as appears in the British Iron Age examples (*ibid.*, 128). Perhaps this absence may be explained by a transhumant or semi-sedentary way of life, as habitation would have had to be light-weight and mobile. Finally, it may be suggested that as we have advocated the rejection of the dwelling-pit hypothesis, we must begin to reassess the purported cultural links between the Kashmir-Swat Neolithic and that of Central and Eastern Asia as sub-surface storage is such a common cross-cultural phenomenon.

Despite substantial analysis and re-analysis of pit fills belonging to the British Iron Age, debate as to their function still continues (Cunliffe & Poole, 1991; Hill, 1995). Further study in both areas is necessary and the preliminary suggestions given in this paper do not, of course, preclude the evidence of pit-dwellers within the subcontinent. In conclusion, we have presented a new hypothesis for the function of the Kashmir-Swat Neolithic pit phenomenon, building on substantial studies conducted on a similar pit phenomenon half-way across the world in a different millennium! However, we believe that it is this cross-fertilisation of ideas that will enable new interpretations to be proposed and tested, so that we may draw close to a fuller understanding of the past.



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