

Sodmein Online Resource 2

HOLOCENE FEATURES

Numerous features were registered during the excavation of the Holocene deposits. They consist mainly of an accumulation of charcoal and/or burnt deposits. Usually these can be characterised as fireplaces with charcoal and ash accumulation resting on distinctively rubified deposits.

1 - Description of the features

The characteristics of the features are described in the chronological order of their excavation. Fig. OR2/4 give an overview of the feature's position within the cave. Table 2 indicates their stratigraphical position, and an overview of the results of the conventional or AMS ^{14}C dating results in BP.

Feature 1 at 38.7N 5.9W, 17.44m is a hearth with a diameter of 30cm. It has a large hearth stone on its northern side. Some large burnt flint flakes occur in its vicinity. An accumulation of fine charcoal particles is covered by a thin accumulation of fine whitish ash.

Feature 1b at 38.6N 5.4W 17.30m is a small charcoal concentration.

Feature 1c at 22.0N 11.4W 20.65m is a small circular accumulation of charcoal (Fig. OR2/31). No associated artefacts were present. There are no traces of burnt sediment, suggesting that the charcoal was dumped and is not the result of an in situ fire place.

Feature 2a at 21.4N 11.4W 20.70m is a circular hearth with a diameter of 40cm, identified by a charcoal accumulation on top of burnt deposits and a thin layer of white ash on top of the charcoal (Fig. OR2/1).



Fig. OR2/1 - Feature 2a.

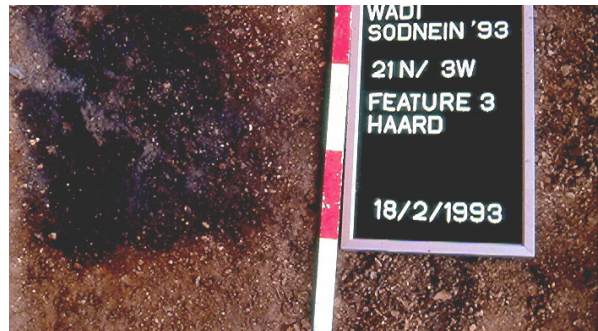


Fig. OR2/2 - Feature 3.

Nearby, on the same level, an ostrich eggshell fragment was found and dated to 6354 ± 31 BP (COL1326.1.1).

Feature 2b at 22.0N 13.5W 21.10m is a hearth, stratified just below the surface, on top of goat dung,

Feature 3 at 21.8N 4.0W 19.62m (Fig. OR2/31) is a 7cm thick hearth with a diameter of about 40cm, in a shallow pit (Fig. OR2/3) within excrement rich deposits, filled with fine powdery charcoal, covered by white ash (Fig. OR2/2). The underlying sediment is burnt in situ. No directly associated artefacts were observed. It is in a higher stratigraphic position than feature 5. Charcoal was dated to 6401 ± 40 BP (COL1325.1.1).

Feature 4 is a hearth at 21.9N 2.0W 19.65m (Fig. OR2/31) just below the surface. It is a circular concen-



Fig. OR2/3 - Profile of feature 3.

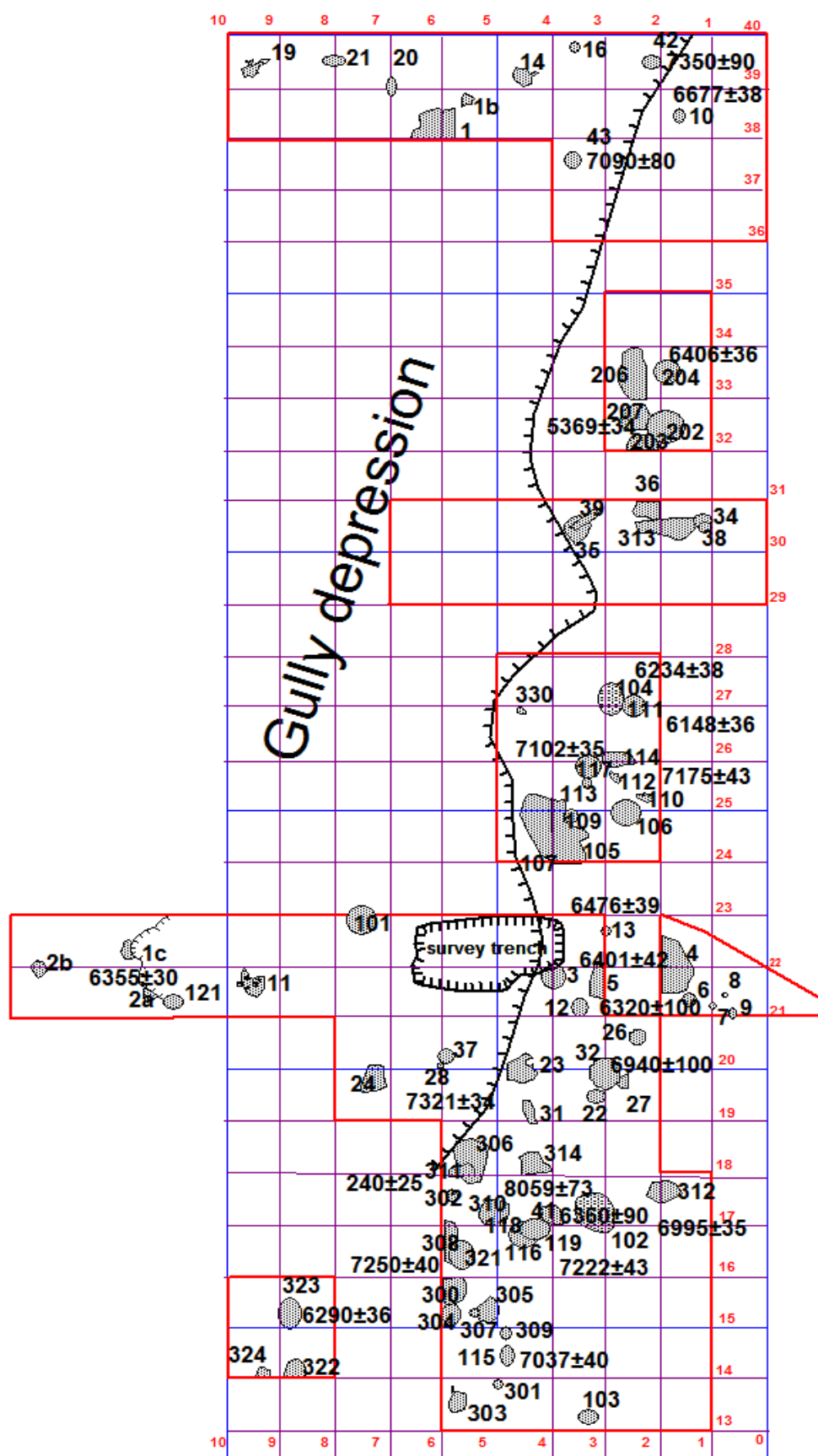


Fig. OR2/4 - Lay out of the features attributed to the Holocene occupations.



Fig. OR2/5 - Feature 5



Fig. OR2/6 - Feature 23.

tration (diameter of 60cm) of powdery charcoal on burnt deposits. The charcoal seems to be slightly deflated in a southwestern direction.

Feature 5, situated at 21.7N 3.0W 19.60m (Fig. OR2/31) is a structured hearth with a diameter of about 0.5 m. The centre is filled with very large pieces of charcoal, over which there was white ash (Fig. OR2/5). The hearth is bordered by at least four limestone slabs which show traces of heating on the side facing the hearth centre. Among the charcoal fragments the tooth of an ovicaprid was found. Around the hearth numerous flint artefacts were collected. A date of 6320 ± 100 BP (Lv-2082) was obtained from the charcoal.

Feature 6 is a oval accumulation of charcoal and white ash with a diameter of about 20cm at 21.2N 1.0W 19.58m (Fig. OR2/31). No burnt deposits were noted.

Feature 7 is a hearth composed of an ash and charcoal accumulation at 21.4N 1.1W 19.41m (Fig. OR2/31) with a diameter of about 10cm and a thickness of 5cm, resting on reddish burnt deposits.

Feature 8 at 21.4N 0.7W 19.39m (Fig. OR2/31) is a very small charcoal accumulation with a diameter of less than 10cm. Large charcoal fragments were found dispersed over burnt deposits.

Feature 9 at 21.1N 0.7W 19.40m (Fig. OR2/31) is a small concentration of large charcoal fragments. There are no traces of burnt deposits.

Feature 10 at 38.5N 1.6W 16.83m (Fig. OR2/36) is a small oval (30 x 20cm) accumulation of charcoal fragments. A few artefacts, some burnt, were found nearby the hearth. In the calcareous deposits below the hearth some artefacts and sherds were collected. A date of 6677 ± 38 BP (COL1327.1.2) was obtained from the

charcoal.

Feature 11 at 21.6N 9.5W 20.10m (Fig. OR2/31) is an accumulation of white ashes with some rare charcoal fragments. Some heated chert stones, apparently used as hearth stones, lay in the ashes.

Feature 12 at 21.0N 3.8W 19.15m (Fig. OR2/31) is an in situ hearth with a diameter of about 30cm. It consists of a 3cm thick accumulation of white powdery ash above a 1cm thick accumulation of fine charcoal fragments.

Feature 13 at 22.7N 3.0W 19.14m corresponds to a scatter of charcoal fragments. A date of 6746 ± 39 BP (COL1341.1.2) was obtained from the charcoal.

Feature 19 at 39.3N 9.4W 18.57m is a hearth situated just below the surface. Aeolian activity has scattered ashes to the northeast.

Feature 20 at 38.9N 7.0W 18.00m (Fig. OR2/36) is a small charcoal concentration.

Feature 21 at 38N 7-8W 18.00m (Fig. OR2/36) is a small charcoal concentration.

Feature 22 at 19.5N 3.2W 19.94m (Fig. OR2/36) is a hearth with a diameter of 35cm. It is composed of burned deposits and white ashes. Some lithic artefacts including a bifacial arrowhead were found in its vicinity.

Feature 23 at 20.0N 4.0W 19.83m (Fig. OR2/36) is an oval hearth which has been partially eroded. It originally had a diameter of 50x30cm and was filled with large charcoal fragments, on top of which there was white ash (Fig. OR2/6).

Feature 24 at 19.3N 7.3W 19.90m (Fig. OR2/36) is a hearth containing large charcoal fragments.

Feature 26 at 20.6N 2.4W 20.10m consists of the remnants of an hearth which has, however, been severely damaged as it is situated just below the cave surface. It still contained some charcoal fragments.

Feature 27 at 19.8N 2.7W 19.84m (Fig. OR2/36) is a small remnant of an hearth with a diameter of 15cm.

Feature 28 at 20.0N 6.0W 19.70m (Fig. OR2/36) is a small concentration of charcoal, which was dated to 7321 ± 36 BP (COL1328.1.2).

Feature 31 at 19.2N 4.4W 19.45m (Fig. OR2/36) is a small charcoal concentration. There are no traces of burnt deposits. A few bones and artefacts have been collected in its immediate vicinity.

Feature 32 at 19.8N 3.0W 19.43m (Fig. OR2/36) is a hearth (Fig. OR2/7-8) built up in a pit near a large limestone block, which protected the fireplace from winds from the south. The pit has a diameter of about 60cm



Fig. OR2/7 - Feature 32.

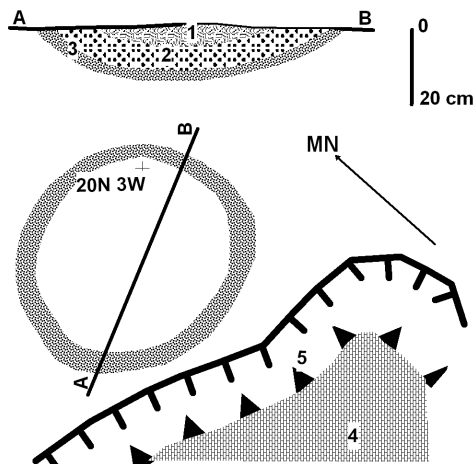


Fig. OR2/8 - Plan and profile of feature 32; 1: gray ashy deposits, 2: charcoal accumulation; 3: reddish-brown burnt calcareous deposit; 4: large limestone bloc with a steep (5) side.

and is about 10cm deep. The charcoal is composed of large to very large pieces indicating the utilisation of thick wood branches. On top of the charcoal a gray white ash was found. No hearth stones were present. Some artefacts were found in its surroundings but no artefact concentration was observed. A date of 6940 ± 100 BP (Lv-2083) was obtained from the charcoal.

Feature 34 at 30.7N 1.3W 18.17m (Fig. OR2/32) is a hearth with a diameter of about 20cm, situated in a slight depression. It was filled with large charcoal fragments. No artefacts were found in its vicinity.

Feature 35 at 30.5N 3.6W 18.20m (Fig. OR2/32) is a hearth (Fig. OR2/9-10) with large pieces of charcoal below an accumulation of white ash. Some stones - possibly used as hearth stones - were found nearby. Numerous artefacts seem to be associated with feature 35.

Feature 36 at 30.9N 2.2W 18.10m (Fig. OR2/32) is a hearth with a diameter of 45cm containing several

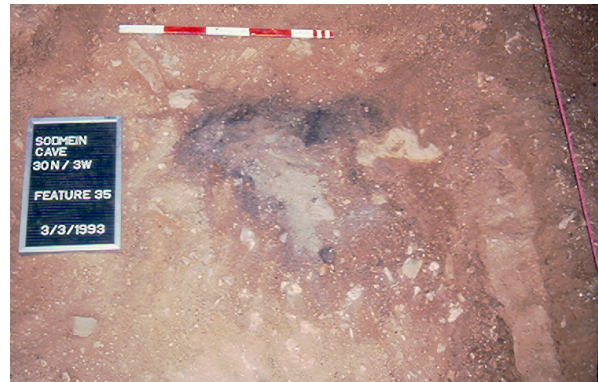


Fig. OR2/9 - Feature 35.

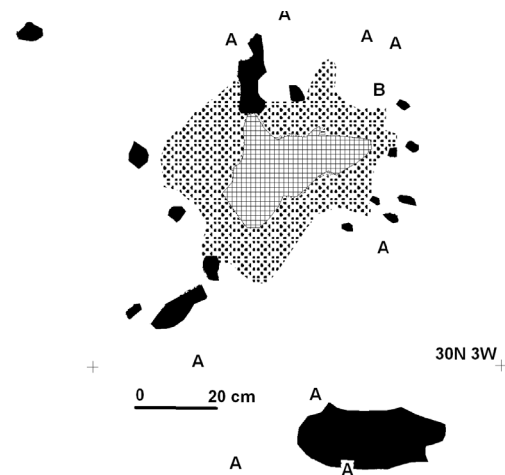


Fig. OR2/10 - Feature 35 plan with position of hearth stones (S) and artefacts (A).



Fig. OR2/11 - Feature 36.

larger hearth stones above a charcoal accumulation (Fig. OR2/11). No artefacts are directly associated.

Feature 38 at 30.4N 1.1W 18.05m (Fig. OR2/32) is a hearth situated in a slight depression.

Feature 39 at 30.4N 3.5W 18.10m (Fig. OR2/32) is composed of charcoal accumulations, which do not



Fig. SI2/12 - Feature 41.



Fig. OR2/13 - Feature 101

seem to belong to a hearth because no burnt deposits are present. It is possibly a rather thick tree root which was burned and thus created more-or-less independent charcoal accumulations, some of which seem to reach into the cave surface.

Feature 41 at 17.2N 4.0W 20.18m (Fig. OR2/12) is a hearth with a diameter of about 60cm. It is situated in a shallow depression and contains large charcoal fragments but only a small amount of ash. Artefacts occur mainly below the hearth, suggesting a terminus *ante quem* for the artefacts. The charcoal provided a date of 6360 ± 90 BP (Lv-2085).

Feature 42 at 39.5N 2.1W 16.10m (Fig. OR2/35) is a charcoal concentration which provided a date of 7350 ± 80 BP (UtC-3312).

Feature 43 at 37.5N 3.5W 16.42m (Fig. OR2/35) is a charcoal concentration which provided a date of 7090 ± 80 BP (Lv-2086).

Feature 101 at 22.9N 7.5W 19.29m is a oval hearth with irregular dimensions (55 x 59cm) and a significant centrally-located accumulation of white ash, surrounded by dark, charcoal-rich deposits with burnt sediment (Fig. OR2/13).

Feature 102 at 17.3N 3.2W 20.00m (Fig. OR2/33) is an oval (75 x 60cm) hearth with an accumulation of large charcoal fragments, which provided a date of 6995



Fig. SI2/14 - Feature 103.

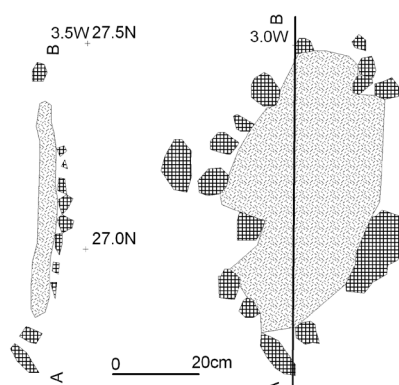


Fig. OR2/15 - Feature 104: Plan and profile with position of hearthstones.



Fig. OR2/16 - Feature 104.

± 35 BP (KIA-28778). This hearth is older than the flint arrowheads (Fig. 15: 10-11) that were found in deposits covering the hearth.

Feature 103 at 13.1N 3.2W 20.36m (Fig. 7) is an oval (45cm) hearth situated between large limestone and chert blocks and containing large charcoal fragments (Fig. OR2/14).

Feature 104 at 27.3N 2.9W 18.90m (Fig. 8) is an oval (50 x 35cm) hearth surrounded by partially burnt stones: two large ones at its eastern side and some smaller ones at its western side (Fig. OR2/15-16).

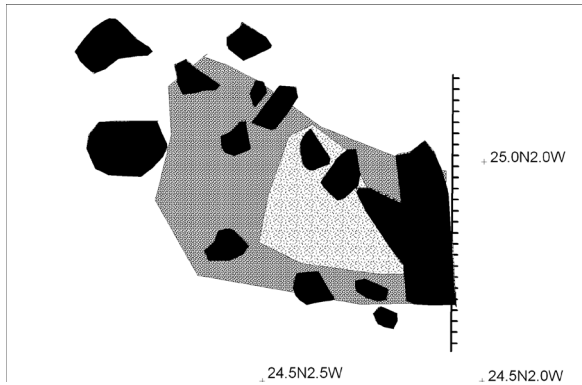


Fig. OR2/17 - Feature 107 with position of the charcoal, white ash on top of a large surface with charcoal and some large hearthstones.



Fig. OR2/18 - Feature 115.

Traces of white ash are present. Just below the hearths some mainly burnt artefacts were collected, suggesting situation similar to that of hearth 41. No artefacts in the vicinity of the hearth were noted. A date of 6234 ± 38 BP (COL1329.1.2) was obtained from the charcoal.

Feature 105 at 24.5N 3.7W 19.15m (Fig. OR2/33) is what remains from a destroyed hearth with numerous hearth stones, some ash and scattered charcoal, the southern part of which provided a date of 6475 ± 36 BP (COL1330.1.2).

Feature 106 at 24.9N 2.6W 19.16m and Feature 109 at 24N 3W 18.82m (Fig. 8) are charcoal accumulations with some scattered hearth stones.

Feature 107 at 24.9N 2.6W 19.11m is an oval (100x 60 cm) hearth (Fig. OR2/17), the base of which is not intensively burnt. Charcoal and ash were found covered with large (hearth) stone fragments. Artefacts from the vicinity do not display traces of heating.

Feature 110 at 25.2N 2.4W 18.91m (Fig. 8) is a charcoal accumulation in a shallow depression with some

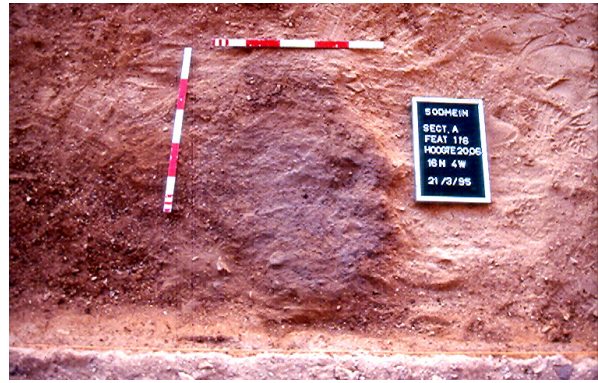


Fig. OR2/19 - Feature 116.

burnt sediments.

Feature 111 at 27.1N 2.5W 18.53m (Fig. 8) is a charcoal accumulation, which provided a date of 6148 ± 36 BP (COL1331.1.2).

Feature 112 at 25.7N 2.8W 18.73m (Fig. 8) is an oval hearth (25 x 15cm) with a single large hearth stone at its southern edge. A date of 7175 ± 42 BP (COL1332.1.1) was obtained from the charcoal.

Feature 113 at 25.5N 3.5W 18.71m is a small hearth with some heated hearth stones.

Feature 114 at 25.5N 3.0W 18.72W is an oval concentration (45 x 25cm) of charcoal and some burnt sediment.

Feature 115 at 14.4N 4.8W 20.19m is an accumulation of gray ash, burnt sediment and an only partially burnt wood fragment (Fig. OR2/18) which was dated to 7037 ± 40 BP (COL1333.1.1).

Feature 116 at 16.0N 4.7W 20.15m (Fig. OR2/33) is a hearth with a diameter of about 60cm containing a few charcoal fragments but also unburnt brushwood (Fig. OR2/19). It is associated with a denticulated flake.

Feature 117 at 25.7N 3.4W 18.61m (Fig. 8) is the basal part of a larger hearth which comprises Features 112, 113, 114. The totality seems to form a large fire place, nearly 20cm thick and reaching down to 18.52 but becoming smaller at its base. Charcoal from a lower part (feature 117) was dated to 7102 ± 35 BP (COL1334.1.1), whereas the upper part (feature 112) was dated to 7175 ± 42 BP (COL1332.1.1).

Feature 118 at 17.1N 4.8W 19.78m is a small charcoal accumulation.

Feature 119 at 16.9N 4.3W 19.66m (Fig. OR2/33) is an accumulation of large quantities of charcoal fragments, over a depth of about 10cm. The charcoal provided an age of 7222 ± 13 BP (COL1335.1.1).

Feature 121 at 21.4N 11.0W 21.70m (Fig. OR2/31)



Fig. OR2/20 - Feature 203.

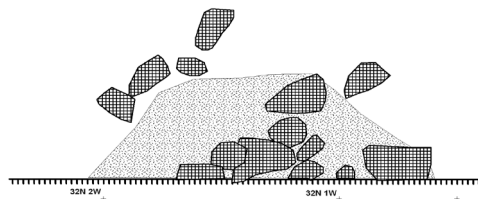


Fig. OR2/21 - Feature 203

is a small charcoal concentration near the cave surface. Feature 202 at 32.4N 1.9W 17.99m (Fig. OR2/22) is an ephemeral hearth situated a few cm below the cave surface.

Feature 203 at 32.4N 2.2W 17.94m (Fig. OR2/22) is a very large hearth (only partly excavated and possibly part of Feature 202) in which the frequently large pieces of charcoal with ash are partially covered by large hearth stones, the majority of which have been intensively heated (Fig. OR2/20-21). Numerous artefacts seem to be connected with this hearth.

Feature 204 at 33.5N 1.9W 17.7m (Fig. OR2/22) is an oval (45 x 35cm) accumulation of scattered charcoal, which was dated to 6406 ± 36 BP (COL1336.1.2).

Feature 206 at 32.5N 2.5W 17.52m is an oval (90 x 50cm) concentration of charcoal and ash.

Feature 207 at 32.6N 2.6W 17.64m (Fig. OR2/22) is a small hearth with some small hearth stones and very thin (grass?) charcoal which was dated to 6369 ± 34 BP

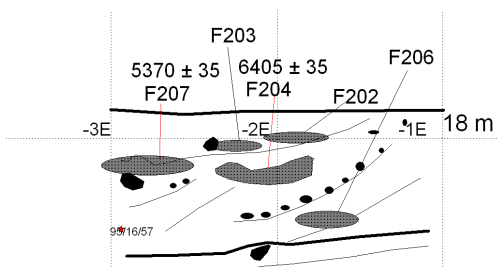


Fig. OR2/22 - Profile at 33N with position of the features.



Fig. OR2/23 - Feature 305



Fig. OR2/24 - Feature 306.

(COL1337.1.2).

Feature 300 at 15.0N 5.5W 20.56m is a 7cm thick circular hearth with a diameter of about 55cm. It consists of an accumulation of whitish ash, resting on a dark ash bed, on top of reddish brown burnt deposits. No large pieces of charcoal were present.

Feature 301 at 13.9N 4.9W 20.65m (Fig. OR2/34) is an accumulation of charcoal just below the surface.

Feature 302 at 17.6N 5.9W 20.67m (Fig. OR2/33) is



Fig. OR2/25 - Feature 308.

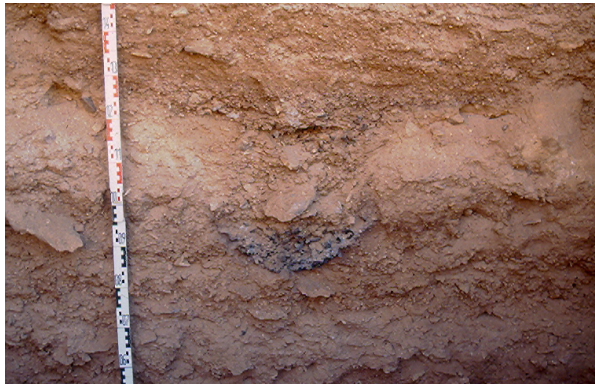


Fig. OR2/26 - Profile of feature 310.

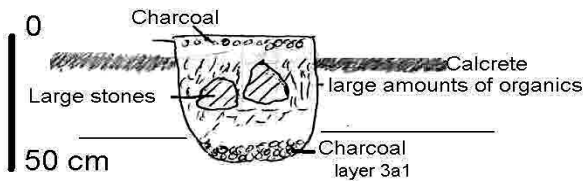


Fig. SI2/27 - Feature 310 profile



Fig. SI2/28 - Horizontal section of Feature 310 at its base.

a charcoal accumulation just below the cave surface.

Feature 303 at 13.6N 5.7W 20.68m (Fig. OR2/34) is an accumulation of charcoal just below the surface.

Feature 304 at 15.4N 5.8W 20.44m is an oval (60 x 45cm) hearth with some hearth stones.

Feature 305 at 15.4N 5.1W 20.40m is a circular hearth, with a diameter of 55cm, situated just below feature 304. Several larger hearth stones are present but do not display a specific distribution. A hearth stone, the base of which was quite intensively heated, covers the hearth. In the centre a white ashy layer, 2cm thick, covers a 4cm thick middle grey-black layer full of charcoal and a reddish brown lower surface, where the sediment is burnt to a depth of 3cm.

Feature 306 at 18.3N 5.5W 20.05m is a circular hearth with a diameter of about 65cm containing tiny

charcoal fragments and a single hearth stone in its centre (Fig. OR2/23-24).

Feature 307 at 15.4N 5.5W 20.35m is a circular hearth with a diameter of about 25cm. Only a few hearth stones seem to be associated.

Feature 308 at 16.9N 5.9W 20.10m (Fig. OR2/33) is a hearth with several hearth stones (Fig. OR2/25). Some artefacts are related to the hearth. Charcoal provided a date of 7250 ± 40 BP (IRPA-1372).

Feature 310 at 17.3N 5.2W 19.63-19.91m (Fig. OR2/33) is a circular 40cm deep pit with a diameter of about 40cm. At a depth of 5cm, the pit was full of organic debris, twigs, sticks and branches, charcoal fragments being rare at this level. Below this some large burnt limestone fragments were found (Fig. OR2/26-28). At its base there is a 20cm thick charcoal accumulation, which provided a date of 8059 ± 73 BP (COL1338.1.2).

Feature 311 at 18.2N 5.5W 20.27m is a hearth situated just below the cave surface. Charcoal provided a date of 240 ± 25 BP (KIA-28777).

Feature 312 at 17.6N 1.9W 19.97m is a diffuse charcoal accumulation just below the cave surface.

Feature 314 at 18.2N 4.3W 19.81m is a thin hearth with a diameter of about 40cm. Four flint flakes were found in its vicinity.

Feature 322 at 14.2N 8.6W 21.10m (Fig. OR2/34)



Fig. OR2/29 - Feature 322.



Fig. OR2/30 - Feature 324.

is an oval (50 x 40cm) hearth, above which was a thick (1.5cm) layer of white ash (Fig. OR2/29). Two hearth stones are present.

Feature 323 at 15.3N 8.8W 21.09m is an oval (30 x 50cm) 5cm thick hearth. The central white ash is 1.5cm thick. In and around the hearth worked chips were found. Charcoal provided a date of 6290 ± 36 BP (COL1339.1.2).

Feature 324 at 14.0N 9.4W 21.34m (Fig. OR2/34) is an oval hearth (60 x 40cm) with only small charcoal fragments. In its centre white ash is present but is not thick (Fig. OR2/30).

Feature 330 at 26.9N 4.6W 18.90m is a hearth that was not excavated but was observed in the western profile.

2 - Radiocarbon dating

The charcoal samples and one egg shell selected for radiocarbon dating were mechanically cleaned under the microscope. The egg shell (ME/69) contained too little collagen for AMS ^{14}C analysis, thus the inorganic fraction was dated after removal of the shell surface with sulphuric acid (Rethemeyer et al. 2013, NIMB). The charcoal samples were pretreated by standard acid-alkali-acid (AAA) extraction to remove carbonates and humic acids. The purified samples were combusted in an elemental analyser couple to a graphitization system in which the CO_2 was trapped on a zeolite trap and, after thermal desorption, reduced to graphite with hydrogen and iron as catalyst (ref. above). Sample sizes were be-

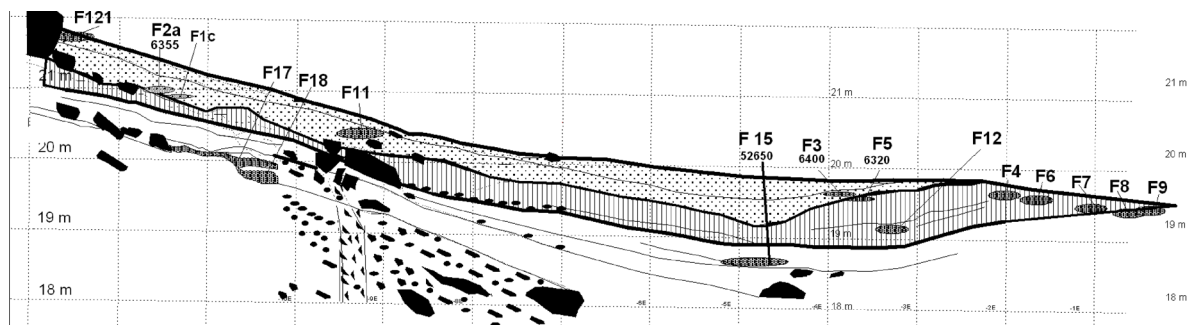


Fig. OR2/31 General west-east profile (mainly at 21N) indicating the two main Holocene deposits: an upper one, described as the "gully depression" (field layers 0-1 and A-B); and a lower one described as the "main archaeological zone" (field layers 2a,b,c, C, 3a1 and D). The position of some features (F) with their ^{14}C date in BP is indicated. .

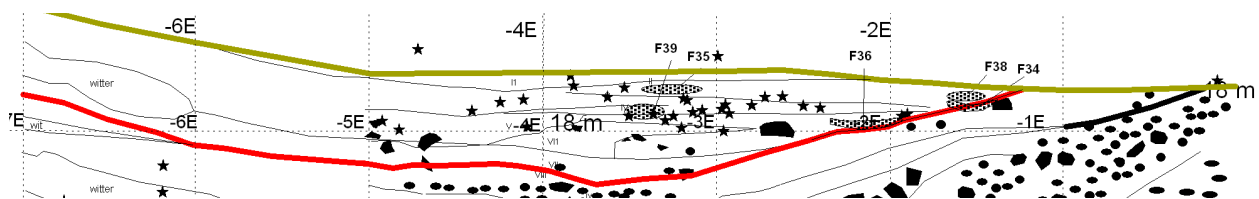


Fig. OR3/32 East-West profile (31N) showing the position of artefacts (stars), stones (black surface) and features (F) from 30.00N up to 30.49N.

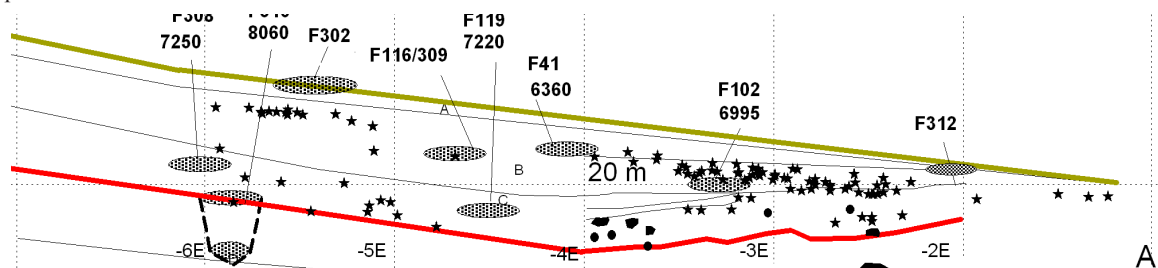


Fig. OR2/33 East-West profile (17N) showing the position of artefacts (stars), stones (black surface) and features (F) from 17.00N up to 17.49N.

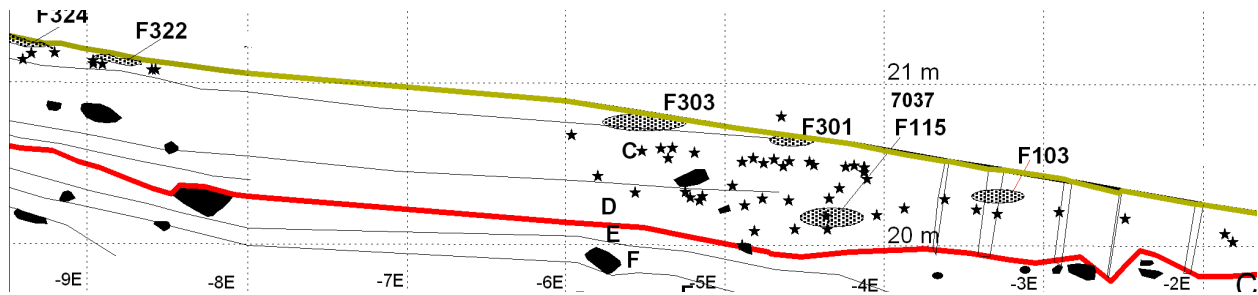


Fig. OR2/34 East-West profile (14N).

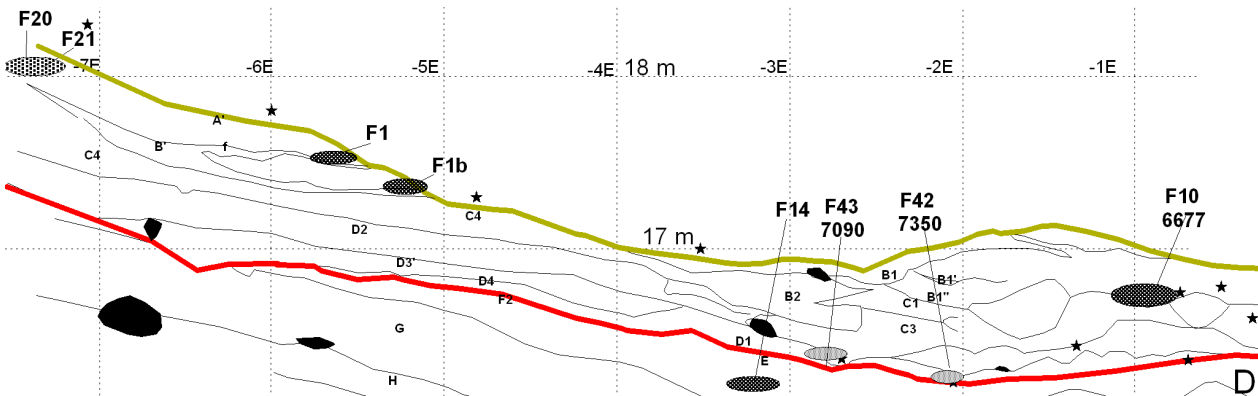


Fig. OR2/35 East-West profile (38N).

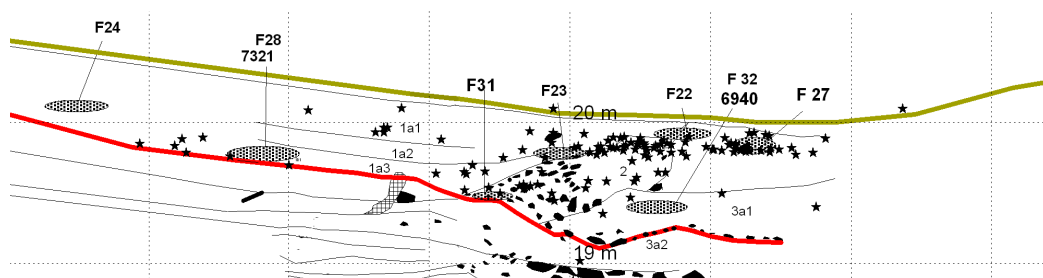


Fig OR2/36 West-East profile (19N) showing the position of artefacts (stars), stones (black surface) and features (F) from 19.00N up to 19.49N.

tween 0.5 to 1.0 mg of carbon. The AMS measurement was performed with the 6 MV tandetron accelerator mass spectrometer at CologneAMS (Dewald et al. 2013, NIMB).

References

Rethemeyer J, Dewald A, Fülöp R, Hajdas I, Höfle S, Patt U, Stapper B, Wacker L (2013) Status report on sample preparation facilities for ^{14}C analysis at the new CologneAMS centre. *Nuclear Instruments and Methods in Physics Research B* 294: 168-172.

Dewald A, Heinze S, Jolie J, Zilges A, Dunai T, Rethemeyer J, Melles M, Staubwasser M, Kuczewski B, Richter J, Radtke U., von Blanckenburg F., Klein M (2013) CologneAMS, a dedicated Center for Accelerator Mass Spectrometry in Germany. *Nuclear Instruments and Methods in Physics Research B* 294: 18-23.