

# The prehistoric settlement of Mustang

## First results of the 1993 archaeological investigations in cave systems and connected ruined sites

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In the following pages we wish to present the first results of the excavations carried out by a joint team of Cologne University and HMG Department of Archaeology during the spring of 1993 in southern Mustang. In addition, we shall be reporting on the campaign of surveying in August 1993 in Upper Mustang<sup>1</sup>.

As in the previous year, our team worked during the spring campaign in two regions of the southern Mustang District in Western Nepal (Fig. 1):

- in the Kaligandaki Valley in the Thakkhola at the find-spot of Chokhopani, opposite the village of Tukche on the eastern bank, with its funerary caves and settlement remains;
- in the upper Muktinath Valley on the rocky bar of the village Dzong (Jhong), opposite the village site of Dzar (Jharkot), at the find-spot of Mebrak with its cave-systems and a deserted village (Schön and Simons 1993; Simons et al. 1994).

### 1. Work in the caves of Chokhopani

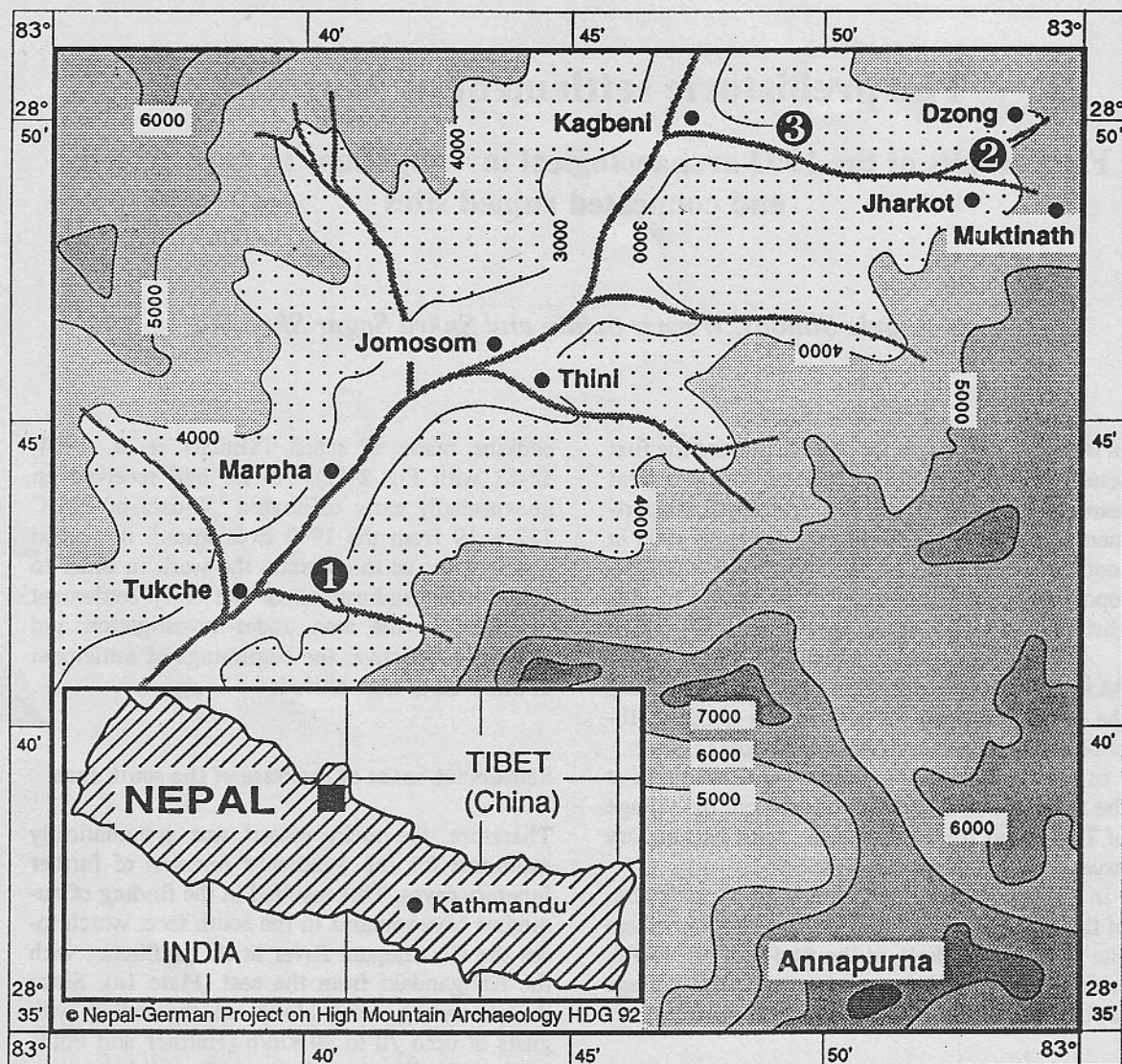
The funerary caves of CHOKHOPANI in the Thakkhola were cut into by the shaft of a down-pipe from a small hydro-electric station (Tiwari 1985). In 1992 we carried out an initial rescue excavation in the eastern shaft, during which remains of three burial caves with numerous grave goods were salvaged: pottery, bronze and copper jewellery, beads of carnelian, bone and faience,

bodkins made of schist (Simons et al. 1994, 52-53 with Fig. 2-11). As we had received an unexpectedly early calibrated <sup>14</sup>C-date of calBC 777 ± 19 from the 1992 excavation<sup>2</sup>, it seemed essential for us to continue the work in order to gain further indications of the early settlement processes in the area under investigation and possibly to discover the beginnings of settlement in this area of high altitude.

### Settlement-caves at the base of the south face

Therefore, the rocky massif was systematically examined for the weathered remains of further funerary caves. This resulted in the finding of numerous cave remains in the south face, which faces the Chokhopani River at its confluence with the Kaligandaki from the east (Plate 1a). Since the prevailing wind blows up the valley with gusts of upto 70 to 90 km/h (Haffner and Pohle 1993, 45f.), the south-facing rock-wall is particularly prone to erosion through wind and precipitation.

Some cave remains, whose artificial nature was not always evident, lay at the base of the rock-wall and were accessible via the scree. Almost all of the cave-rooms examined bear witness to human activity. In the case of two quarried caverns (locations 6 and 7), several settlement strata were cut in section, whereby accumulations of sediment upto a thickness of two meters were



**Fig. 1** Map of southern part of Mustang District. Archaeological sites:  
 1 Site of Chokhopani in the Thakkhola  
 2 Site of Mebrak in the upper Muktinath Valley  
 3 Site of Phudzeling in the lower Muktinath Valley

observed. Several occupation levels containing charcoal and bones and separated by sterile layers of debris were detectable. In location 6 the remains of a hearth appeared at the very bottom of the section beneath a 2 meter thick packet of sediment. A calibrated radiocarbon date of calBC

$785 \pm 26$  places this hearth in the same chronological period as the funerary caves in the west face<sup>3</sup>.

In location 7, too, several occupation layers could be uncovered in a 60 cm thick packet of strata by

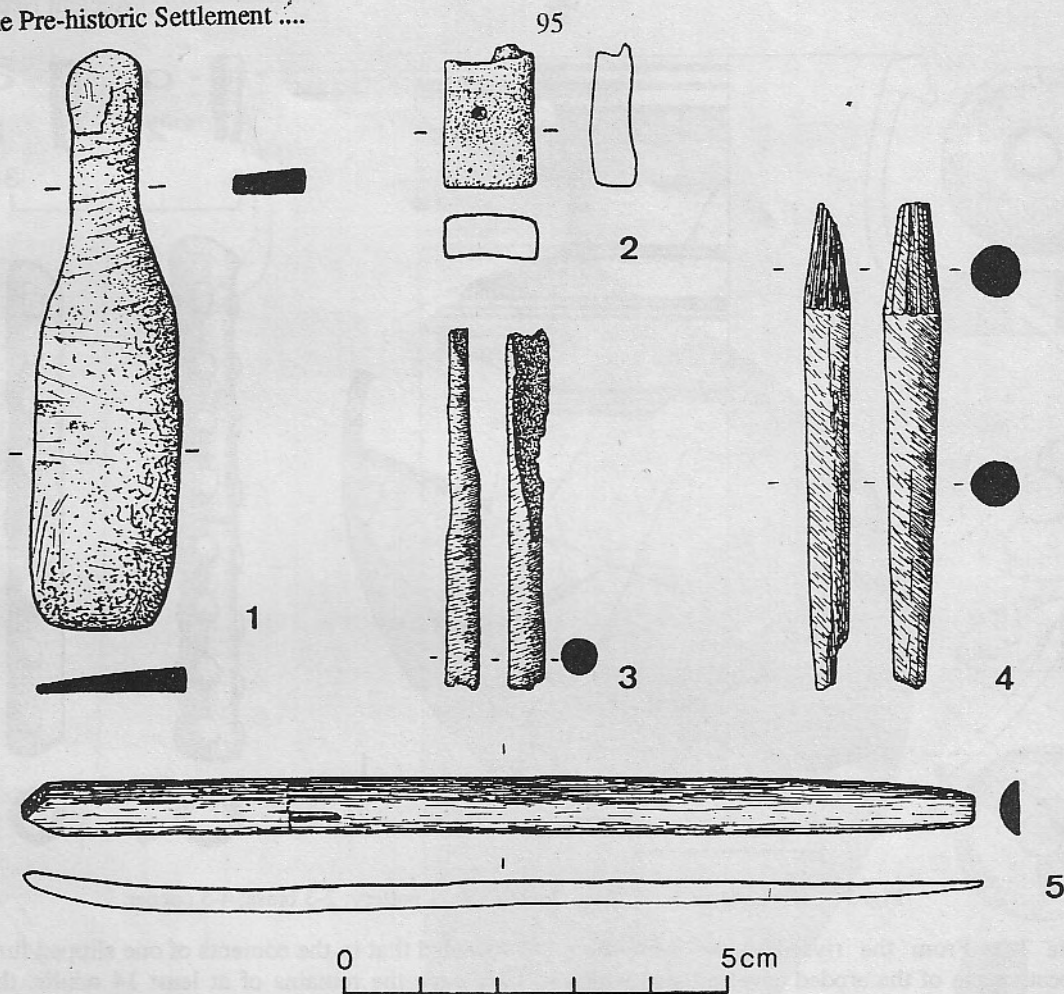


Fig. 2 Chokhopani South Face, location 7: 1 iron; 2 bone; 3-4 schist; 5 bamboo.

cutting back the section. Apart from pottery sherds, animal bones and cereal remains, finds from the hitherto undated main finds' layer in the middle of the section included an iron spatula (Fig. 2:1) and two fragmented slate awls (points) with rounded section (Fig. 2:3-4). The charcoal from the hearth directly on the cave-floor yielded a  $^{14}\text{C}$ -date of  $\text{calBC } 670 \pm 109$ , which also falls into the early prehistoric period of the funerary caves in the west face<sup>4</sup>.

It is clear that the caverns at the base of the south face represent the remains of inhabited caves, albeit occupied, perhaps, periodically. The discovery of graves and traces of settlement from the

same prehistoric period in Chokhopani is of fundamental importance for the understanding of the early settlement of Mustang; the early dates connect the lowest layers of these settlement caves (locations 6 and 7) in the south face with the burial caves in the west face of Chokhopani.

#### Remains of funerary caves in the south face

Most features in the south face were only accessible by descending by rope from the upper plateau and, therefore, had to be worked upon while hanging some 30 m above the river terrace

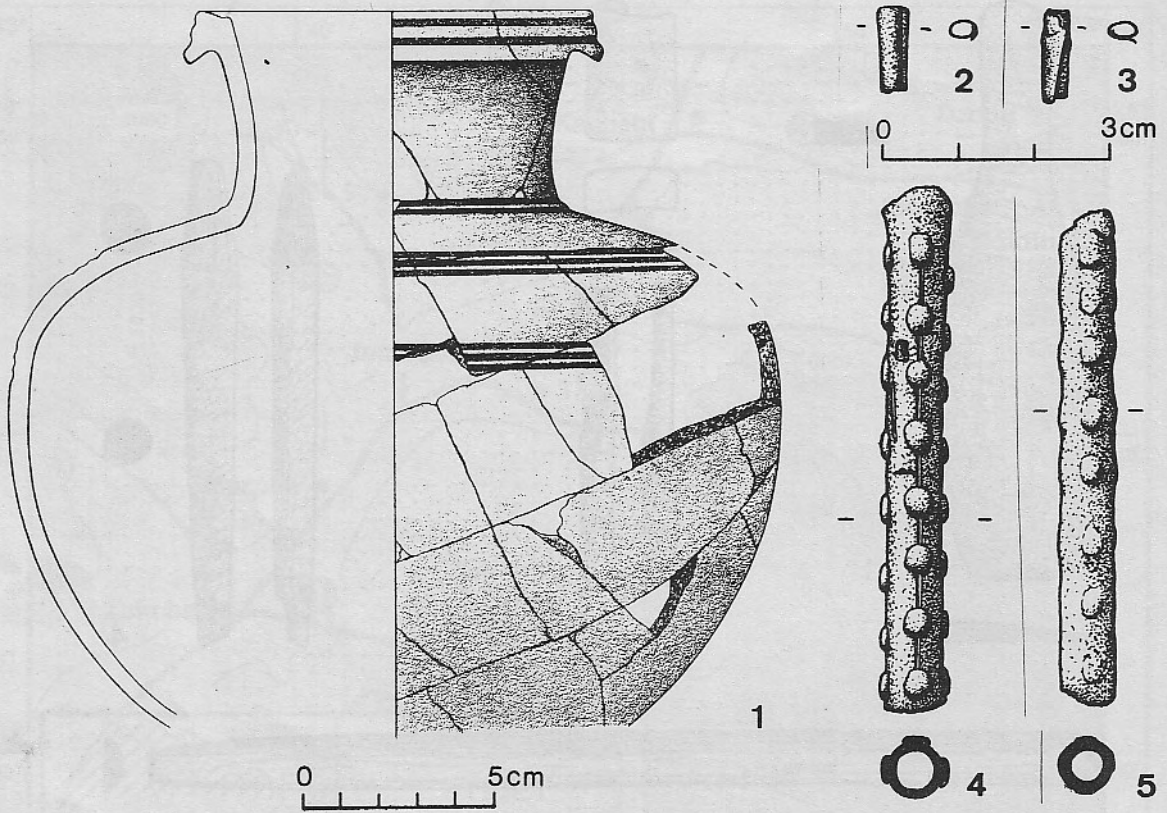


Fig. 3 Chokhopani South Face, location 9: 1 pottery; 2-3 brass; 4-5 copper.

(Plate 1a). From the river-bed we were able to locate some of the eroded cave remains which our spelaeologists had ascertained by mountaineering methods. Beneath the weathered funerary caves human and animal bones, as well as pottery, projected from the rock face (Plate 1b). The vessels were crushed, the bones pressed together and mostly dislocated. The burials from the eroded caves had slipped down en bloc and now lay some two meters below the still recognisable former funerary caves. The bones were well-preserved, but very much affected by roots, as bushes and trees had colonised the ground, attracted by the nutrition afforded by the disturbed burial contents. As with the burials from the west face, these, too, were clearly collective graves, since skeletal remains of several individuals lay tightly packed together. The preliminary investigations of the anthropologists have

revealed that in the contents of one slipped funerary cave the remains of at least 14 adults, three youths and two children were found<sup>5</sup>. As opposed to the burials in the west face, in which, apart from a few adults, a high proportion of small children was laid to rest (Simons et al. 1994, 52), mainly adults were buried in the graves of the south face of Chokhopani.

As well as a little pottery, the deceased were buried with glass and metal jewellery (Fig. 3-5). The 1 cm long tubules (Fig. 3:2-3) were analysed as brass (75% copper, 5% zinc)<sup>6</sup>. As with the glass beads (Fig. 4:6-13; 5:1), they belong to a necklace or the braiding of a costume. The larger metal tubules with soldered burls (Fig. 3: 4-5) consist of copper and reveal traces of a gilt. The large, flat slate beads, which partly only survive as fragments (Fig. 4:2-5), could be spinning-whorls.

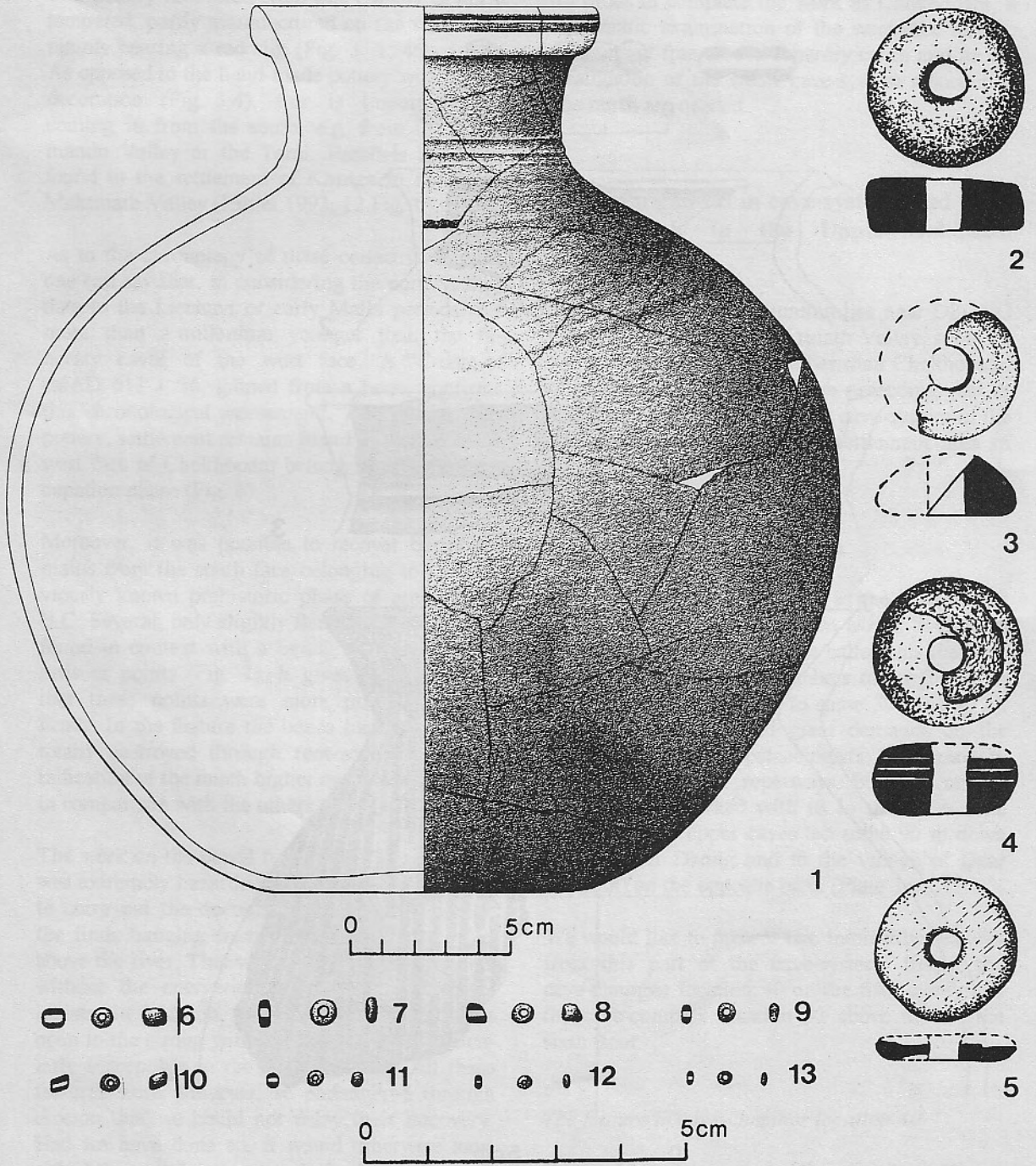


Fig. 4 Chokhopani South Face, location 11: 1 pottery; 2-5 schist; 6-13 glass.

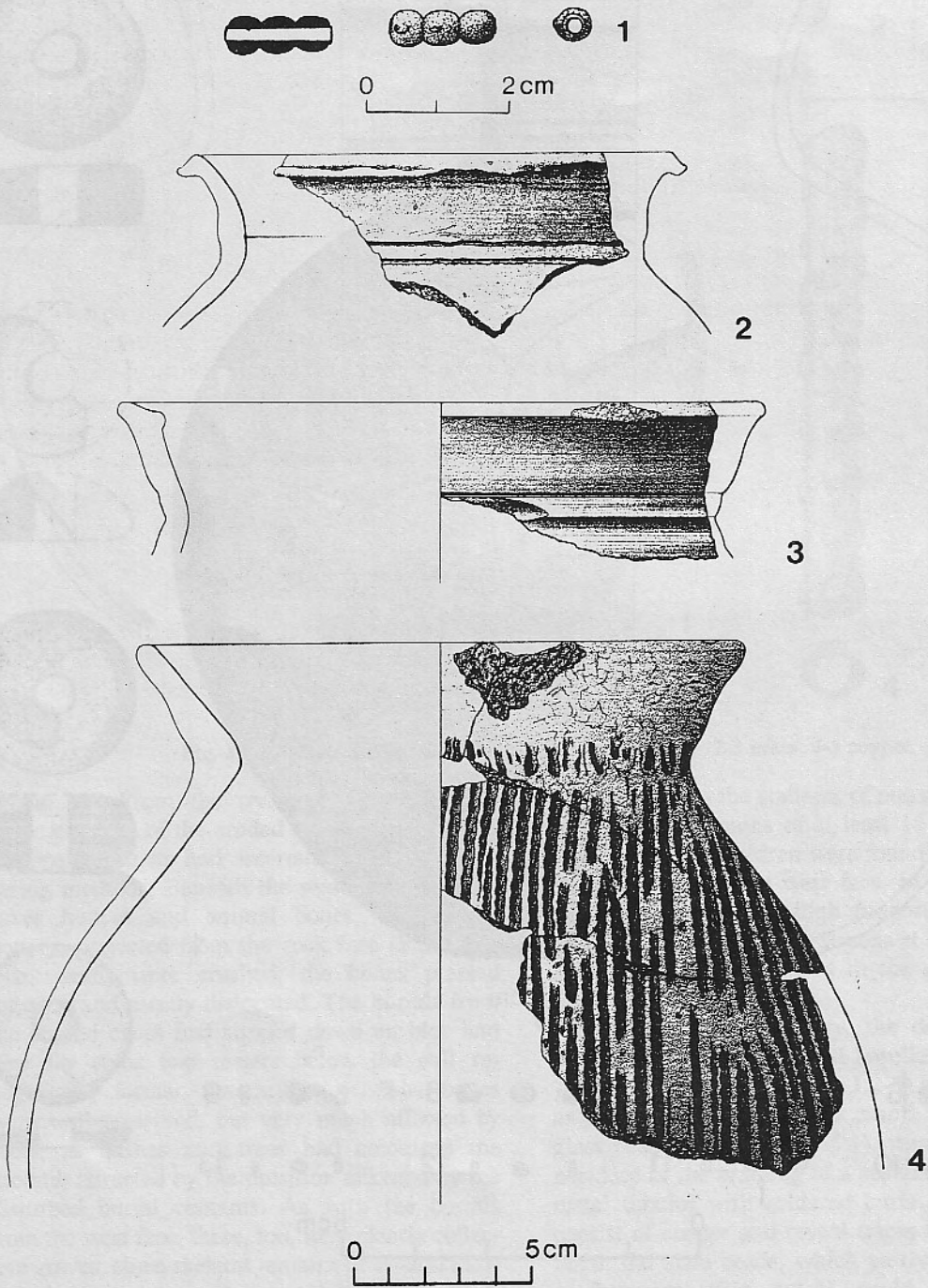


Fig. 5 Chokhopani South Face, (1-2 location 14; 3 location 12; 4 location 16): 1 glass; 2-4 pottery.

The pottery recovered from this context is mica-tempered, partly manufactured on the wheel and mainly bearing a red slip (Fig. 3: 1; 4:1; 5:2-3). As opposed to the hand-made pottery with corded decoration (Fig. 5:4), this is imported ware coming in from the south, e.g. from the Kathmandu Valley or the Terai. Parallels are to be found in the settlement of Khinga in the upper Muktinath Valley (Hüttel 1993, 12 Fig. 6).

As to the chronology of these collective burials, one can say that, in considering the pottery, they date to the Licchavi or early Malla periods, i.e. more than a millenium younger than the funerary caves of the west face. A  $^{14}\text{C}$ -date of calAD 613  $\pm$  36, gained from a bone, confirms this chronological assessment<sup>7</sup>. According to the pottery, settlement remains found on a spur in the west face of Chokhopani belong to the same occupation phase (Fig. 6).

Moreover, it was possible to recover burial remains from the south face belonging to the previously known prehistoric phase of around 800 B.C. Several, only slightly damaged vessels were found in context with a bundle of over 40 slate awls or points (Fig. 7). It gives the impression that these points were more probably arrow-heads. In the feature the bones had almost been totally destroyed through root-action, a further indication of the much higher age of these burials in comparison with the others in the south face.

The work on the burial features in the south face was extremely hazardous and difficult, as we had to carry out the documentation and recovery of the finds hanging from ropes some 20 to 30 m above the river. This would have been impossible without the energetic support of the spelaeologists. In addition, the caves on this face are open to the strong wind, so that we were particularly susceptible to the cold and dust. All these features were, however, so endangered through erosion that we could not delay their uncovering. Had we have done so, it would otherwise have risked their total destruction beforehand.

In order to complete the work in Chokhopani, a systematic examination of the west face for the remains of free-eroded funerary caves and an investigation of the small cave-system adjacent to the north are needed.

## 2. Investigations in cave-systems and ruins of Mebrak in the Upper Muktinath Valley

The next area of investigation lies near DZONG (Jhong) in the Upper Muktinath Valley, some 20 km north of and 800 m higher than Chokhopani. We continued the work of the preceding year at the site of Mebrak, both in the cave-system in the rock face and in the ruined settlement area in front (Plate 2).

### Work in the eastern B-System

For the first time we worked in the easternmost part of the cave-system known as the 'B-System' (Simons et al. 1994, 53). We called this the 'sky-scraper', as the caves' chambers tower for seven storeys above on another to some 30 m (Fig. 8). The work there caused great demands on the know-how of the spelaeologists in regard to the construction of rope-ways, but also on the students who worked with us in the caves. The view from the upper caves led some 90 m down to the River Dzong and to the village of Dzar (Jharkot) on the opposite bank (Plate 3a).

We would like to present two interesting features from this part of the cave-system: firstly, the cave-chamber location 40 on the fifth storey and the cave-complex location 42 above that in the sixth floor.

#### *The feature in cave-chamber location 40*

On reaching the cave-chamber (location 40) we were confronted with the tableau in which the last use of the room, as well as the point at which

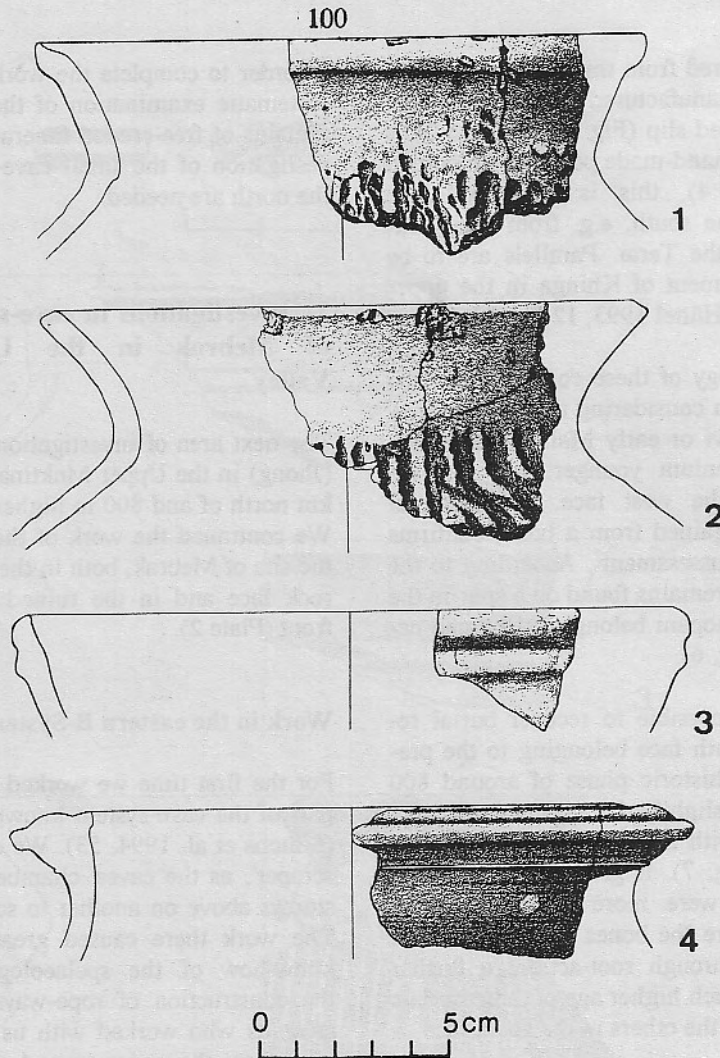


Fig. 6 Pottery from Chokhopani settlement site 92.2, location 2.

the cave-system had been abandoned, were preserved (Fig. 9; Plate 3b). The entrance was partly obstructed through collapsed daub-walls, whereby clay-bricks of different sizes and construction could provide evidence of separate building-phases. A large Chang vessel stood in front of a row of box-like clay-brick structures against the rear wall (Fig. 10). In the structures five bamboo baskets had been left behind, as well as a further pottery vessel (Fig. 12:3). Apart from numerous pot-sherds, the excavation of the chamber yielded further fragments of paper with Tibetan writing,

artefacts of leather and wood and a sandstone slab, into which the mantra "*Om mani padme hum*" had been engraved.

A set of baskets of different sizes lay in one of the clay-brick structures against the northern wall (Fig. 11), a further one in a structure against the eastern wall. Beneath a collapse of brick were discovered in a further clay-brick structure against the north wall two pottery vessels (Fig. 12:2), one of which had been crushed, and the remains of a panier with a leather strap (Fig. 12:1). In the crushed red vessel was found crump-



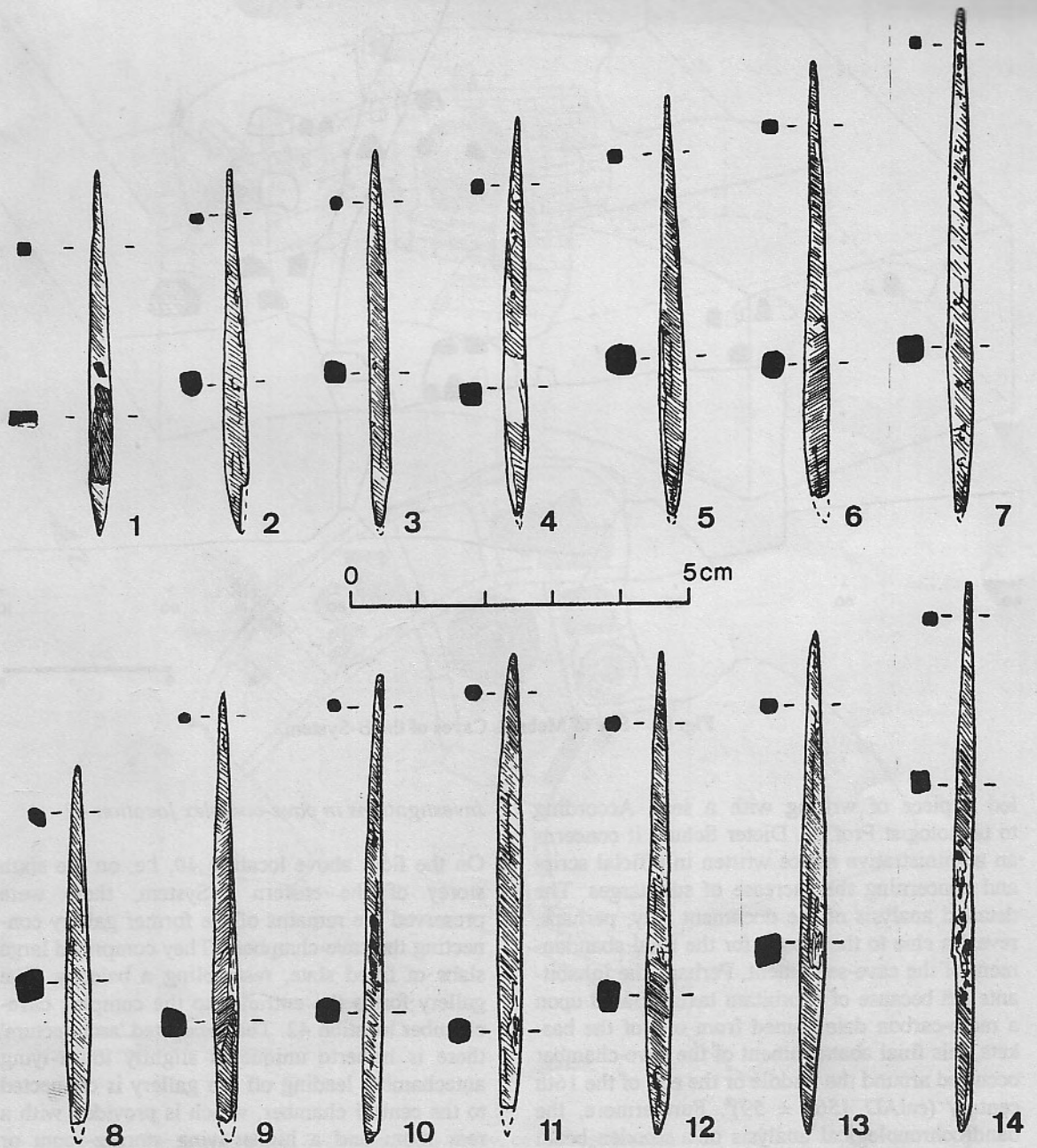


Fig. 7 Schist bodkins (points) from Chokhopani South Face, location 21.

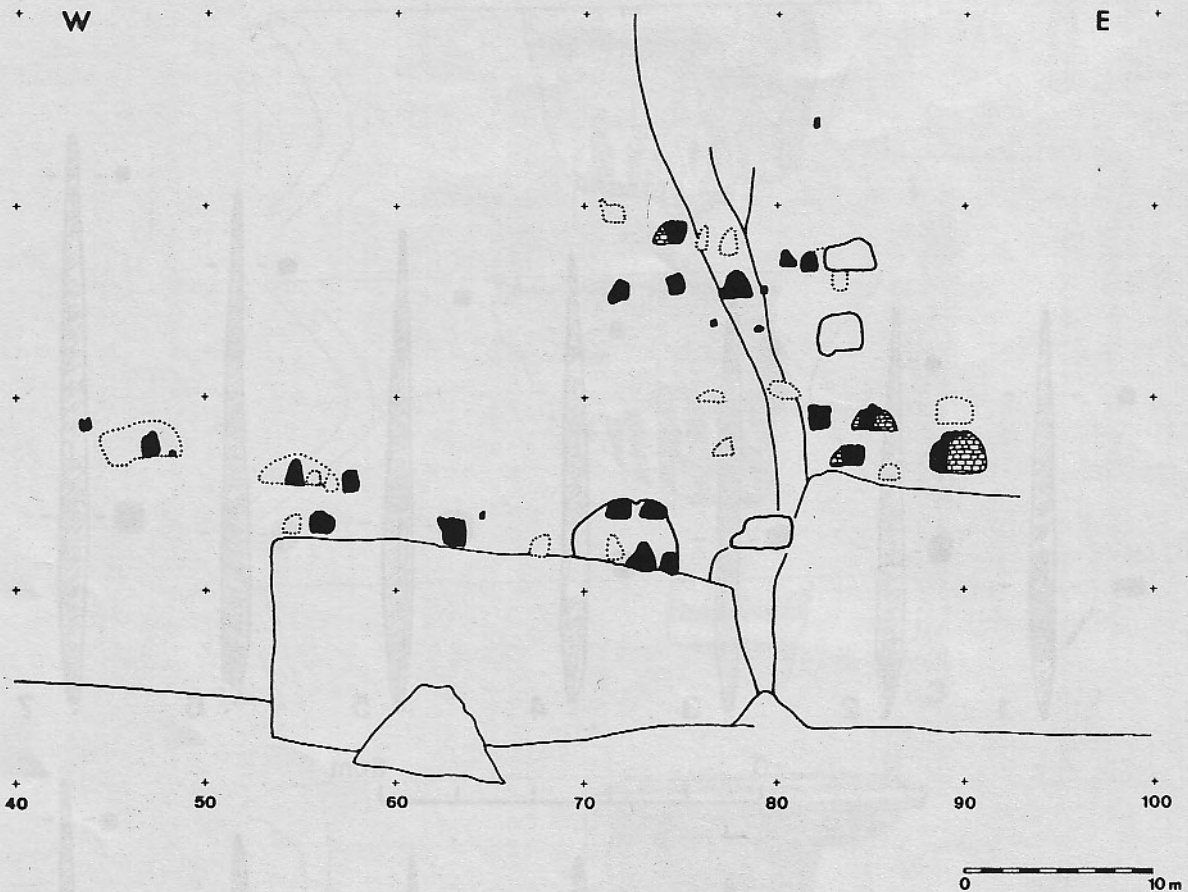
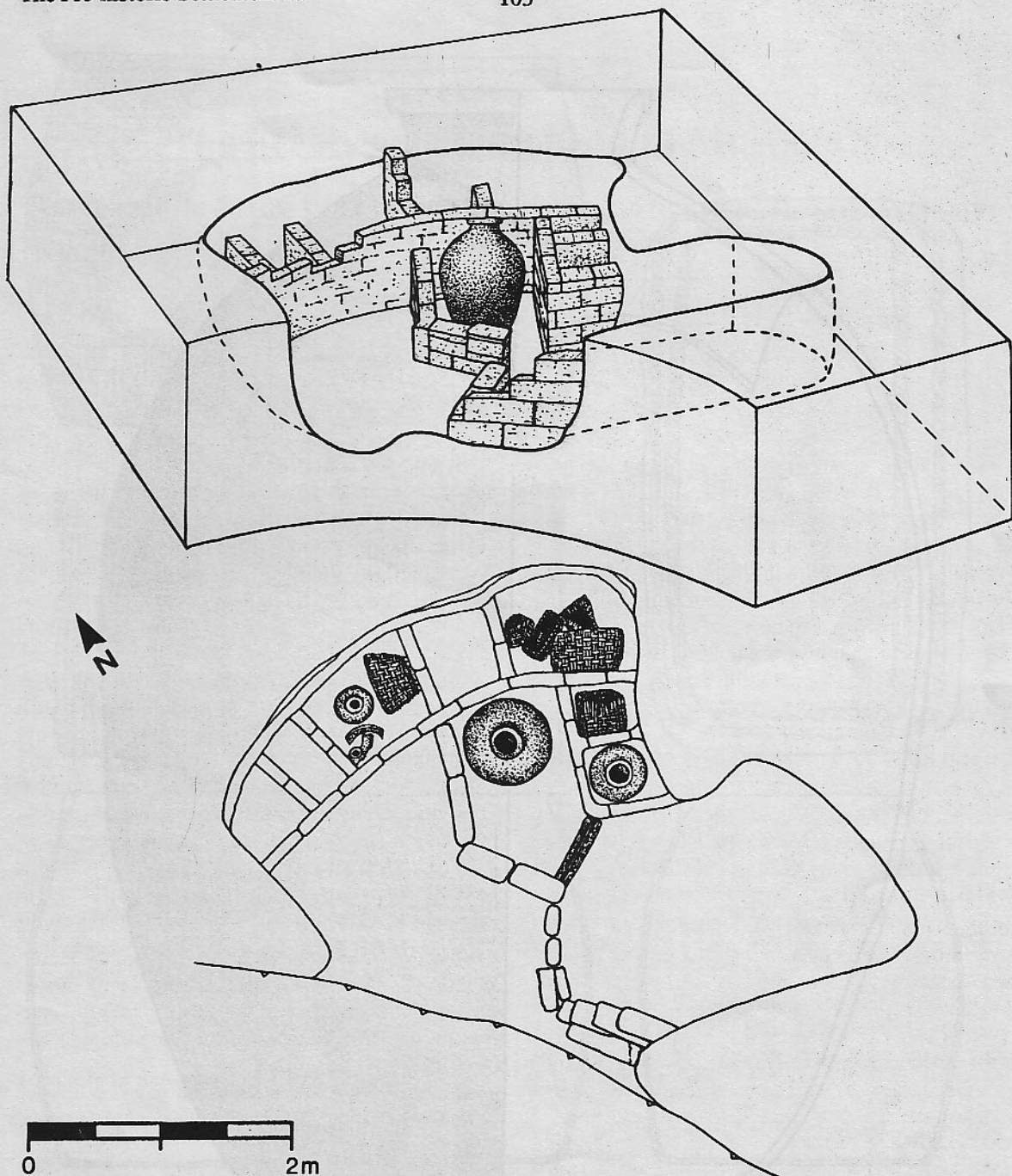


Fig. 8 Site of Mebrak. Caves of the B-System.

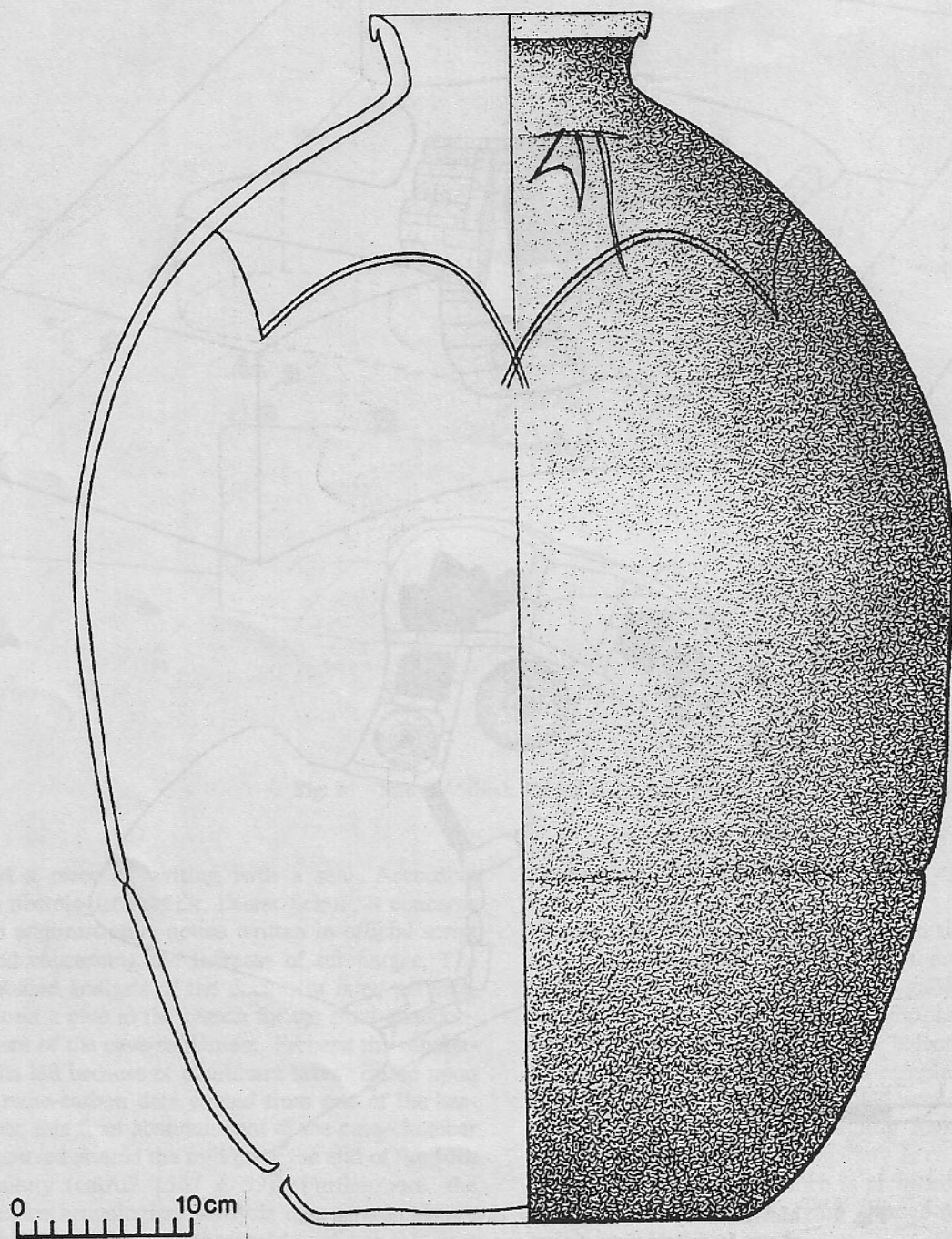
led a piece of writing with a seal. According to tibetologist Prof. Dr. Dieter Schuh, it concerns an administrative notice written in official script and concerning the increase of surcharges. The detailed analysis of the document may, perhaps, reveal a clue to the reason for the final abandonment of the cave-settlement. Perhaps the inhabitants left because of exorbitant taxes? Based upon a radio-carbon date gained from one of the baskets, this final abandonment of the cave-chamber occurred around the middle or the end of the 16th century (calAD 1567  $\pm$  59)<sup>8</sup>. Furthermore, the dendrochronological analysis of a wooden beam which was used as a threshold confirms this date (1540)<sup>9</sup>.

#### *Investigations in cave-complex location 42*

On the floor above location 40, i.e. on the sixth storey of the eastern B-System, there were preserved the remains of the former gallery connecting the cave-chambers. They comprised large slabs of fitted slate, resembling a balcony. The gallery forms the entrance to the complex cave-chamber location 42. The excavated 'architecture' there is hitherto unique; a slightly lower-lying antechamber leading off the gallery is connected to the central chamber, which is provided with a rear room and a higher-lying storage-room or bed room (Fig. 13).



**Fig. 9** Mebrak. B-System, fifth storey, cave-room location 40.  
above: Isometric view of cave-room.  
below: Ground-plan with pottery and baskets left in mudbrick-structures.



**Fig. 10** Pottery from Mebrak, location 40: decorated chang-vessel.

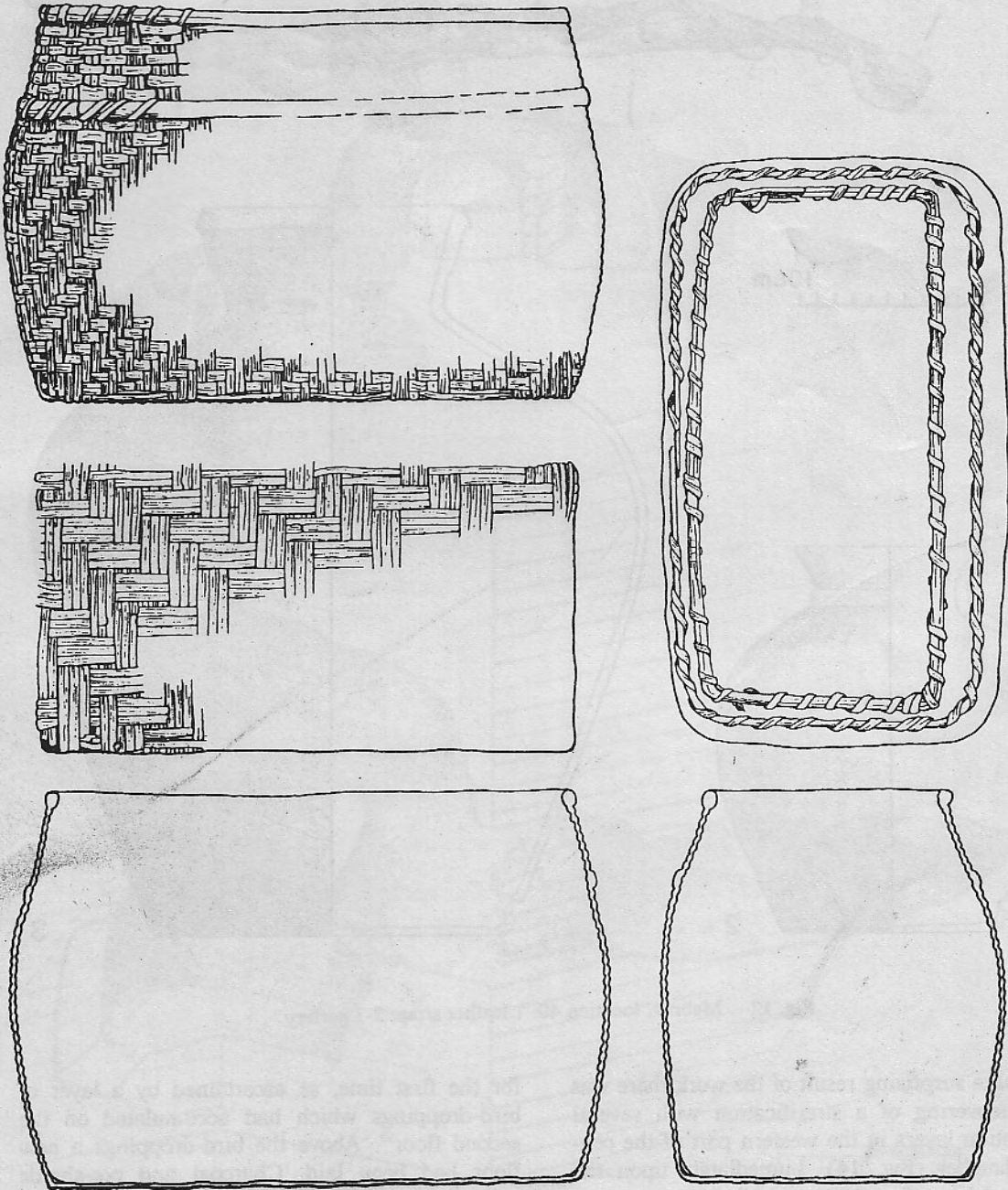


Fig. 11 Mebrak, location 40: small bamboo basket.

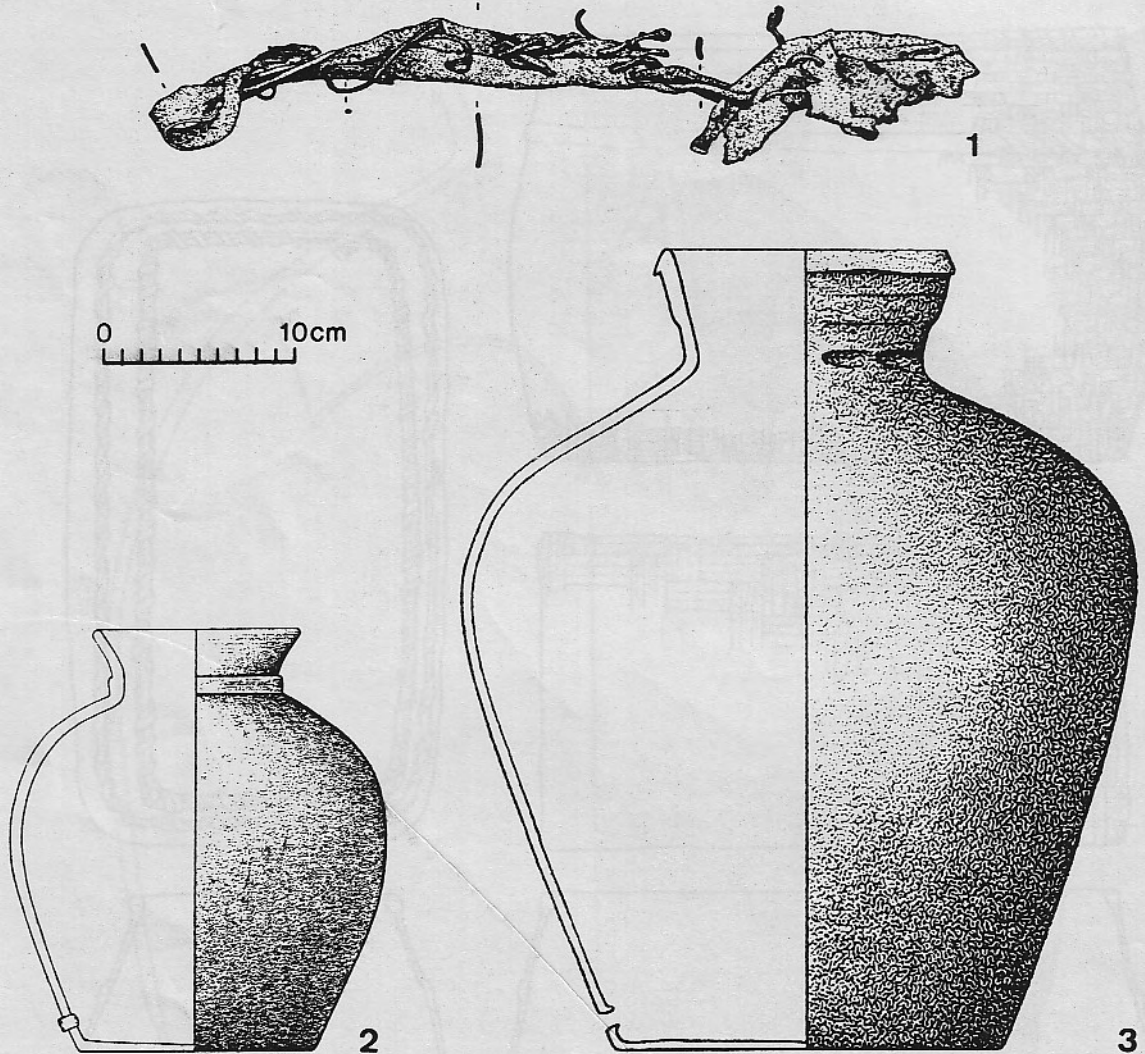
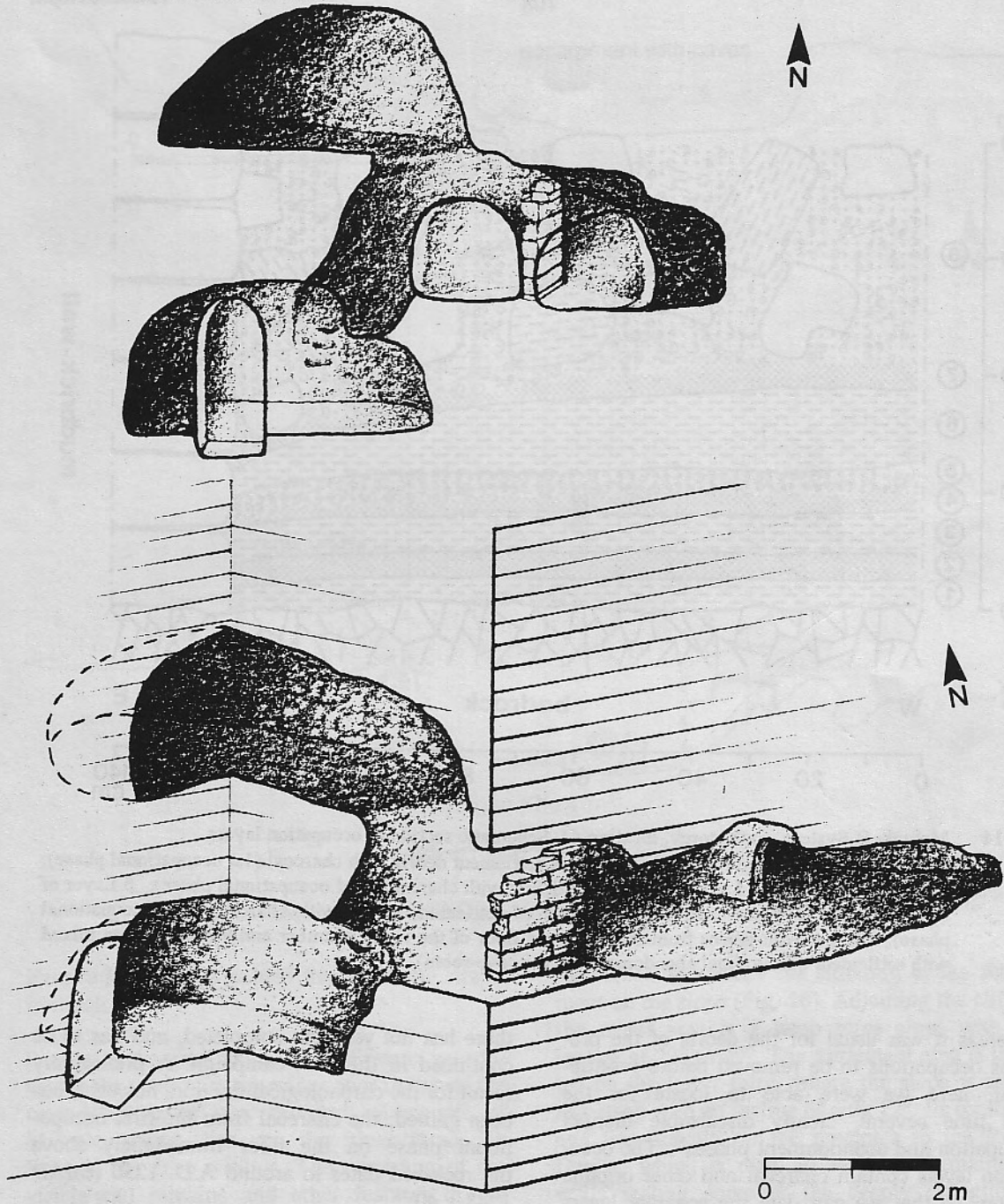


Fig. 12 Mebrak, location 40: 1 leather strap; 2-3 pottery.

One quite surprising result of the work there was the uncovering of a stratification with several occupation layers in the western part of the central chamber (Fig. 14). Immediately upon the rock-bed lay a floor, upon which had accumulated a layer with charcoal and occupational debris (first occupational phase). Over that lay a further floor (second occupational phase). Following this second phase, the cave-chamber was abandoned

for the first time, as ascertained by a layer of bird-droppings which had accumulated on the second floor<sup>10</sup>. Above the bird-droppings a new floor had been laid. Charcoal and pot-sherds attest to a reoccupation of the cave-chamber (third occupational phase). Above that was found a layer with pieces of floor from the upper chamber and further bird-droppings, denoting the final abandonment of the cave's occupation.



**Fig. 13** Mebrak. B-System, sixth storey, cave-complex location 42.  
above: Section parallel to rock-face (view from rock-face from south) with access openings.  
below: Section and isometric view from south-east, to show the structure of the cave  
(with room at the rear). Tilt: 15 degrees.

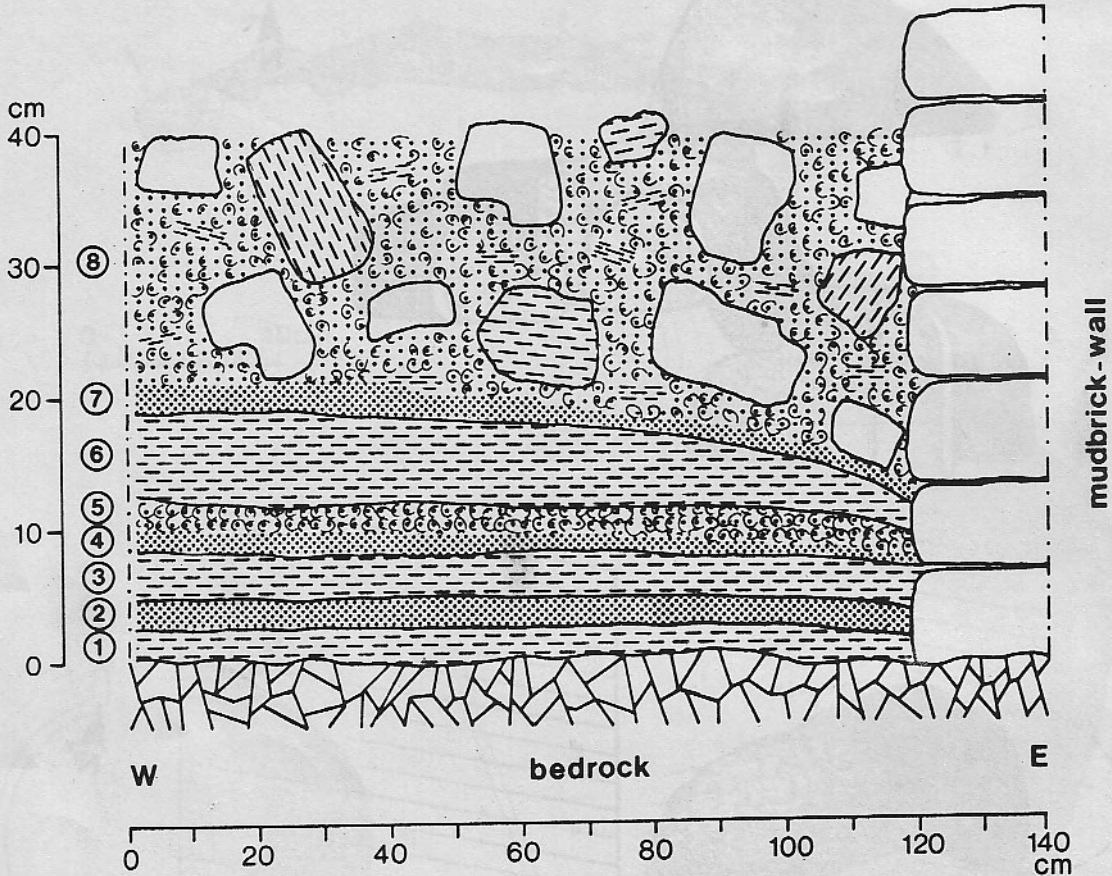


Fig. 14 Mebrak. B-System, sixth storey, location 42. Schematic section of occupation layers.  
 1 First mud-floor on the rock-bed; 2 Layer of settlement debris with charcoal (1st occupational phase);  
 3 Second mud-floor; 4 Layer of settlement debris with charcoal (2nd occupational phase); 5 Layer of  
 bird-droppings; 6 Third mud-floor; 7 Layer of settlement debris with charcoal (3rd occupational  
 phase); 8 Layer with pieces from the collapsed floor of the upper chamber and bird-droppings mixed  
 with settlement debris (final abandonment of the cave-room).

Whereas it was usual for the debris of the previous occupations to be removed before resettlement, here we were able to locate for the first time several, clearly discernible distinct occupation and abandonment phases<sup>11</sup>. The occupation levels contain charcoal and other organic matter, so that we can date the separate layers and hope, thereby, to unravel the chronology of the final utilisation of the cave-system. Apart from that, many pot-sherds, wooden objects and bits of written paper have been found. The work

there has not yet been completed, and has to be continued in the next campaign. A preliminary result for the chronological fixation, however, has been gained; the charcoal from the first occupational phase on the floor immediately above the rock-bed dates to around A.D. 1250 (calAD 1248 ± 40)<sup>12</sup>.



The Pre-historic Settlement ....

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escarpment with caves

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Dzong-Khola

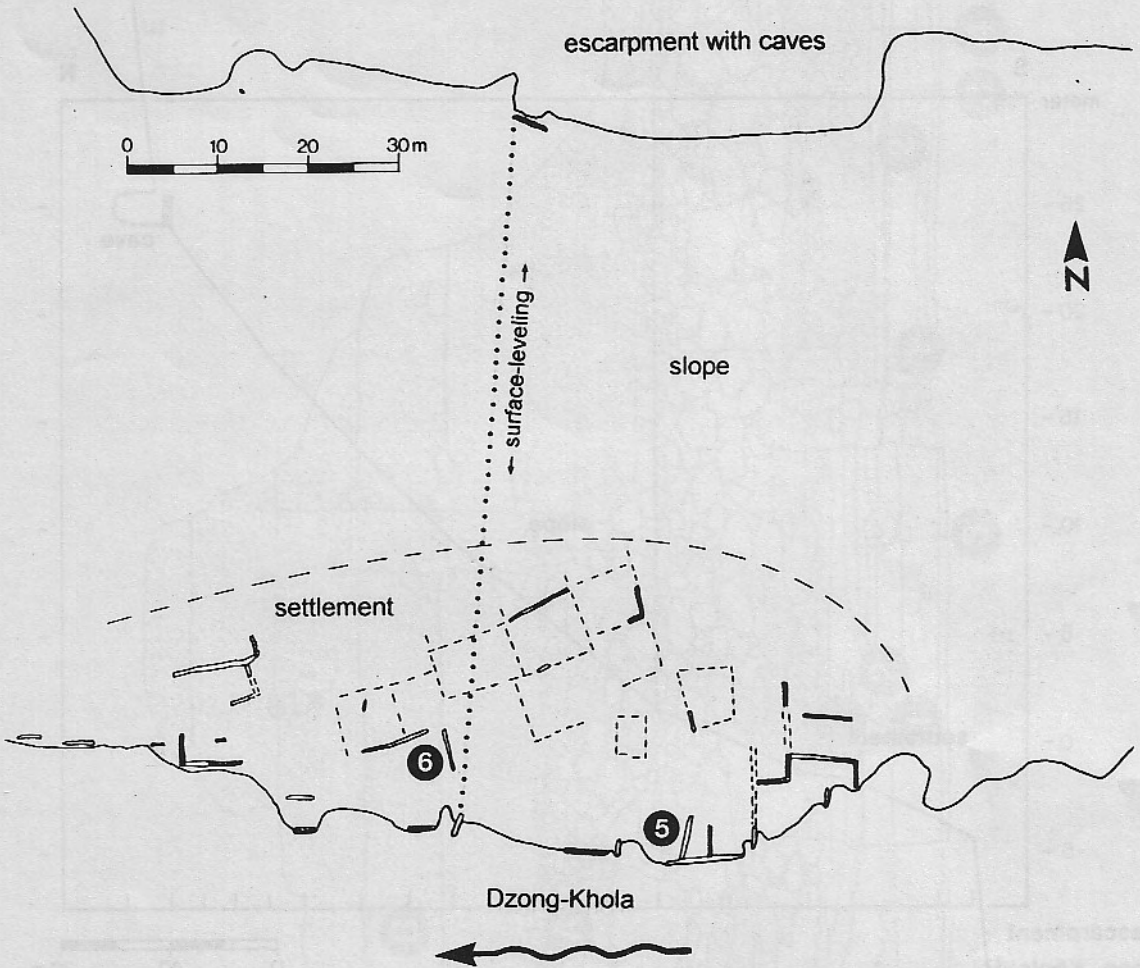
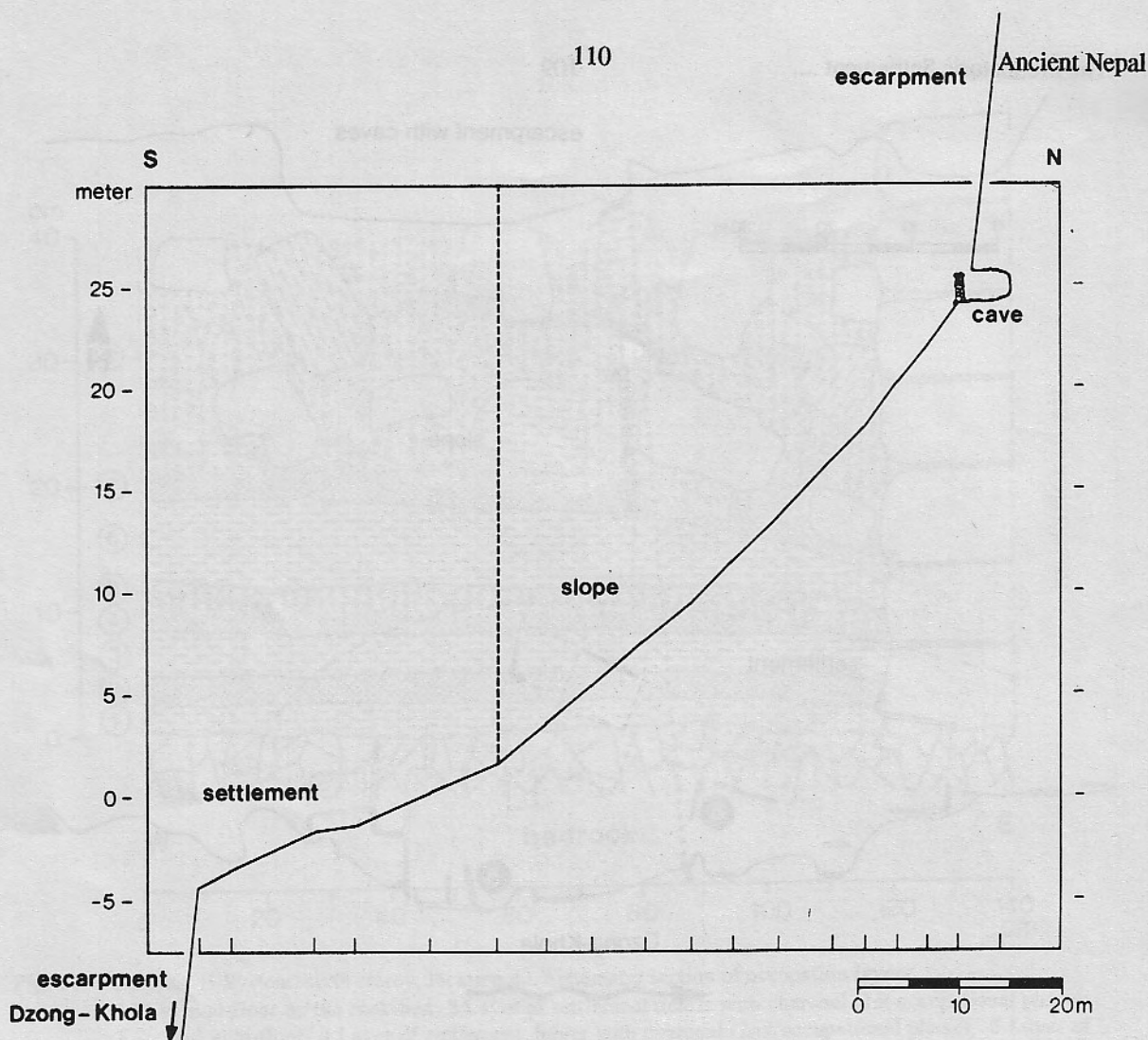


Fig. 15 Mebrak, upper Muktinath Valley: site plan of the open settlement.

### Excavations in two ruined houses in the site of Mebrak

Parallel to the work within the B-System, we continued the work of the previous year in two of the ruined houses in the deserted village-site of Mebrak, which lies on the river-terrace in front of the cave-systems. The recording of the visible wall remains and other features of the site signifying former buildings reveals a longish oval settlement area (Fig. 15). The levelling of the surface of the present-day terrain - from the foot of the cave-system to the lower precipice by

the river - elucidates the situation of the settlement on the slope (Fig. 16). Adjoining the cliff in the upper area is a steep scree slope with an incline of  $27^{\circ}$  to  $29^{\circ}$ . The settlement area is located on the lower third, where the slope is much less steep with an incline of only  $12^{\circ}$ . Its southern end lies directly on the precipice to the River Dzong, which is over 30 m high. Remains of walls sealing some of the deeply cut gulleys caused by erosion prove that the settlement area of the final occupation phase roughly corresponds on the south to the modern-day area. Without extensive excavation it is not possible to say to what



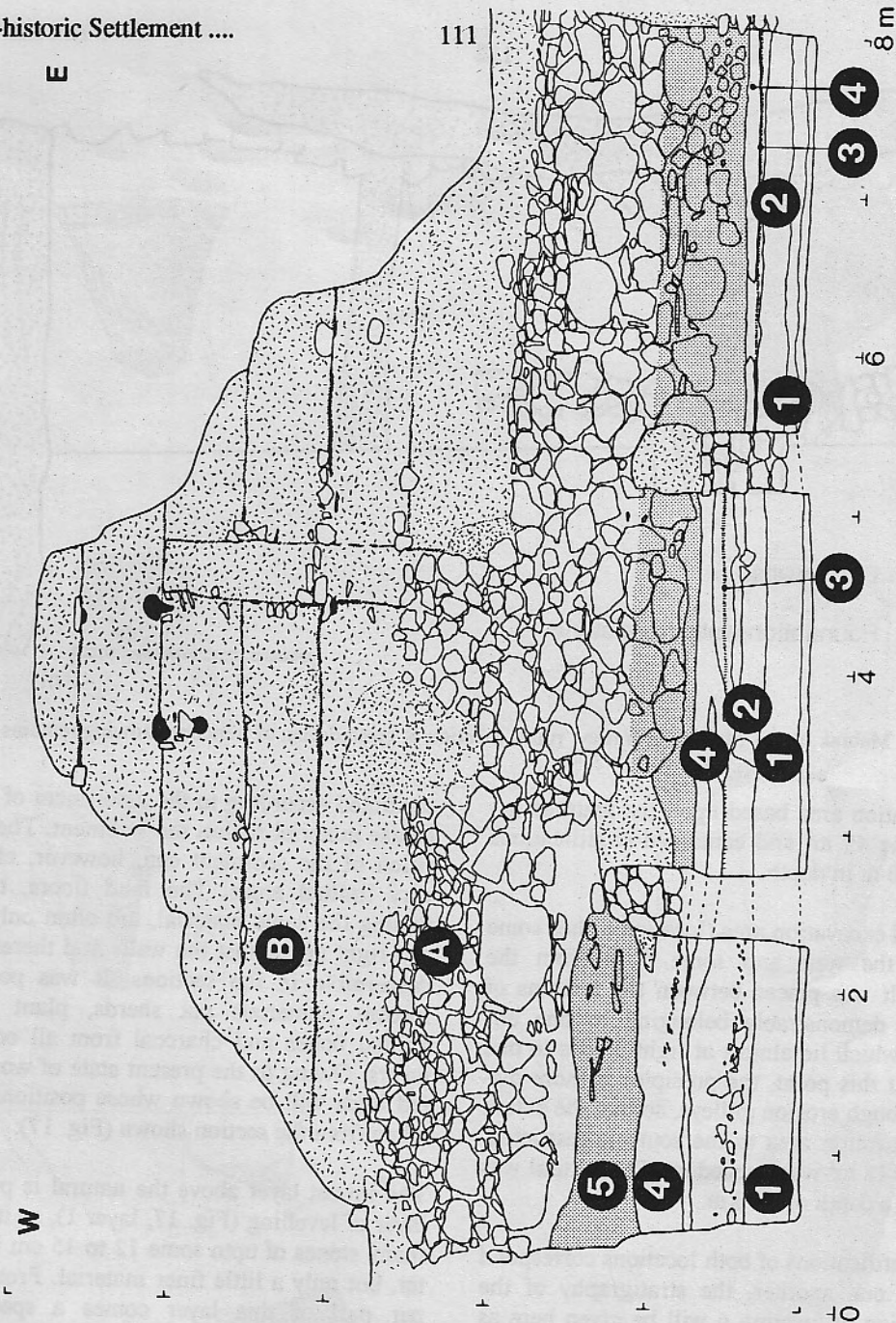
**Fig. 16** Mebrak, upper Muktinath Valley. Surface-contour of slope below the rock-face with location of the open settlement site.

extent larger lying areas to the north have been covered by scree since the abandonment of the settlement.

For our investigations two ruin sites (locations 5 and 6) were selected, at which daub walls were still standing to a height of some 2.5 m (Fig. 15). Following the first trial trenches in 1992, the areas of excavation were sunk to the natural, some 1.5 m to 1.7 m beneath the modern surface.

Location 5 is situated upon an almost flat area at the edge of the precipice above the river. The only visible feature comprises a 5 m long wall running north-south. It is joined by a westerly running wall coming in at an acute angle. This southern wall only survives to a length of about 1 m; the rest of the daub wall has broken away and fallen into the river. The eastern branch of this southern wall survives for a length of over 7 to 8 m, albeit only a few centimetres high, and forms the edge of the precipice.

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**Fig. 17** Mebrak, upper Muktinath Valley, ruins, location 6: northern section of trench with standing wall from the last occupation.  
**1** Lowest layer (probably layer of levelling); **2** Occupation layer including several mud-floors; **3** Mud-floor (in good preservation); **4** Colluvial deposits; **5** Layer with collapsed occupation debris; **A** Massive foundation wall from stone; **B** Daub wall.

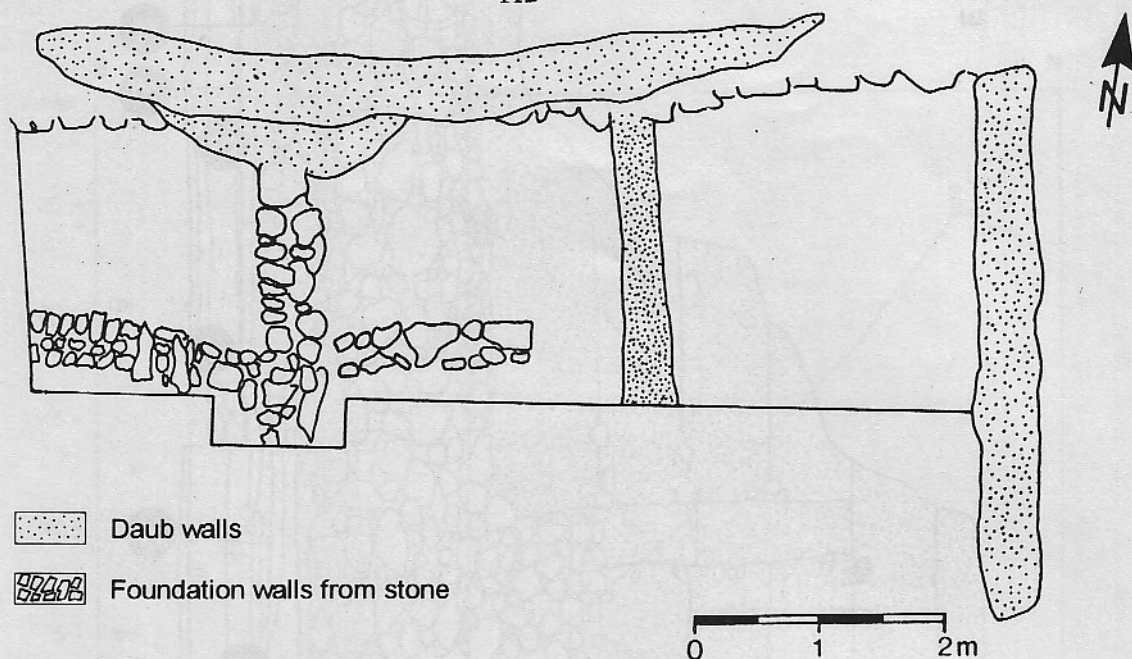


Fig. 18 Mebrak, upper Muktinath Valley, ruins, location 6: ground-plan of trenches showing remains of walls.

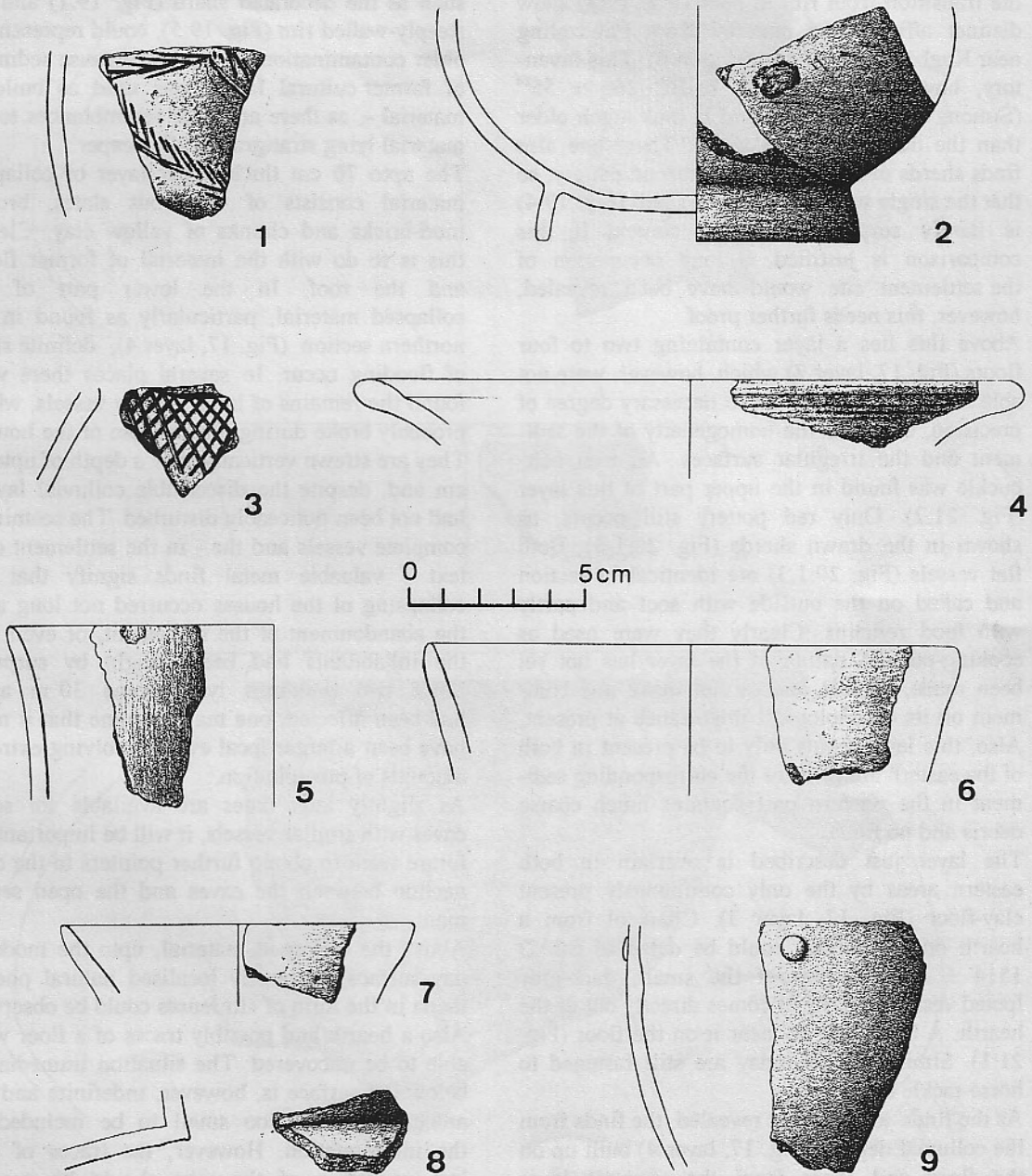
The excavation area based upon the features extended some 45 m<sup>2</sup> and contained stratifications of upto 1.50 m in depth.

The second excavation area (location 6) lies some 30 m to the west and some 5 m from the precipice. It was placed between the remains of two walls demonstrably belonging to one another and which lie almost at right-angles to one another. At this point, the precipice is more disjointed through erosion gulleys, so that the extent of the excavation area to the south is restricted. An area of 18 m<sup>2</sup> was opened up. The natural was reached at a depth of 1.70 m.

As the stratifications of both locations correspond well with one another, the stratigraphy of the north section of location 6 will be given here as representative (Fig. 17). Trying to follow the layers - found in section - in plan, proved to be difficult, as the base material of all sediments is a conglomerate of rocks in a silty-clayey matrix. Only very slight nuances in colour are discernible, so that the layers can usually only be

separated according to the assortment of fine and coarse material within the sediment. The composition of the sediment can, however, change in very limited areas. The mud floors, too, comprising the same material, are often only preserved right up against the walls and therefore only discernible in the sections. It was possible to recover numerous pot sherds, plant remains, animal bones and charcoal from all occupation layers. Owing to the present state of work, selected finds will be shown whose positions may be taken from the section shown (Fig. 17).

The lowest layer above the natural is probably a layer of levelling (Fig. 17, layer 1), as it contains many stones of upto some 12 to 15 cm in diameter, but only a little finer material. From the upper part of this layer comes a specimen of charcoal which was dated to calAD 958 ± 50<sup>13</sup>. The pottery is severely broken; typologically definable pieces are hardly present (Fig. 19:3-4, 8-9). The large majority of all sherds is thin-walled and of a light-grey colour on the surfaces and in the matrix; red pieces are seldom. Despite



**Fig. 19** Mebrak, upper Muktinath Valley, ruins, location 6: Pottery from upper and lower layers (1, 5-7 layer 4 or 5; 2 immediately above layer 3; 3-4, 8,9 layer 1) (viz. Fig. 17).

the bad conditions of survival, both the scratched-ornamented sherd (Fig. 19:3) and the piece with the transition from rim to neck (Fig. 19:8) show distinct affinities to material from Phudzeling near Kagbeni (site 92.16, location 6). This inventory, however, is dated to calBC 266 ± 55<sup>14</sup> (Simons et al. 1994, 54) and is thus much older than the date mentioned above. There one also finds sherds of imported wheel-turned pottery, so that the single wheel-turned rim-herd (Fig. 19:4) is hardly surprising in this context. If this comparison is justified, a long occupation of the settlement site would have been revealed; however, this needs further proof.

Above this lies a layer containing two to four floors (Fig. 17, layer 2) which, however, were not able to be identified with the necessary degree of precision, owing to the homogeneity of the sediment and the irregular surfaces. An iron belt-buckle was found in the upper part of this layer (Fig. 21:2). Only red pottery still occurs, as shown in the drawn sherds (Fig. 20:1-3). Both flat vessels (Fig. 20:1,3) are identical in section and caked on the outside with soot and partly with food remains. Clearly they were used as cooking-pots. A dating of the layer has not yet been made, so that one cannot make any comment on its chronological importance at present. Also, this level seems only to be present in both of the eastern areas, since the corresponding sediment in the western part contains much coarse debris and no finds.

The layer just described is overlain in both eastern areas by the only continuously present clay-floor (Fig. 17, layer 3). Charcoal from a hearth on the surface could be dated to calAD 1514 ± 70<sup>15</sup>. A part of the small, dark-grey footed vessel (Fig. 19:2) comes directly out of the hearth. A brass bell lay near it on the floor (Fig. 21:1). Similar pieces today are still fastened to horse-tackle as signals.

As the finds' analysis has revealed, the finds from the colluvial deposit (Fig. 17, layer 4) built up on the floor and those from the younger layer containing collapsed material from the roof (Fig. 17, layer 5) belong together. The few metal finds derive from the collapsed material immediately above the floor (Fig. 21:3-6). This is also the

case for the majority of the mainly red-fired potsherds (Fig. 19:1,5-7). A few light-grey pieces, such as the decorated sherd (Fig. 19:1) and the steeply-walled rim (Fig. 19:5), could represent an older contamination - probably because sediment of former cultural layers was used as building material -, as there are clear resemblances to the material lying stratigraphically deeper.

The upto 70 cm thick upper layer of collapsed material consists of numerous slates, broken mud-bricks and chunks of yellow clay. Clearly this is to do with the material of former floors and the roof. In the lower part of the collapsed material, particularly as found in the northern section (Fig. 17, layer 4), definite signs of flooding occur. In several places there were found the remains of large pottery vessels, which probably broke during the collapse of the houses. They are strewn vertically over a depth of upto 30 cm and, despite the discernible colluvial layers, had not been noticeably disturbed. The seemingly complete vessels and the - in the settlement context - valuable metal finds signify that the collapsing of the houses occurred not long after the abandonment of the settlement, or even that the inhabitants had been caught by surprise. Since two buildings lying some 30 m apart had been affected, one may presume that it must have been a larger local event involving extreme amounts of precipitation.

As slightly later dates are available for some caves with similar vessels, it will be important for future work to obtain further pointers to the connection between the caves and the open settlement.

Above the collapsed material, upto the modern-day surface, extremely localised natural phenomena in the form of silt lenses could be observed. Also a hearth and possibly traces of a floor were able to be uncovered. The situation immediately below the surface is, however, indefinite and the amount of finds too small to be included in the interpretation. However, the traces of the last occupation of the area should be present here, during which the north daub wall (Fig. 17, wall B), which survives to a height of upto 2.50 m, was erected on a stone foundation (Fig. 17, wall A).

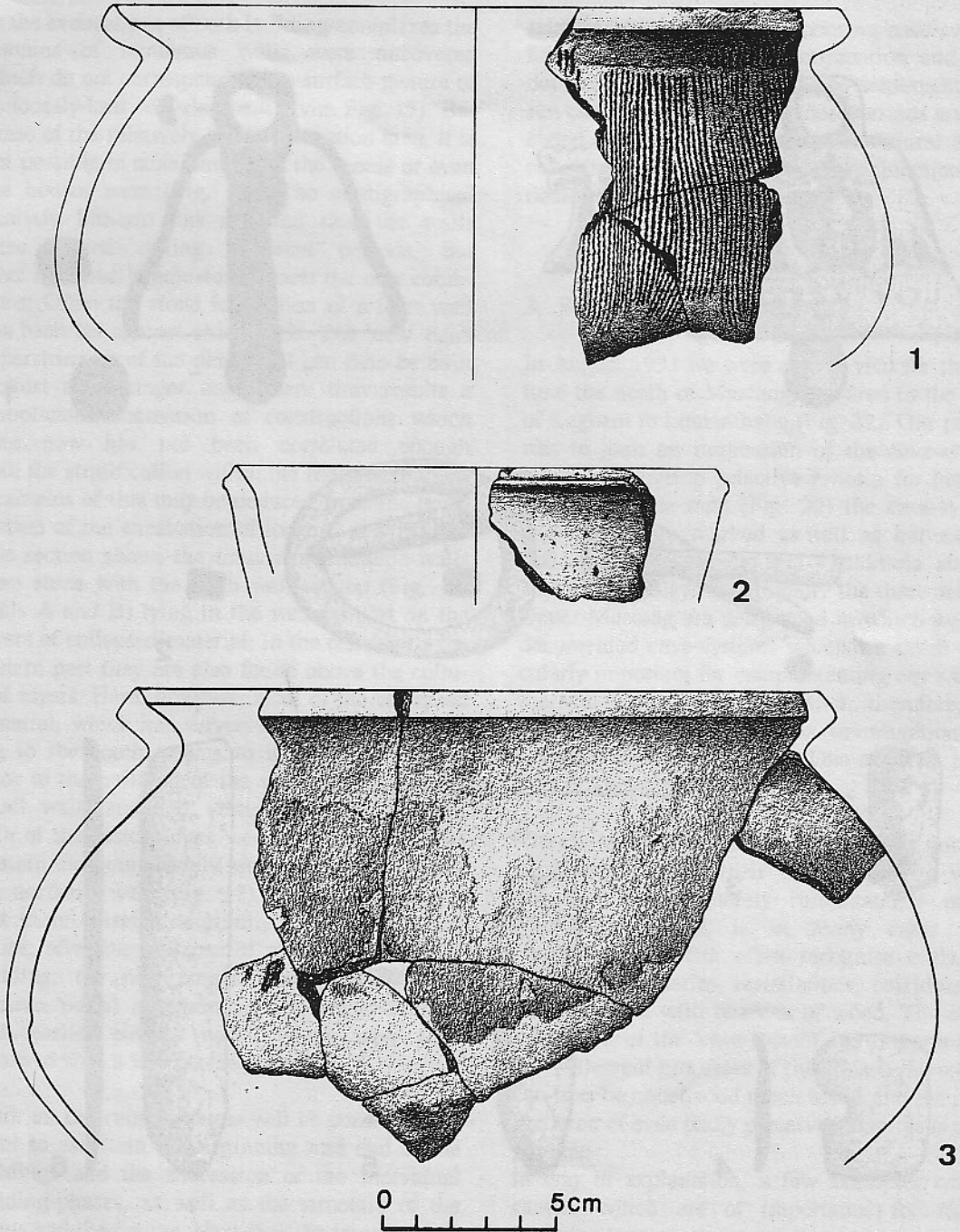


Fig. 20 Mebrak, upper Muktinath Valley, ruins, location 6: Pottery from layer 2 (viz. Fig. 17).

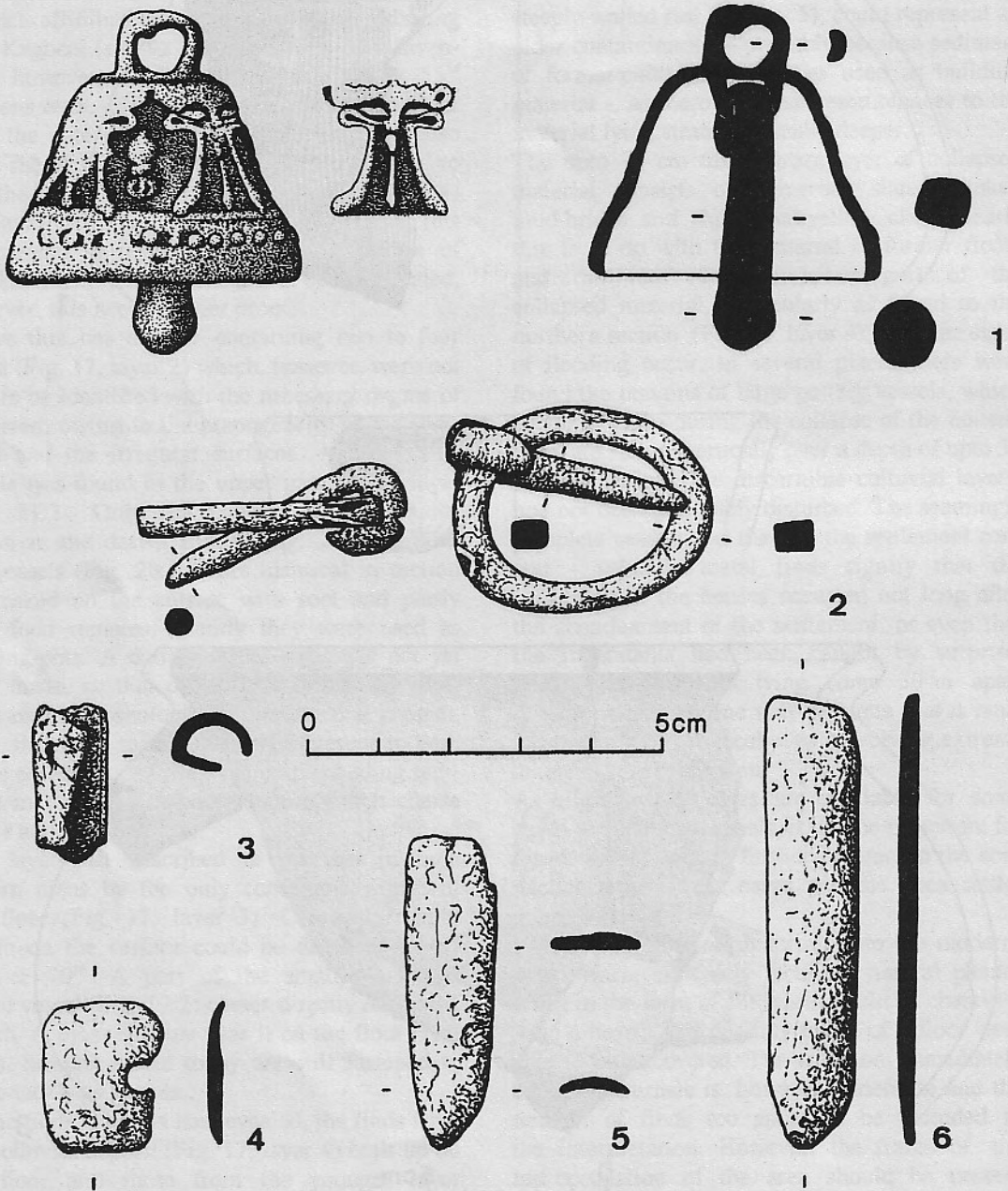


Fig. 21 Mebrak, upper Muktinath Valley, ruins, location 6: Finds from the upper layers (1 layer 3; 2 layer 2; 3-6 layer 4 or 5) (viz. Fig. 17): 1 bronze; 2-6 iron.



In the excavations of both building-complexes the remains of numerous walls were uncovered which do not correspond to the surface picture of a loosely-knit development (viz. Fig. 15). Because of the relatively small excavation area, it is not possible to state how large the rooms or even the houses were (Fig. 18). The stratigraphical analysis hitherto has revealed that the walls were erected during different periods, but were continually adjusted to meet the new conditions. Often the stone foundation of a later wall has been set against older walls. The 'new' daub superstructure of the older wall can then be built against the younger one. There thus results a complicated succession of constructions which upto now has not been correlated enough with the stratification within the individual areas. Examples of this may be deduced from the north section of the excavation of location 6 (Fig. 17). The section shows the massive foundation-walls from stone with the daub wall on top (Fig. 17, walls A and B) lying in the western part on the layers of collapsed material. In the centre and the eastern part they are also found above the colluvial layers. Here, however, most of the collapsed material, which has survived in the area bordering to the south, seems to have been removed prior to the building of the wall. As seen in the small walls standing vertically to the section, both of the eastern ones were erected before, the western one immediately after the construction of the northern wall (Fig. 17). Thus, it is evident that there exists a continuity in the site of the house; after the collapse of at least part of the building, the new construction (northern and western walls) incorporated the foundations of both earlier eastern walls, which were then endowed with a new coating of daub.

Work on the ruined houses will be continued, in order to ascertain the beginning and end of the buildings and the succession of the individual building-phases, as well as the structure of the rooms and the houses. Next year the trenches will be extended and the individual walls followed, in order to gain a more extensive impression of the structure of the former settlement. In particular, we are concerned with the question of the

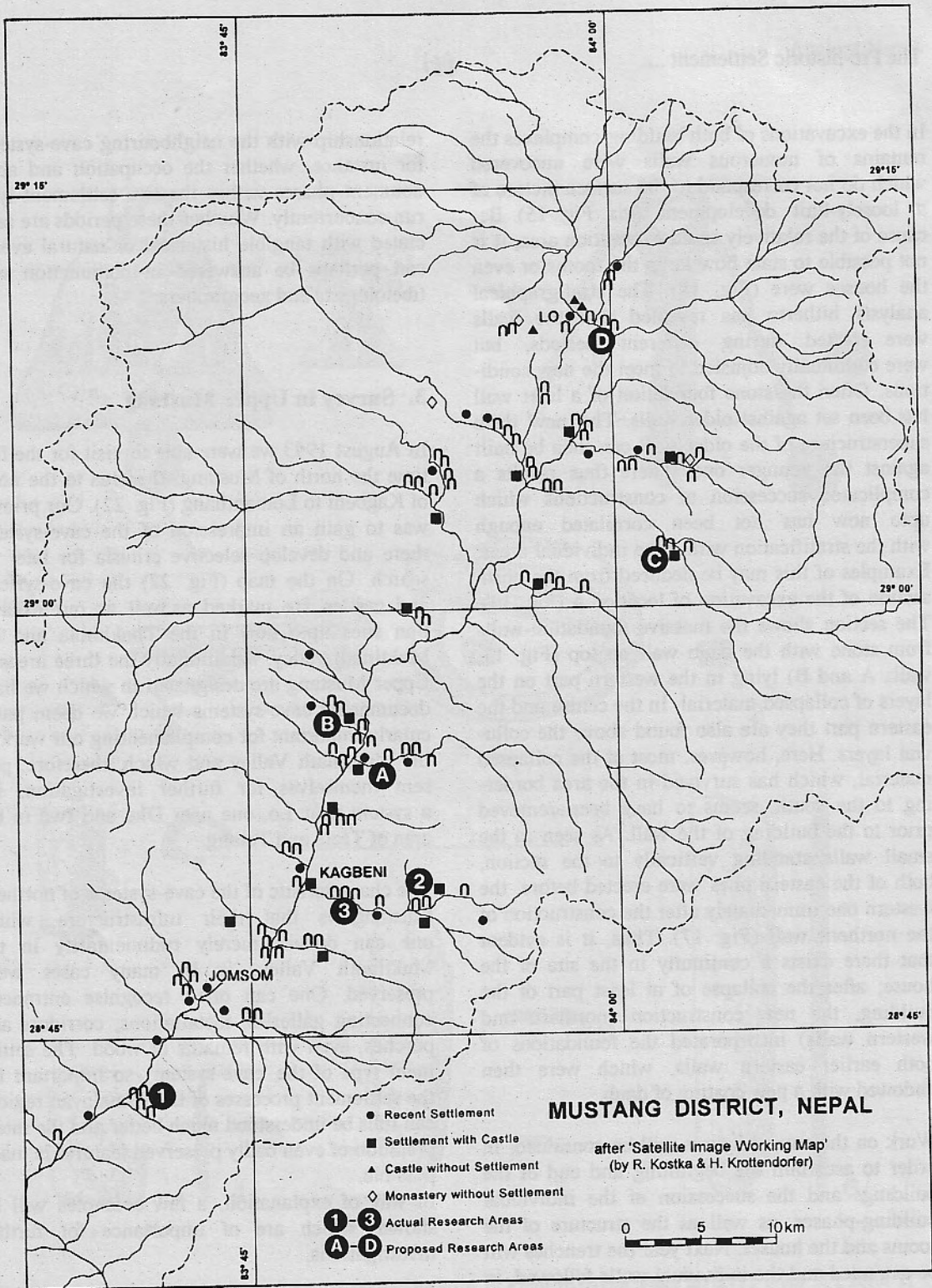
relationship with the neighbouring cave-systems, for instance, whether the occupation and abandonment phases within the two settlement types run concurrently. Whether these periods are associated with tangible historical or natural events, can perhaps be answered in conjunction with tibetologists and geographers.

### 3. Survey in Upper Mustang

In August 1993 we were able to visit for the first time the north of Mustang, the area to the north of Kagbeni to Lomanthang (Fig. 22). Our priority was to gain an impression of the cave-systems there and develop selective criteria for later research. On the map (Fig. 22) the cave-systems and castles are marked as well as our excavation sites upto now in the Thakkhola and the Muktinath valley. Additionally the three areas in Upper Mustang are designated in which we have documented cave-systems which we deem particularly important for complementing our work in the Muktinath Valley and which, therefore, present themselves for further investigation, i.e. a system near Lo, one near Dhe and two in the area of Tsele and Tétang.

The characteristic of the cave-systems of northern Mustang is that their infrastructure, which one can deduce merely rudimentarily in the Muktinath Valley, is in many cases well-preserved. One can often recognise entrances, connecting galleries, installations, corridors and porches, even with remains of wood. The settlement type of the 'cave-system', so important for the settlement processes of the Himalayan region, can thus be understood much better and the interpretation of even badly preserved features is made possible.

In way of explanation, a few examples will be shown, which are of importance for further investigations.



**Fig. 22** Map of Mustang District showing village sites, castles, and cave-systems. The investigated and proposed archaeological sites are marked: 1 Chokhopani; 2 Mebrak; 3 Phudzeling; A Chomnang/Tetang; B Tsele; C Dhe; D Mardzong/Lo

### Exemplary cave-systems

In the valley of the Gyakar Khola, a western side-valley of the Kaligandaki, below the settlement of TSELE is situated a multipartite cave-system with two surviving stairways. As the area around Tetang, Chusang and Tsele seems to be so vital for the questions of tibetologists as to the early Kingdom of Serib (Jackson 1978; Schuh 1992; Ramble 1984), an investigation would seem to be of interest.

Not far east of Lomanthang is situated the castle-like cave-system of MARDZONG (= lower castle), set in a some 30m high remnant of the river-terrace (Plate 4b). Abandoned fields and ruins lie in front of it. Several storeys with remains of galleries together with beam-slots of earlier wooden porches are recognisable, as well as ruins of a tower on the plateau of the cave-system. The cave-system would warrant documenting, especially because of the surviving infrastructure.

The cave-system of DHE, in an eastern side-valley of the Kaligandaki, also displays a well-refined, well-preserved infrastructure (Plate 4a). This cave-system, significantly known as 'Dzong' (= castle), is accessible through a large number of corridors and galleries. As in the case of Mardzong, paintings survive from the latest phases. Because of its inner structure, it is planned to investigate this system in the very near future.

### Cave-systems with recent occupation

To the north, lying in the next parallel valley of the Kaligandaki, a cave-system near LURI is partly used today as a religious centre (Plate 5a). The gomba signifies the entrance to a richly painted cave-chörten (Gutschow 1992-93; 1994). Thus, the access paths and bridges with wooden and stone fittings are partly preserved and are still cared for. A similar path with a stone surface on supporting beams (Plate 4b) must also have provided the access to some of the now

abandoned cave-systems. There, however, it usually no longer survives, as it naturally needs continual repair. The wooden fittings in this cave-system still in use can give us an impression of how the interior of a cave-settlement looked like during occupation, when the rooms on different floors were connected with ladders and trap-doors (Plate 6, left).

An even better impression of the utilisation and function is of course given by those cave-systems which were recently still used as dwellings. Unfortunately, we were unable to see the inhabited caves from CHOSER to the north of Lo. We hope, however, to visit these soon and talk with the inhabitants. But also in MARANG, situated in a western side-valley of the Kaligandaki to the south of Lo, members of a household lived in a part of a certainly older cave-system upto six months before our arrival. Here we were able to see a further possibility of access to the individual levels of a cave-system still in operation. Supporting walls of river-boulders had been built up against the rock-wall shaped like a step pyramid, with galleries on the individual levels allowing access to the rooms (Plate 6, right; 7b). We discovered the first indications of such a feature in 1993 at the foot of the B-System in Mebrak in the Muktinath Valley.

## 4. Preliminary results on the early settlement of Mustang

Following our prospection, we can say that the cave-systems in the arid part of Mustang, in the north upto the Tibetan plateau, represent a widely dispersed form of settlement. They are usually to be found in conjunction with abandoned field-systems, ruined houses and even ruined fortifications, within the river oases on both banks of the Kaligandaki in the proximity of modern-day villages and their irrigated fields (Plate 7a).

The river oases are natural settlement areas ('Siedlungskammern') in which, within the

dryness of the high mountains, enough water was and still is present upon which to survive (Fig. 22). The settlement areas are geomorphologically similar to one another. The cave-systems have been dug into the eroded precipitous walls of the glacial terraces. Beneath them, on the gravel-beds of the tributaries of the Kaligandaki, lie the field-terraces and the recent settlements. Castles, as well as deserted settlements and fields, are often found at the edge of the cultivated areas, either immediately next to the cave-systems or slightly removed on the hill-summits (Fig. 22).

The cave-systems represent a settlement type which keep the neighbouring fields free for cultivation and not restricted by development. This could be one reason for their construction<sup>16</sup>. Moreover, the complicated cave-systems represent a suitable form of settlement in this arid high mountainous environment, providing optimal protection against strong winds and the extreme fluctuations in temperature. The villages, too, i.e. the open settlements from earlier (Simons et al. 1994, 54 and Fig. 15; Hüttel 1993, 4 and Fig. 9-10) and modern times (Fürer-Haimendorf 1975, 160f.; Pohle 1993, 68), have been erected in a coherent construction from multi-storeyed houses placed one next to another, reminding one of cave-systems<sup>17</sup>. Therefore we think that the cave-systems and the open village sites of this type in Mustang represent the same concept of settlement.

Furthermore, it is evident that the cave-systems served, at least periodically, as places of refuge and as secure places for storing provisions. The ruined towers, often found on the plateaux above the cave-systems or in their proximity, are probably the remains of watch-towers<sup>18</sup>. Moreover, already in prehistoric times, settlements existed on the terraces in front of the caves, which were contemporaneous. Following an initial analysis of the available <sup>14</sup>C- and dendrochronological dates, it would seem that for example in Mebrak, in the Upper Muktinath Valley, the cave-system was abandoned around the middle or the end of the 16th century at about the same time as the open settlement in front of it (see above). Around that time the castles in Dzong (Jhong) and Dzar (Jharkot)

were built (Schmidt 1992/93, Fig. 5 and 8) and the population shortly after evidently shifted to the present village sites probably forced by political reasons. Whether a similar shift of settlement is true also for other parts of Mustang is still to be investigated.

### Notes

1 We wish to thank warmly all members of HMG Department of Archaeology, especially the Director General, Mr. Kadgaman Shrestha, and the Chief Archaeologist, Mr. Tara Nanda Mishra, for their support of our work. Our warmest thanks are due to the officials and friends in Mustang District, without whose help the investigations could not have been carried out; we should like to mention in particular the members of the village council of Dzong, as well as Mr. Bahkti of Marpha and Mr. Nirmal Gauchan of Jomsom. Moreover, indispensable for the examination of the caves were the spelaeologists H. Daniel Gebauer and his assistant Georg Bäumler. Not only did they secure for us under extreme conditions access to the caves installing ropes, but were also responsible for surveying them. Our thanks go also to the students of the Institute of Pre- and Protohistory in Cologne, Ina Lochner, Frank Löbbecke and Andrea Schroeder, who took part in the excavations with great enthusiasm. Last, but not least, we want to thank Dr. Clive J. Bridger who translated our German manuscript and Stephanie Laub, Birgit Gehlen, and Daniel Gebauer who carried out the illustrations.

2 HD-15059: BP 2575±19. All data were calibrated by Dr. Bernhard Weninger, Cologne University, through the 2-D Dispersion Calibration Program Version Cologne April 1993, FORT-RAN 77, HPGL, PC486. Radiocarbon calibration data: Stuiver et al., Radiocarbon 32, 1993; calibration methods: B. Weninger, in Acta Interdisciplinaria Archaeologica IV, Nitra 1986, 11-53; cubic spline by W. Press, B. Flannery, S. Teukolsky, W. Vetterling, Numerical

Recipes, Cambridge University Press 1986, 86-89.

3 KN-4561: BP 2604 ± 37. All radiocarbon measurements were carried out by Dr. B. Weninger and his assistants in the <sup>14</sup>C-laboratory of the Institute of Pre- and Protohistory in Cologne.

4 KN-4563: BP 2542 ± 40. According to Dr. Weninger this date is statistically contemporary with HD-15059 (BP 2575 ± 19). The high ± value in the calibrated date results from the almost horizontal position of the calibration curve in this area.

5 The examination of the human remains were carried out by Babette Ludovici M.A. and Prof. Dr. Manfred Kunter, Gießen, who will soon be publishing their own report.

6 The energy dispersive X-ray analysis (EDAX) was carried out by Kurt Hangst Dipl. Min., Cologne. The remaining elements consist of calcium and chlorine, which result from deposition in the soil.

7 KN 4562: BP 1459 ± 41. A <sup>13</sup>C-correction has been carried out.

8 KN-4566: BP 346 ± 38.

9 The dendrochronological analysis was carried out by Dr. B. Schmidt, Cologne. This specimen of wood comprises only 44 tree rings but the outer parts reach up to the bark so that the youngest tree ring corresponds to the year of felling of the tree. Trees of an age upto 50 years cannot be dated with the necessary statistical accuracy. However, the tree ring pattern of this sample shows such a high significance with the year of 1540 that this should give the correct dating (B. Schmidt, pers. com.). For reference see also Schmidt 1992-93.

10 Abandoned cave-chambers are regularly occupied by jackdaws and crows, and even by vultures, being secure nesting places.

11 It is not impossible that remains of an earlier settlement prior to the laying of the first floor had been removed, i.e. that the settlement traces from these occupation levels are not able to date precisely the creation of the cave-chamber location 42. They purely provide a terminus ante quem.

12 KN-4570: BP 798 ± 54.

13 KN-4565: BP 1087 ± 46.

14 HD-15087: BP 2222 ± 24.

15 KN-4564: BP 393 ± 38.

16 Parallels are to be found in other arid regions, such as the cave-dwellings of the Sinagua Indians in the Arizona Desert.

17 A good example is Tetang in Upper Mustang, where upto five storeys are constructed. Beneath the housing complex, almost lightless corridors provide access to the individual buildings.

18 Examples are in the lower Muktinath Valley Phudzeling (Simons et al. 1994, 54 with Fig. 17), in the upper Muktinath Valley Mebrak and in Upper Mustang "Mardzong". For watch-towers, viz. Seeber 1994.

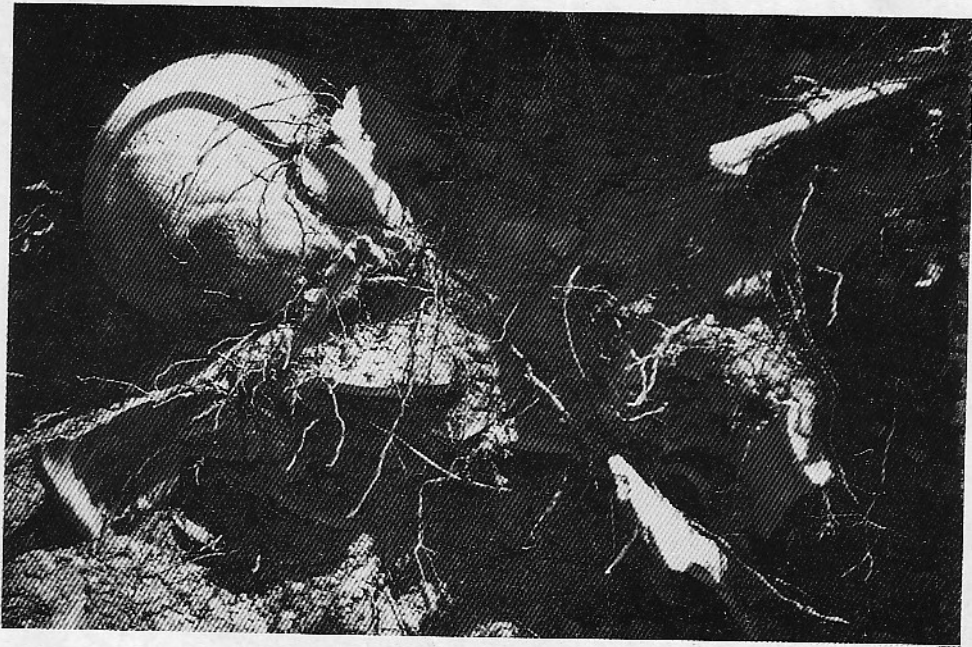
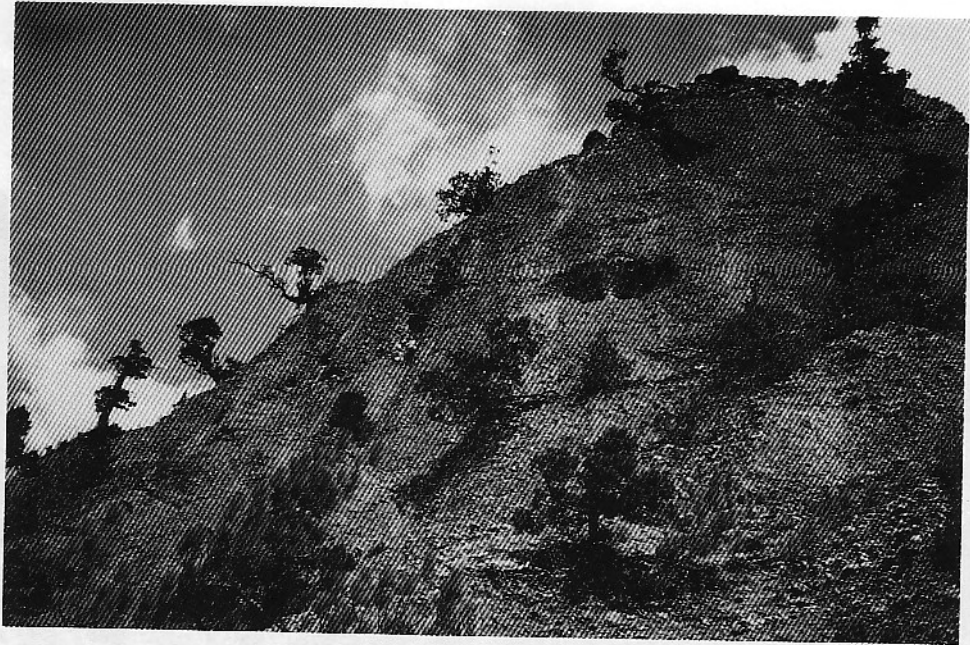
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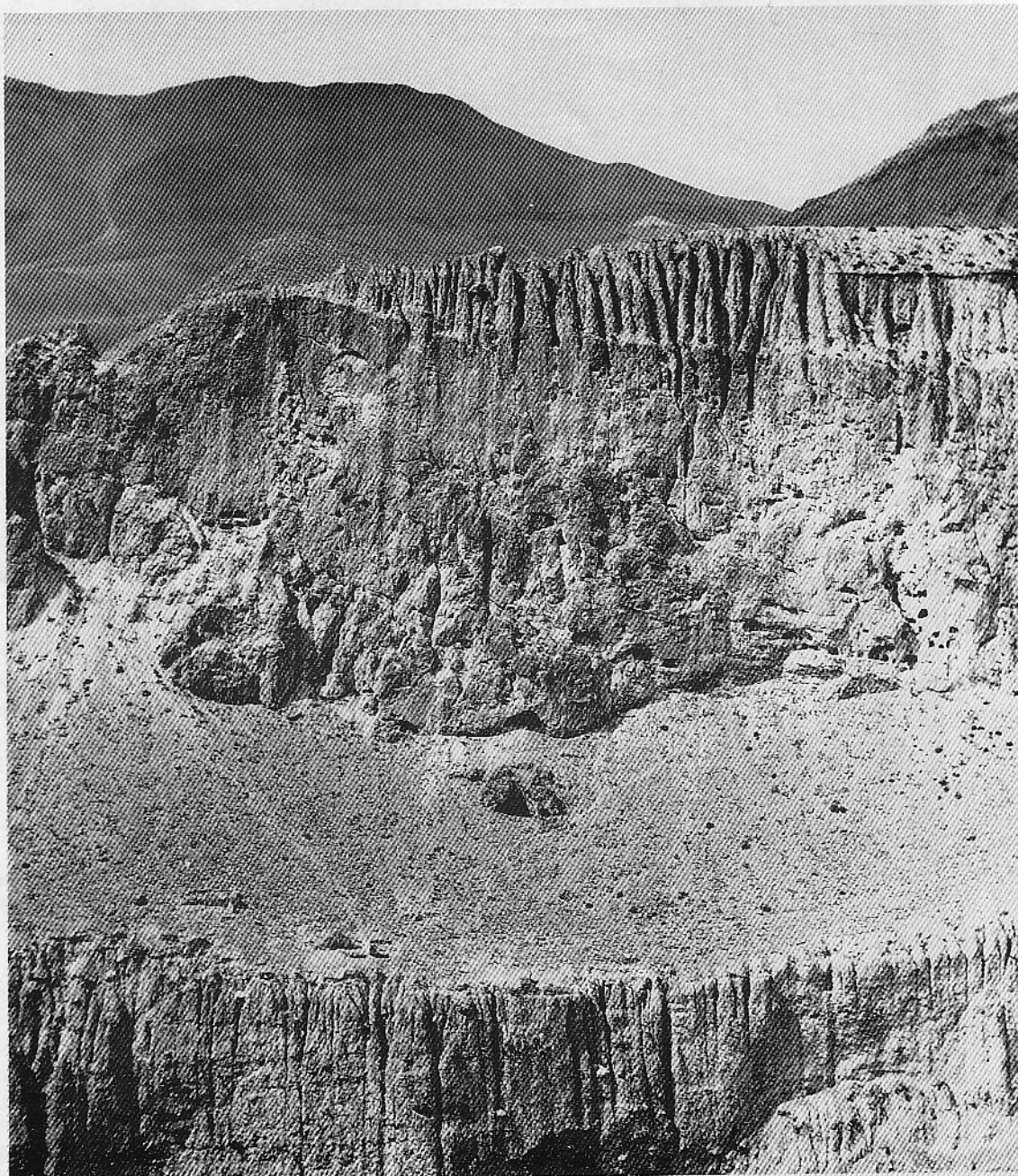
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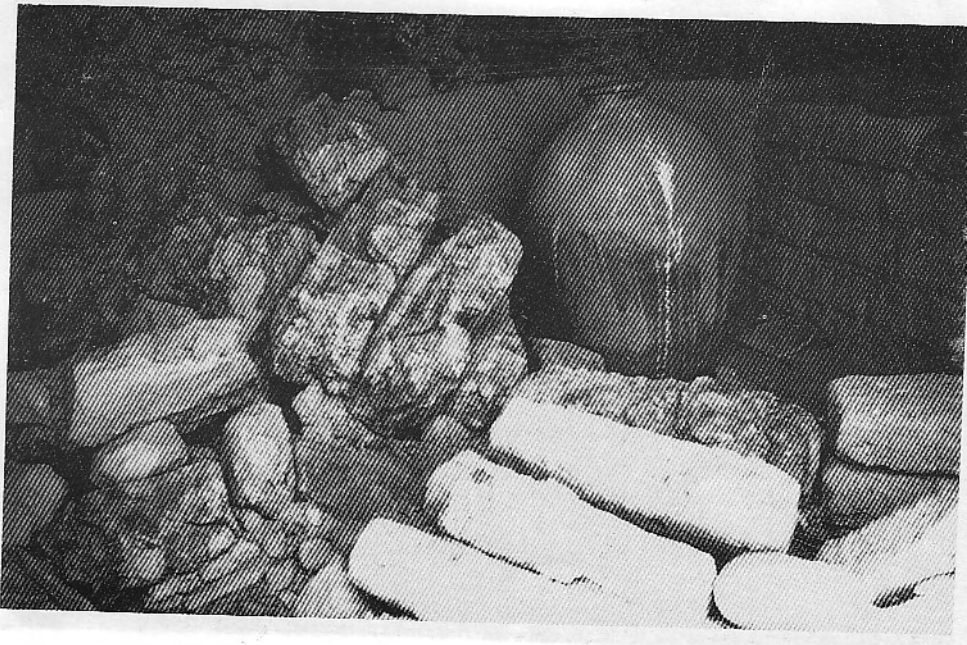


**Plate 1** Chokhopani, South face.  
above: The site with archaeologists working on cave remains, while hanging from ropes.  
below: Human skull, long bones and a crushed pottery vessel uncovered in the rock face.

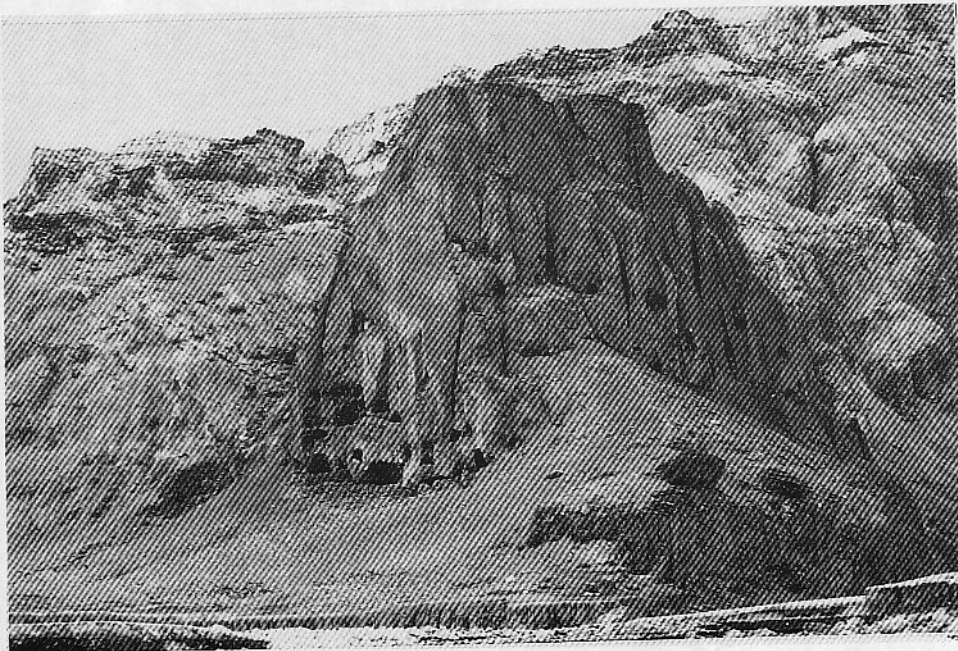
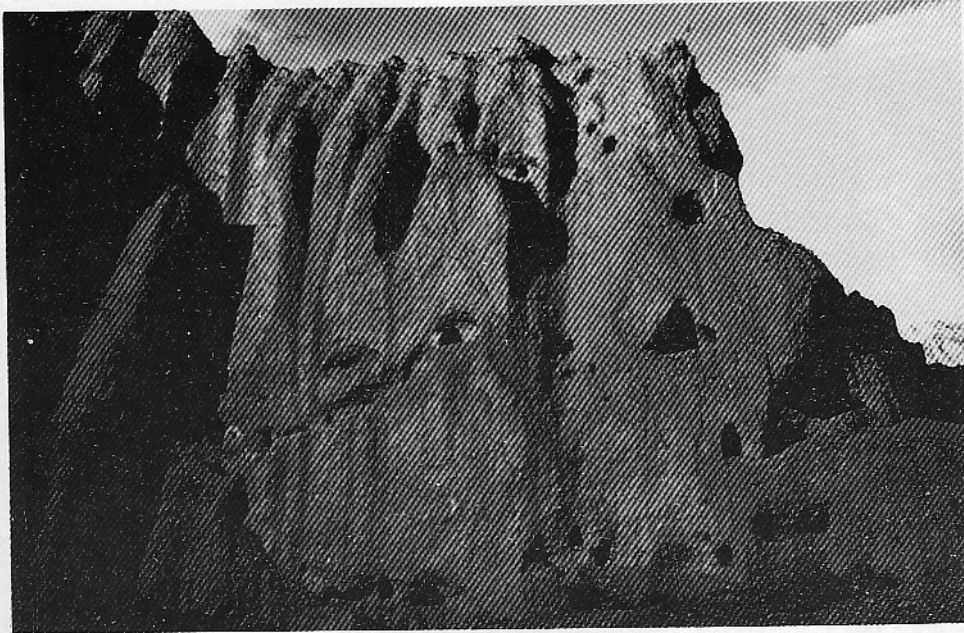


**Plate 2** Site of Mebrak in the upper Muktinath Valley. Remains of ruin site at edge of river-terrace; several cave-systems cut into the rockface.

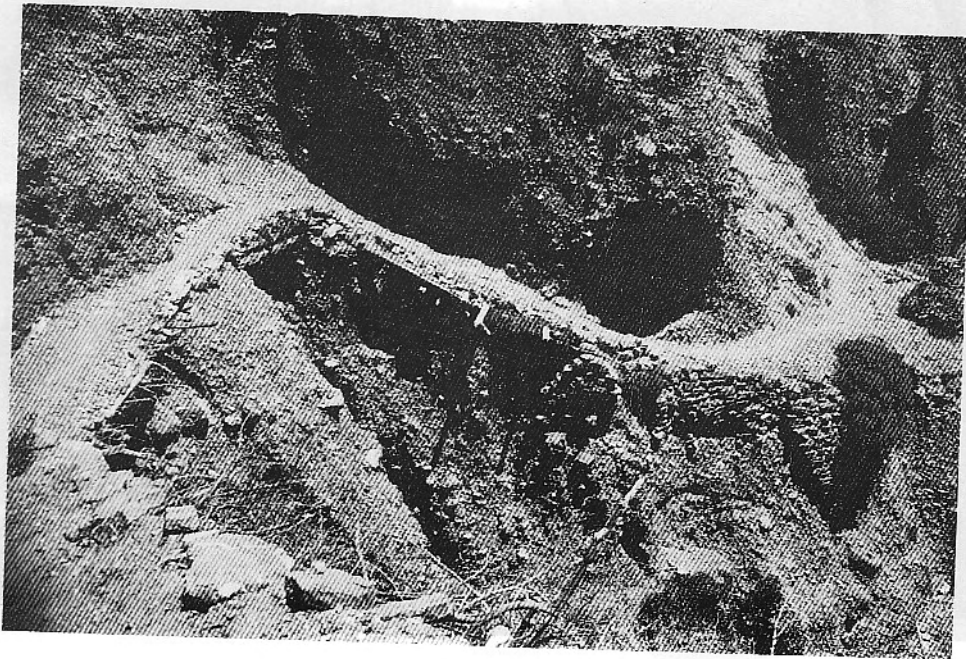
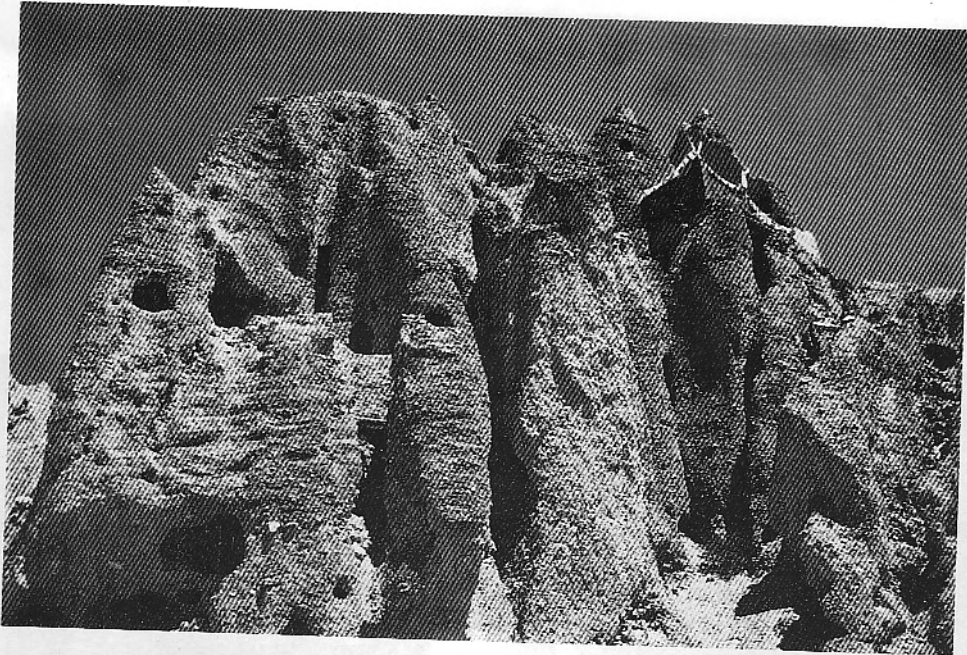




**Plate 3** Mebrak. B-System, fifth storey, cave-room location 40.  
above: View to south-east towards river Dzong and village of Jharkot.  
below: Cave-room before investigation with collapsed mudbrickwalls.



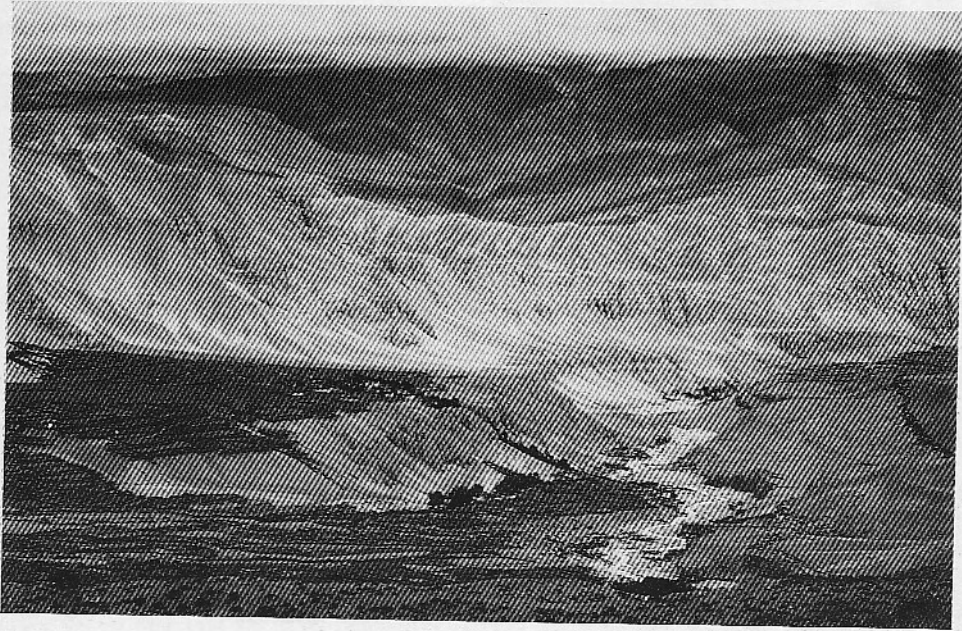
**Plate 4** Cave-systems of Upper Mustang with well-preserved infrastructure.  
above: Cave-system "Dzong" at Dhe.  
below: Cave-system "Mardzong" east of Lomanthang.



**Plate 5** Cave-system of Luri in Upper Mustang with gomba.  
above: View from south-west.  
below: Beam-supported path leading up to the gomba.



**Plate 6** Cave Systems in Upper Mustang.  
left: Cave-system of Luri in Upper Mustang: wooden structures with ladder in the interior.  
right: Recently abandoned cave-system of Marang in Upper Mustang with artificial terraces leading to different floors.



**Plate 7** Marang in Upper Mustang.  
above: Natural settlement area ("Siedlungskammer") of Marang /Tsarang in Upper Mustang.  
below: Recently abandoned cave-system of Marang.