M. OTTE et L.G. STRAUS (dir.), *Le Trou Magrite. Fouilles 1991-1992*. Liège, E.R.A.U.L. 69, 1995.

2

THE 1991-1992 EXCAVATIONS

Lawrence Guy STRAUS

INTRODUCTION

One hundred and twenty-five years after the excavations of E. Dupont in le Trou Magrite, and 85-80 years after the excavations of Loë/Rahir and Rutot respectively, and after the clandestine diggings of countless amateurs and looters in this famous Belgian cave, could any intact Paleolithic deposits have survived and, if so, what information could they possibly yield? As recently as 1976, M.Toussaint (Dewez 1985; Toussaint, personal communication) dug a sondage in the center of the front of the Trou Magrite terrace and failed to find remnant Stone Age strata.

As shown by Otte in Chapter 1, le Trou Magrite had produced one of the most complete stratigraphic sequences for the Upper Pleistocene in Belgium (or, for that matter, western Europe) including Mousterian, Aurignacian, Gravettian, Magdalenian and Mesolithic levels. The Early Upper Paleolithic of le Trou Magrite was known to have contained both tanged (Font-Robert) and invasively retouched "points". The presence of the latter type of pieces had caused the site to be mistakenly attributed to the Solutrean (="Magritian") especially in the late 19th and early 20th centuries (Smith 1966). Le Trou Magrite served as one of the chief extra-Dordogne sources of confirmation for the classic Upper Paleolithic subdivision scheme of H.Breuil (1912). Yet, as it has come more recently to be understood, this cave and other Belgian sites such as Spy, Goyet, Maisières and Couvin (Fig. 2.1), constitute part of a wider techno-cultural phenomenon: leaf point industries dating to the period from ca.40-30 kya, characteristic of northwest Europe (Otte 1981,1988). In addition, le Trou Magrite was one of the first (and still one of the relatively few) Belgian Upper Paleolithic sites to yield significant mobile art objects.

Despite the excellence of his excavations (especially considering their very early date), aspects of Dupont's stratigraphic description were somewhat unclear, while his successors' diggings were only minimally (if at all) published. Surviving museum collections are unfortunately curated with only minimal provenience indications and are generally mixed (Ulrix-Closet 1975; Dewez 1979; Otte 1979).

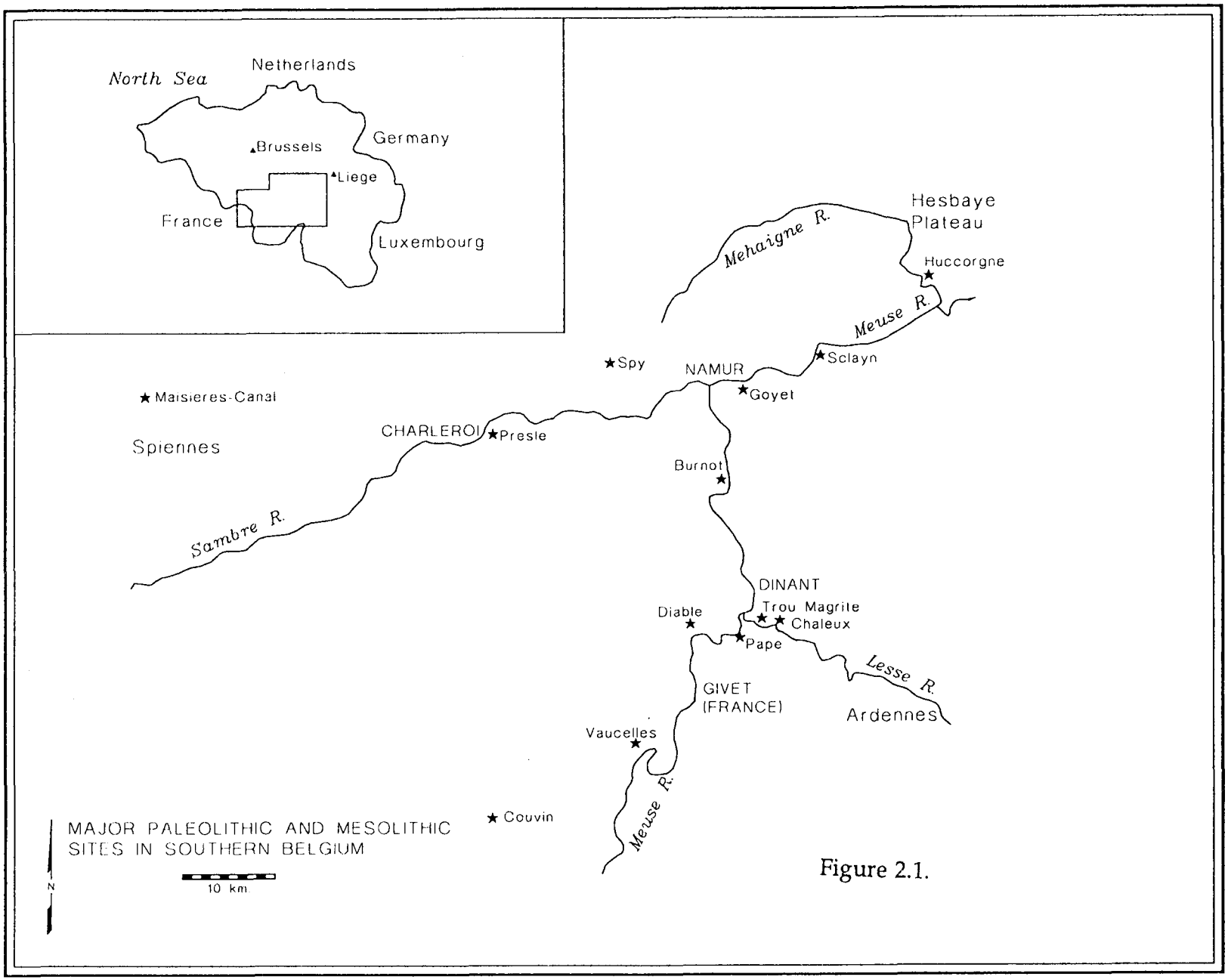

North Sea
Netherlands
Germany
Brussels
Liege
France
Luxembourg
Hesbaye
Plateau
Mehaigne R.
Huccorgne
Meuse R.
Spy
NAMUR
Sclayn
Goyet
Maisieres-Canal
Spiennes
CHARLEROI
Presle
Burnot
Sambre R.
DINANT
Diable
Trou Magrite
Chaleux
Pape
Lesse R.
GIVET
(FRANCE)
Ardennes
Vaucelles
Meuse R.
Couvin
MAJOR PALEOLITHIC AND MESOLITHIC
SITES IN SOUTHERN BELGIUM
10 km
N

Figure 2.1.

If any intact deposits could be found at le Trou Magrite, a new excavation could clarify details of the stratigraphy, attempt to subdivide and characterize the Early Upper Paleolithic (EUP) levels and their assemblages and try to place the famous "Venus" figurine and engraved antler in stratigraphic context. Most importantly, even a limited, but carefully controlled excavation could provide chronostratigraphic information, chronometric dates, paleoclimatic, taphonomic, faunal and seasonality evidence, as well as at least small samples of artifacts from known provenience that could be analyzed by modern methods (e.g., spatial, technological, microwear and residue analyses). Any results from le Trou Magrite could especially shed on the critical problem of the Middle to Upper Paleolithic transition in Europe, still so heavily biased toward evidence from SW France. It was already known that almost all the Mesolithic and Magdalenian, and even the top of the EUP deposits had been removed from the terrace in the 1830's to make the cave accessible for early touristic promenades some 30 years before Dupont's arrival at le Trou Magrite. Thus any new excavation would concern only the timespan of the EUP and underlying Middle Paleolithic (tentatively classified as Quina Charentian and Mousterian of Acheulean Tradition by Ulrix-Closet [1975]).

DESCRIPTION OF THE SITE

Le Trou Magrite is a karstic cave formed in a Lower Carboniferous (Viséen) limestone cliff along the northern edge of the valley of the Lesse River between Pont-à-Lesse and Walzin (Dinant, Namur, Province, Wallonia, Belgium) (Fig. 2.2). It is at 4 55'E longitude and 50 13' N latitude, Lambert coordinates x=189, y = 101.25. The cave is situated 3 km. upstream of the confluence of the Lesse and the equally deeply entrenched Meuse River. It lies at an elevation of about 125 m. above present sea level and 26 m. above the course of the Lesse. The cave faces southwest : an ideal solar orientation, especially for winter habitation when the light grey limestone rockface would have stored and radiated considerable warmth; the cave is also protected from north winds. It dominates a 250 m. wide meadow valley floor. The present meander pattern has the riverbed at the opposite cliff edge of the valley. The gorge narrows to chokepoints both up- and downstream of le Trou Magrite at Walzin/Roche al Pène and Pont-à-Lesse, respectively. There are fords at these three locations, all within 1 km. of le Trou Magrite. Immediately upstream of the cave there is a stream (Fosse de Chawia) that provides easy access to the 290 m. summit of the Condroz plateau interfluve between Furfooz and Dinant. Le Trou Magrite is thus a highly sheltered and strategic location.

The Lesse valley is a major avenue of communication between the Ardennes and the Meuse (the main river of southern, central and eastern Belgium)---a fact testified to by the existence of a major railroad line the length of the Lesse. Just downstream of le Trou Magrite is the site of le Trou Abri and within 5 km. upstream are the Trous de la Naulette, Baleux, Chaleux, Poterie, Frontal, Nutons and Reuviau. This wealth of Stone Age sites is further evidence of the favorable characteristics of the lower Lesse valley, both for residence and subsistence.

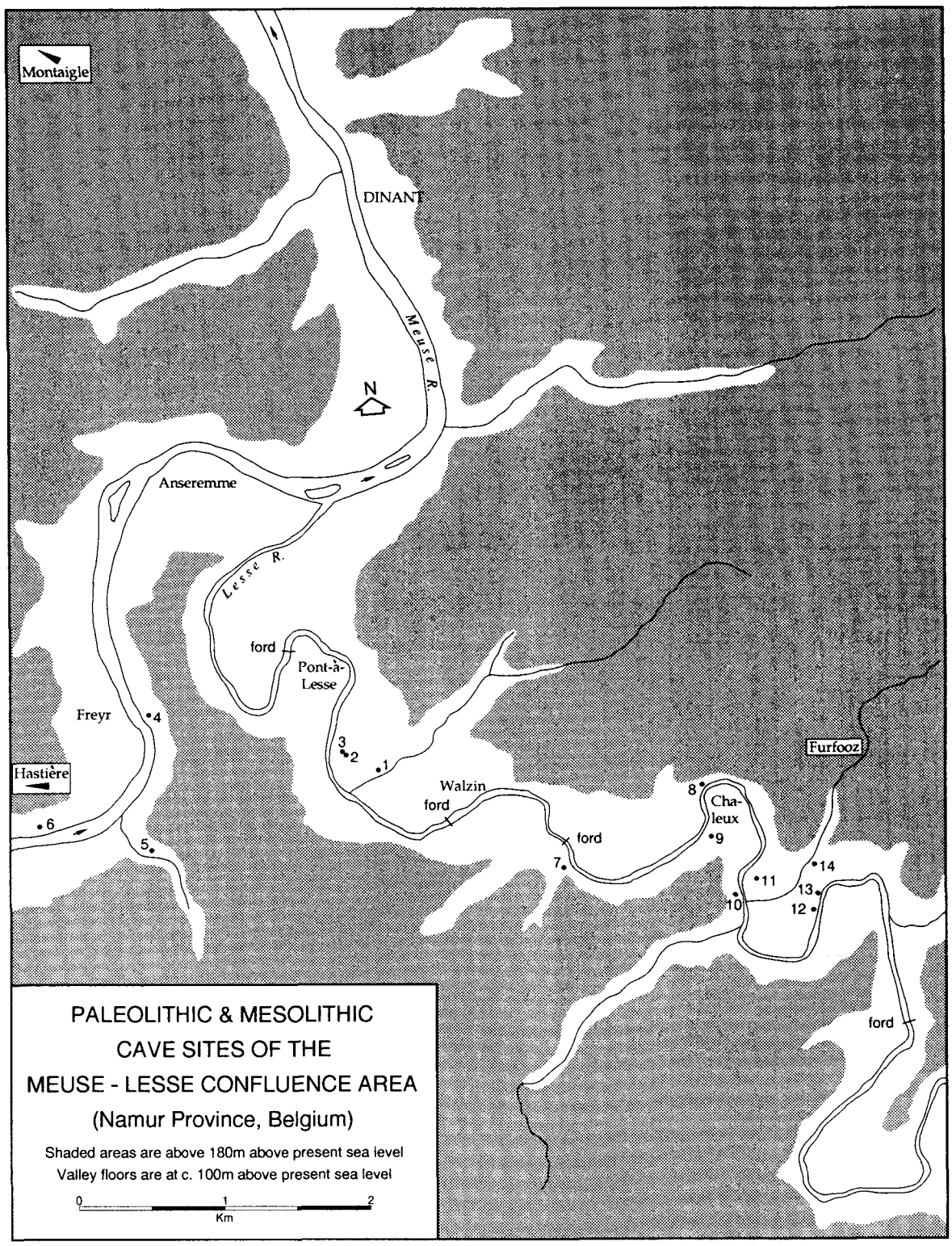


Figure 2.2 : Excavation of the terrace. 1. Trou Magrite; 2. Grotte Martina; 3. Trou Abri; 4. Abri du Pape; 5. Grotte Margaux; 6. Trou Da Somme; 7. La Naulette; 8. Trou de Chaleux; 9. Trou Balleux; 10. Abri de la Poterie; 11. Trou du Renard; 12. Trou du Frontal; 13. Trou des Nutons; 14. Trou Reuviau.

Le Trou Magrite consists of 1.) a large terrace (15x13 m.) largely covered by a high (6-8 m.) overhang (in effect, a deep rockshelter), 2.) a relatively low (2.5 m.), narrow (6 m.) terrace-level cave mouth (and an upper mouth which overlooks the terrace), (photo 2.1), 3.) a small (7x7 m.) sunlit vestibule, 4.) a capacious but dark, high-ceiling, inner chamber (6x12x5 m.) southeast of the cave mouth axis, and 5.) a vertical chimney at the rear which is presently blocked by sediments from the plateau above (Fig. 2.3-2.4-2.5).

In June, 1991, we mapped and gridded the terrace area of le Trou Magrite. All depths were established relative to a datum consisting of a bolt in the east wall of the rockshelter (near the dripline, at a height of 82 cm. above present ground surface). The datum bolt (probably placed by Toussaint) is marked by a "0" in red paint. Secondary datum points were placed as needed. All "z" coordinates are given in cm. below the principal datum.

EXPLORATORY TRENCHES

Since the cave appeared to have been totally excavated and then refilled with mixed sediments, and since M.Toussaint had already demonstrated that no intact Paleolithic deposits remained in the front center of the terrace, we decided to dig trial trenches (A and B) at the extreme west and east edges of the terrace respectively. These trenches, each 2 m. wide x 3.5 m. long, were dug at the spots where the cliff projects outward at the sides of the cave mouth overhang. Each trench ran from the cliff-face to the abrupt break-in-slope at the top of the steep talus slope. A 1x1 m prolongation of Trench B extended beyond the retaining wall and was dug through the talus deposit 170 cm. down to bedrock. Our hope was that archeological deposits had been (although cut into) essentially preserved by the 1830's promenade (with its massive retaining wall) and spared from excavation because of the peripheral locations.

Trench B (Fig. 2.6) : Below a 4-20 cm. thick surficial layer of humus, Trench B revealed 50-80 cm. of loose, mixed and possibly colluviated rubble fill, including blocks and mottled loamy sand. This fill was certainly derived from the cave entrance (most of whose stratigraphy already had been lowered by about 1 m. at the time of Dupont's arrival at le Trou Magrite in 1864; the cave deposits were "quarried" to ease access to the interior and to build the promenade). A second layer of rubble fill (yellowish brown clayier silt with chunks of broken cave travertine, but fewer limestone blocks) continues downward another 50-100 cm. in the area abutting the retaining wall. The Trench B rubble yielded a large, partially bifacial Mousterian sidescraper (Fig. 2.7) at a depth of 67 cm. below ground surface and above blades and bladelets of possibly Magdalenian or Mesolithic age, together with a few ceramic and metal objects, recent and Pleistocene faunal remains (including cave bear). The patchiness of the rubble fill is suggestive of wheelbarrow load dumping. At the base of the retaining wall, the redeposited material overlies a 25 cm. layer of intact, archeologically sterile, dark brown, pebbly sandy loam that in turn lies directly atop bedrock. In the area directly abutting the cliff face, the upper rubble unit is underlain by 60 cm. of the sterile, intact stony loam and finally 80 cm. of sterile, compact, yellowish brown

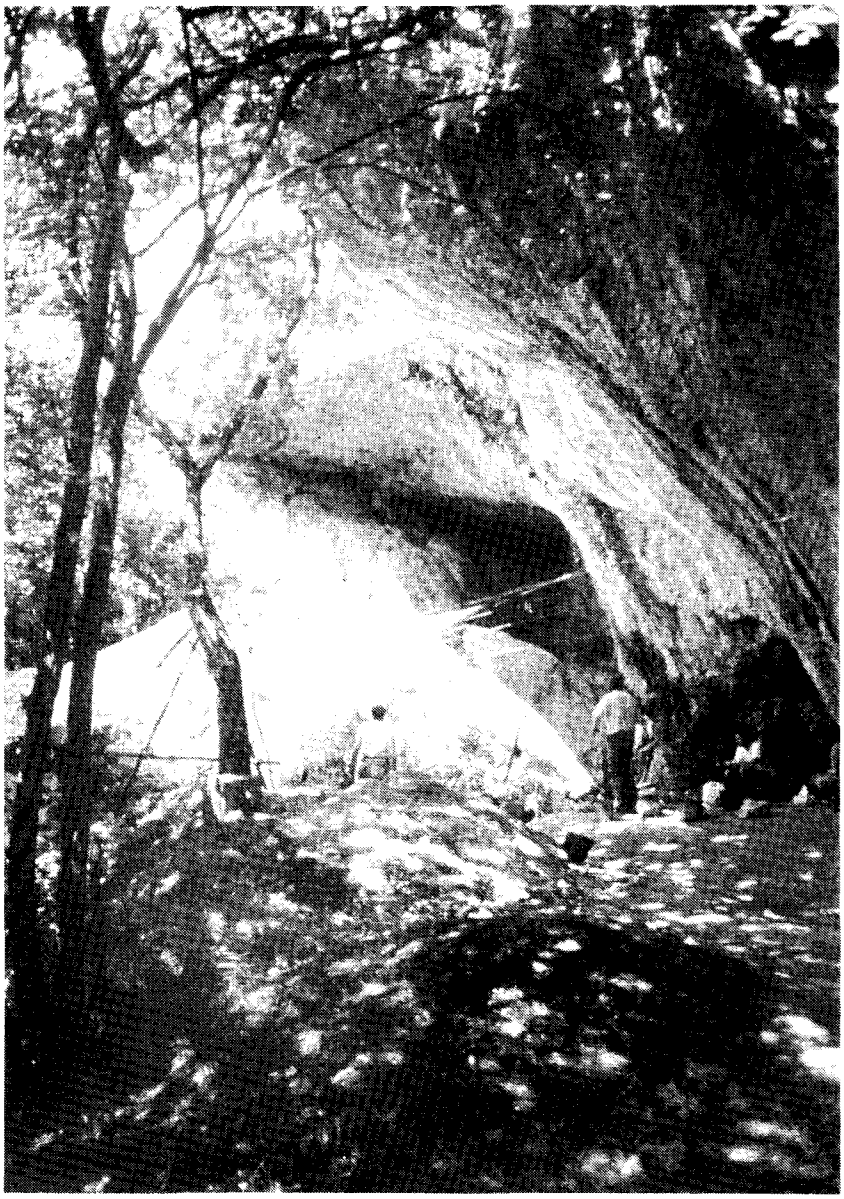


Photo 2.1 : General view of the terrace.

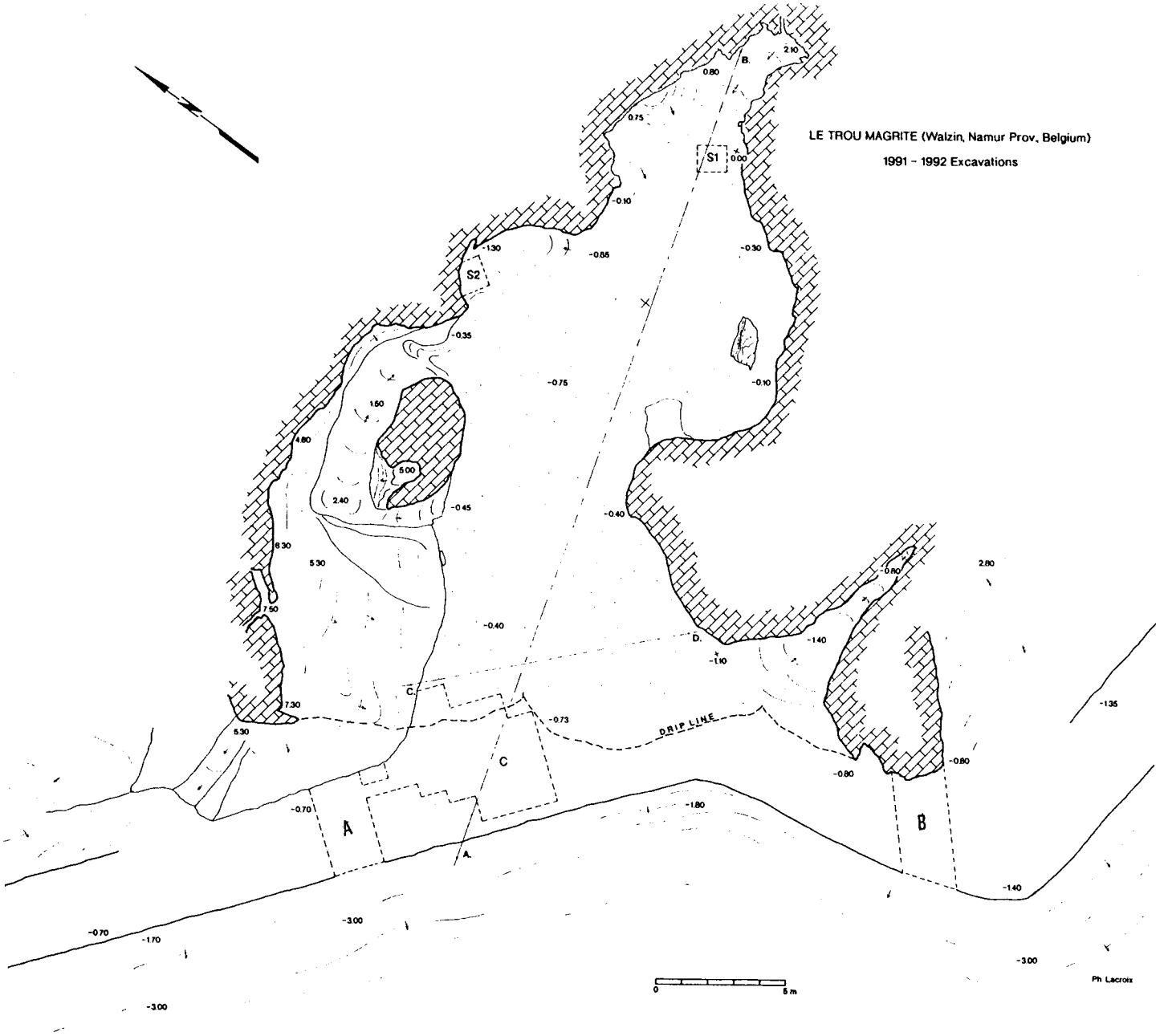
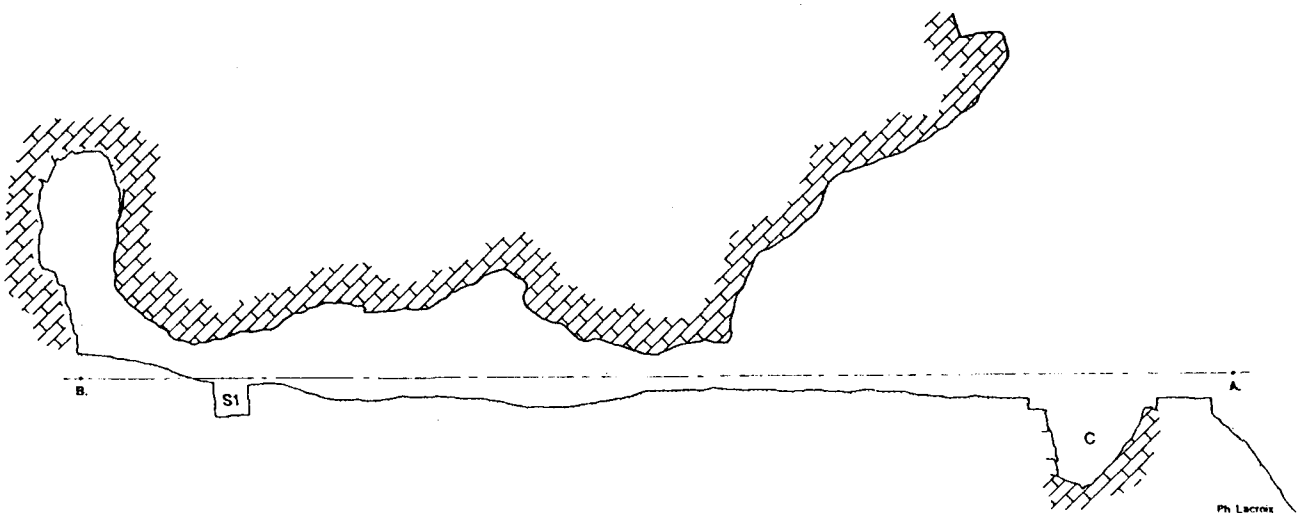
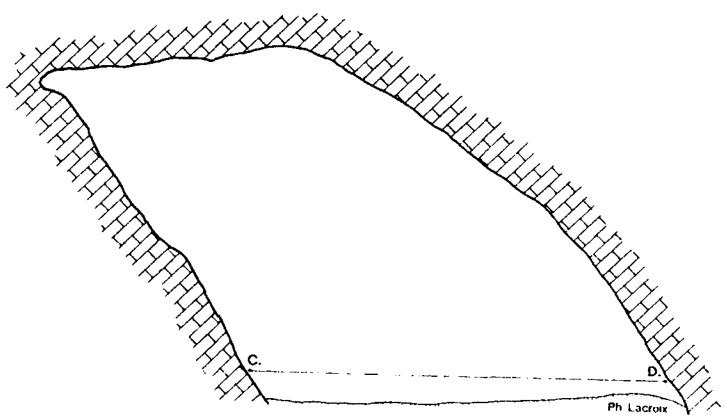

LE TROU MAGRITE (Walzin, Namur Prov, Belgium)
1991 - 1992 Excavations
S1
S2
A
B
C
DRIP LINE
Ph Lacroix
0
5 m

Figure 2.3.



LE TROU MAGRITE Longitudinal Section, A-B

Figure 2.4



LE TROU MAGRITE Sagittal Section, C-D

Figure 2.5.

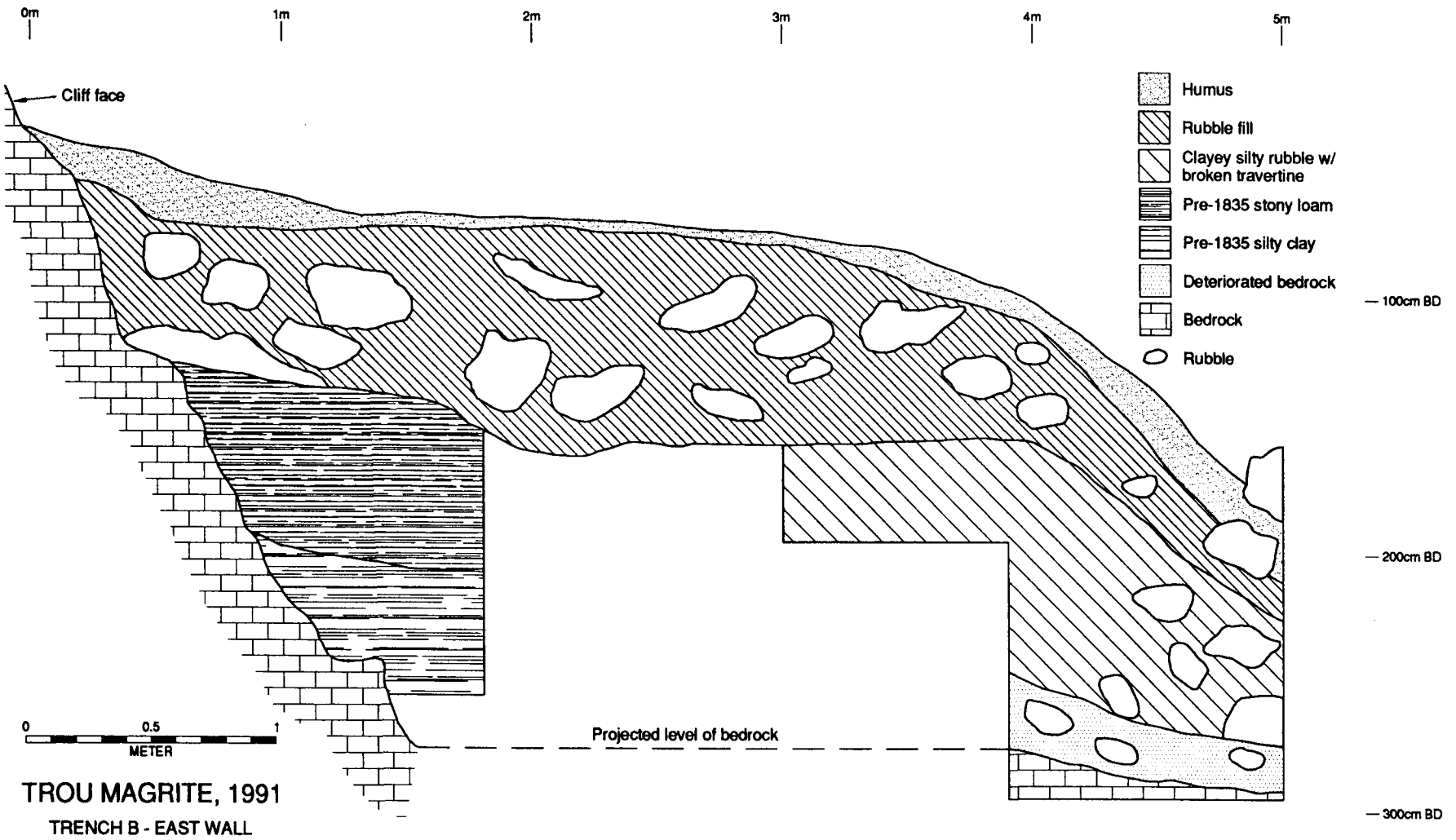

0m
1m
2m
3m
4m
5m
Cliff face
Humus
Rubble fill
Clayey silty rubble w/ broken travertine
Pre-1835 stony loam
Pre-1835 silty clay
Deteriorated bedrock
Bedrock
Rubble
100cm BD
200cm BD
300cm BD
0
0.5
1
METER
Projected level of bedrock
TROU MAGRITE, 1991
TRENCH B - EAST WALL

Figure 2.6.

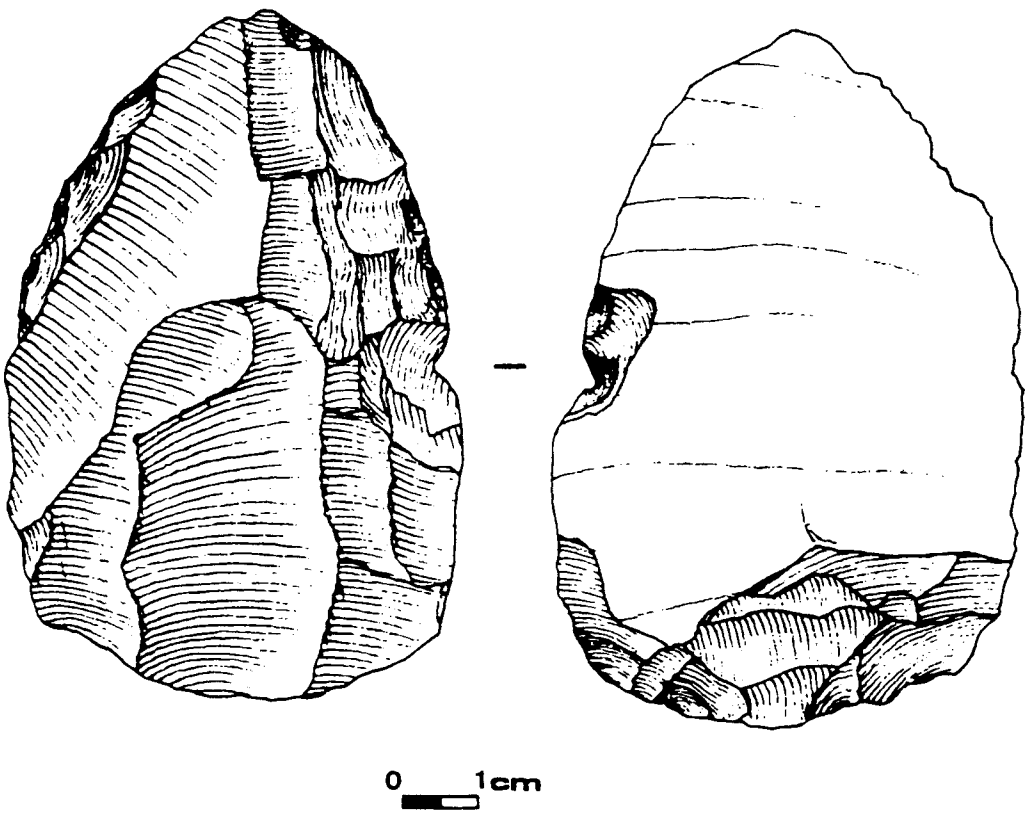


Figure 2.7.

silty clay atop bedrock. Clearly, the promenade had been constructed by cutting upslope along the edge of the cliff and filling downslope along the top of the talus.

Trench A (Fig. 2.8): The surface of the promenade at the west edge of the cave mouth consists of 5-50 cm. of humus. It overlies a wedge of mixed rubble fill, 30 cm. thick against the cliff and 80 cm. abutting the retaining wall. The rubble yielded limited numbers of flint artifacts and submodern objects (sherds, brick, tile, bolt), some as deep as 80 cm. The rubble overlies 10-20 cm. of sterile, intact, stony, silty clay, in turn resting atop a gently sloping bedrock shelf like that at the east edge of the cave entrance. Paleolithic or Mesolithic deposits do not extent laterally from the sides of the Trou Magrite entrance.

Trench C: In a final attempt to locate intact archeological strata, a 1x1 m. sondage was dug 4 m. east of Trench A, just west of the axis of the cave mouth and about 4 m. west of Toussaint's sondage at the front center of the terrace. Trench C was situated immediately north of the promenade retaining wall. Beneath a 30-70 cm. wedge of blackish brown humic topsoil and backdirt from earlier excavations (Stratum 1), we encountered a layer of fine gravels (Stratum 2). Due to percolation from above, the top of this gravel deposit had a dark loamy matrix, but below the infiltration zone the gravels were yellowish beige in color and rather "washed" out, with little fine matrix. These angular gravels yielded abundant flint artifacts (including Upper Paleolithic tools, among them the tip of a unifacial foliate point), but no modern objects. The deposit appeared to be intact and *in situ*.

Upon the discovery of intact deposits, Trench C was expanded in 1991 first to an area of 3 sq.m. and finally 7.75 sq.m (photo 2.2). Fully controlled excavation was begun with the initial expansion of the sondage. In addition, a 0.5 m.-wide slit trench was dug in the "J" row to connect Trenches A and C and to extend eastward toward the area of Toussaint's sondage. Only Stratum 1 humus/ backdirt was dug until either intact Stratum 2 gravels or mixed fill was encountered along the slit trench in order to ascertain the extent of the area of intact Paleolithic deposits. Based on the findings of this east-west slit trench, the excavation area was extended again in 1992 to encompass all the remnant intact infilling in the west front sector of the cave entrance. Thus, *in situ* archeological deposits dug in Trench C ended up totalling 22 sq.m. in area, a respectable area for a site that had long thought to have been completely excavated. The excavation block consisted of all or part of the following meter squares: G5-7, H5-8, I4-9, J4-9, K6-9 and L7-9 (Fig. 2.9).

In 1992, Ph.Lacroix dug two sondages of 1x1 m. each in the cave: S1 at the rear of the inner chamber in front of the chimney base; S2 at the rear of the vestibule directly back from the principal cave mouth. Below a surficial deposit of mixed fill, he uncovered archeologically sterile clayey silt with cobbles and a few cave bear bones in S1. This sondage was terminated at a 1.1 m. below surrounding cave floor surface when huge brecciated blocks were hit. Probably all the archeological deposits had been removed by Dupont and/or successive excavators and S1 may have cut into pre-Mousterian sediments. S2 yielded a mixture of artifacts of Upper and Middle Paleolithic aspect and a variety of fauna,

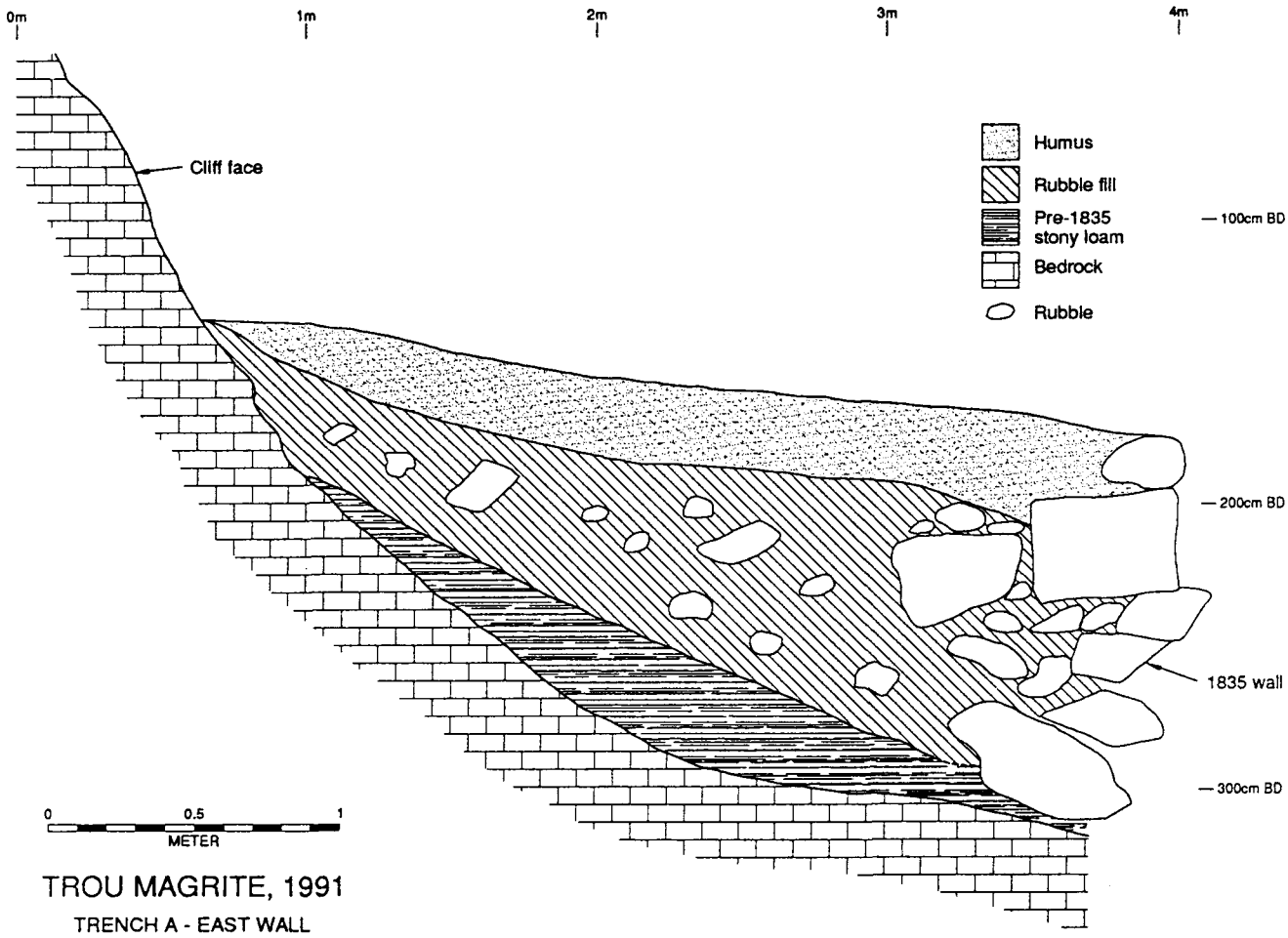

0m
1m
2m
3m
4m
Cliff face
Humus
Rubble fill
Pre-1835 stony loam
Bedrock
Rubble
100cm BD
200cm BD
1835 wall
300cm BD
0
0.5
1
METER
TROU MAGRITE, 1991
TRENCH A - EAST WALL

Figure 2.8.

Photo 2.2 : Excavation of the terrace.

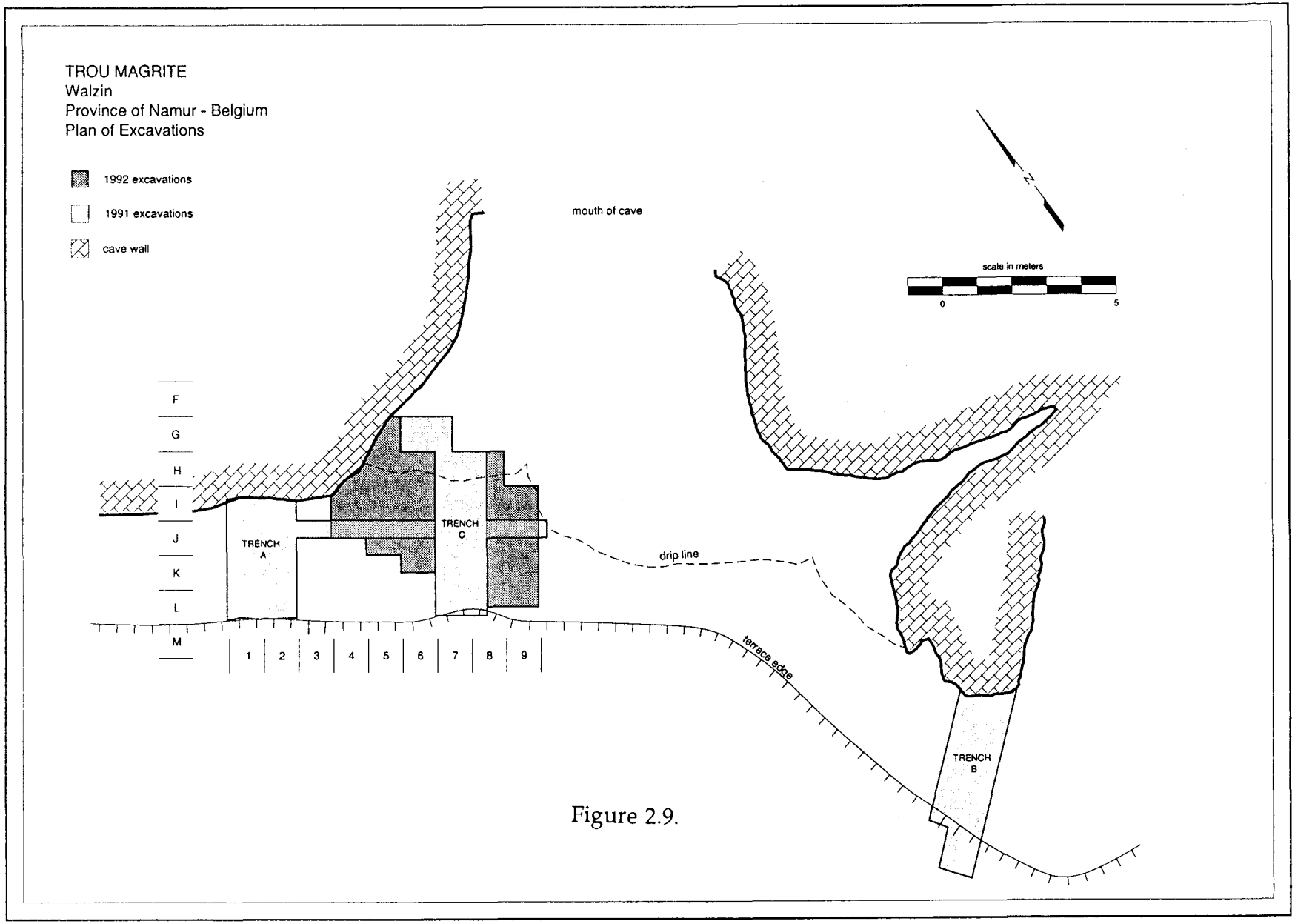

TROU MAGRITE
Walzin
Province of Namur - Belgium
Plan of Excavations
1992 excavations
1991 excavations
cave wall
mouth of cave
N
scale in meters
0
5
F
G
H
I
J
K
L
M
1
2
3
4
5
6
7
8
9
TRENCH A
TRENCH C
TRENCH B
drip line
terrace edge

Figure 2.9.

including a fragment of hippopotamous tusk (see Gautier, this volume). This find confirms one made by Rutot and indicates that there must have been deposits in le Trou Magrite that were formed during the Last Interglacial (oxygen isotope stage 5e). However it is clear that S2 was excavated (to a depth of ca. 1 m.) in totally mixed backdirt from old diggings. It is believed that very little or no archeological material remains in situ inside the cave per se.

METHODOLOGY

In general, the excavation and recording methods used were those that are currently standard in European Paleolithic excavations. For the purposes of the excavation grid and measurements, fictive north is oriented toward the cave mouth (in reality, this is northeast). Each meter square is subdivided into four subsquares of 50x50 cm. The northern two subsquares are labelled "A" and "B" from west to east and the southern ones, "C" and "D". All lithic artifacts longer than 1 cm. and all faunal remains that are either readily identifiable or longer than 5 cm. are individually recorded with their three-dimensional coordinates. Orientation and inclination are measured for all elongated objects (e.g., long bones, blades) with a compass and clinometer respectively. Piece-plotted objects are numbered from 1 to infinity for each meter square (irrespective of stratum attribution). Thus, the provenience information written on each piece-plotted object consists of site ("TM"), square and item number.

Normal excavation was conducted by small trowel, brush, knife and dental pick. However, sediments indurated with calcium carbonate and travertine layers had to be excavated by hammer and chisel, leading to unequal recovery between these areas (at the northern end of Trench C) and the rest of the excavation, where the sediments were unconsolidated. All fill is screened through 2.5-3 mm. mesh; this proved satisfactory because the fine sediments are silts and sands with little or no clay. The major practical problem was posed by the presence of large limestone blocks, not surprising due to the location of Trench C under and just in front of the present rockshelter dripline. Insofar as possible, blocks were dug around and removed, either whole or in pieces. Block breaking was done with sledge hammers, wedges and an electric drill and pneumatic hammer powered by a gasoline generator. Even with this equipment, some blocks were simply too big to be removed, a fact which greatly limited the area of the Mousterian strata that could be excavated.

Excavation was conducted following the lay of the natural stratigraphy in each square. We use thin, arbitrary levels ("spits": normally 5-8 cm. thick, except during major block removal episodes) within natural strata that are defined primarily by color, texture and granulometric content. Archeological content was of secondary consideration in stratum definition. Spits are numbered from "1" at the surface to infinity (irrespective of strata attribution). Thus, items found in the screen (unless retroactively assigned individual item numbers---in the cases of small retouched tools) have bag provenience consisting of site, square, subsquare, spit, stratum and a bag number from the same series of item numbers used for piece-plotted objects from the square in question (i.e., an item number can refer

to either a piece-plotted object or a bag of objects found in the screen. For analytical purposes, the latter items can be given decimal designations (e.g., 12.1, 12.2, 12.3, etc.). All piece-plotted objects (artifacts, faunal remains, manuports) are individually weighed; objects found in the screen are weighed collectively by type (and raw material class for lithics) per provenience unit. Potential lithic microwear and residue samples were individually bagged unwashed, with minimal handling.

Two complete columns of continuous pollen samples were taken from the Trench C east and west stratigraphic sections by Claudine Schutz (Institut de Paléontologie Humaine, Paris). Geological samples were taken by Paul Haesaerts (Institut Royal des Sciences Naturelles, Brussels). Both specialists made observations of the stratigraphy and site environment during both excavation seasons. Unfortunately, despite treatment of 36 pollen samples (out of a total of 170 collected), there are no meaningful palynological results from le Trou Magrite. Most of the samples are completely sterile. Only 25 samples yielded any pollens or spores, but with numbers of grains only ranging from 1 to 58 (Cl.Schutz, personal communication). Tree pollens are almost always absent or extremely rare (i.e., 1 pollen per sample), with one minor exception: a sample from Stratum 2 with 5 tree pollens, including 2 of pine and 1 each of hazel, alder and juniper. But this sample may have been disturbed by rootlets.

The following is a composite description of the 2.5 m.-deep stratigraphy in Trench C uncovered in 1991-92 (Figs. 2.10-2.11-2.12-2.13-2.14).

STRATIGRAPHY

Stratum 1 is composed of mixed fill (most certainly derived from the cave and used to construct the talus-side part of the promenade along the retaining wall), backdirt from excavations and humus. It is dark grey-brown in color and is rich in artifacts of many periods up to the present. No modern artifacts were found below Stratum 1, however. Stratum 1 is maximally 60 cm. thick adjacent to the retaining wall, but elsewhere it is generally only about 10 cm. thick (and only about 5 cm. adjacent to the cliff face).

Stratum 1.1 is fine, pure, light brown silt infilling a pit of post-Paleolithic age in parts of squares I8-9 and J8-9 (Fig. 2.15). It seems to have continued at least slightly into J10 and K10, although these squares were not excavated due to evidence of massive disturbance, huge blocks and proximity to Toussaint's sondage, where intact Paleolithic deposits were known not to have been present. The top of the Stratum 1.1 pit measured over 1.5 sq. m. in area. The pit, with sloping sides, had been cut through Stratum 2 and possibly into Stratum 3. It contained a half dozen medium size limestone blocks, as well as artifacts of possibly Iron Age, Neolithic, Mesolithic and even Magdalenian attribution. Similar kinds of artifacts are said said to have been found by Toussaint (personal communication) in his adjacent sondage.

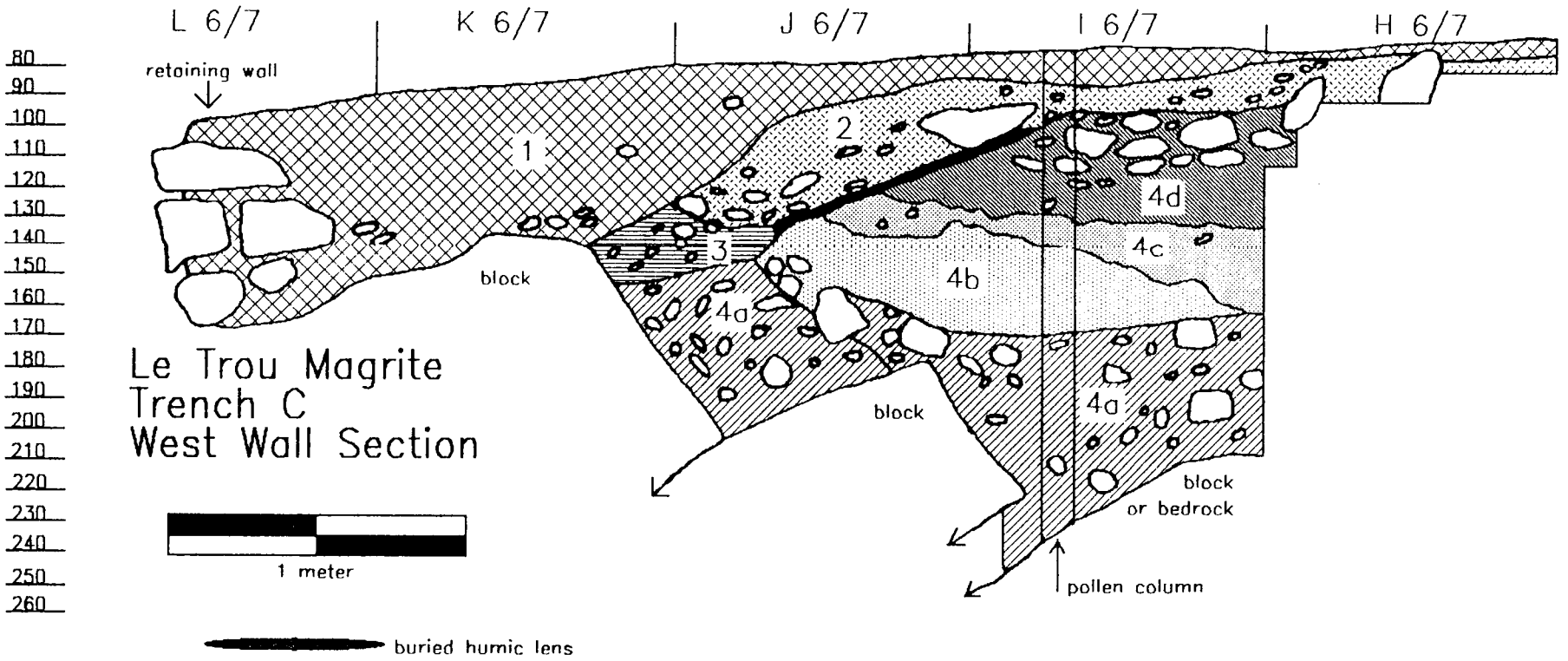

L 6/7
K 6/7
J 6/7
I 6/7
H 6/7
retaining wall
80
90
100
110
120
130
140
150
160
170
180
190
200
210
220
230
240
250
260
1
2
3
4a
4b
4c
4d
block
block
block
or bedrock
pollen column
Le Trou Magrite
Trench C
West Wall Section
1 meter
buried humic lens

Figure 2.10.

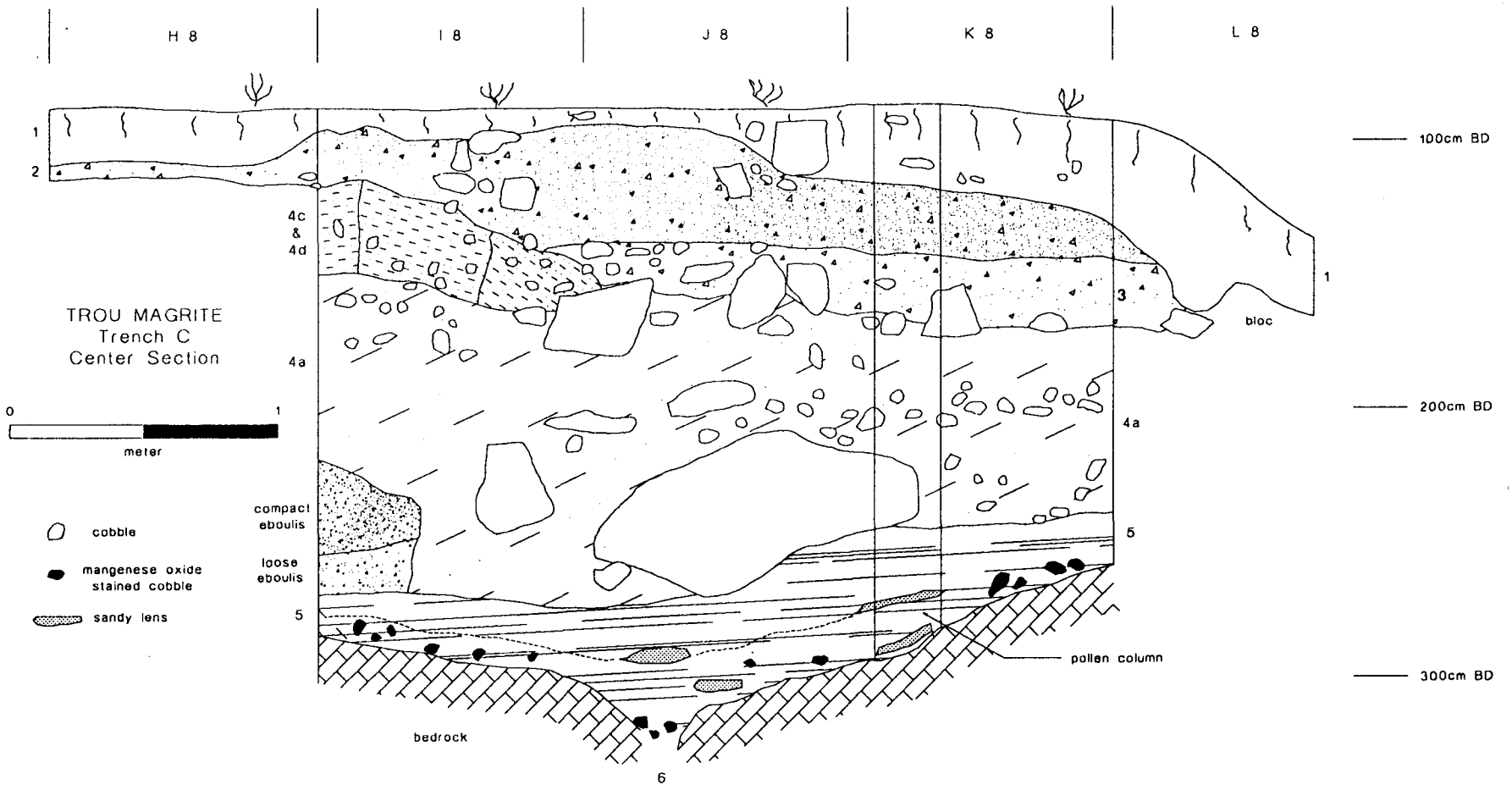
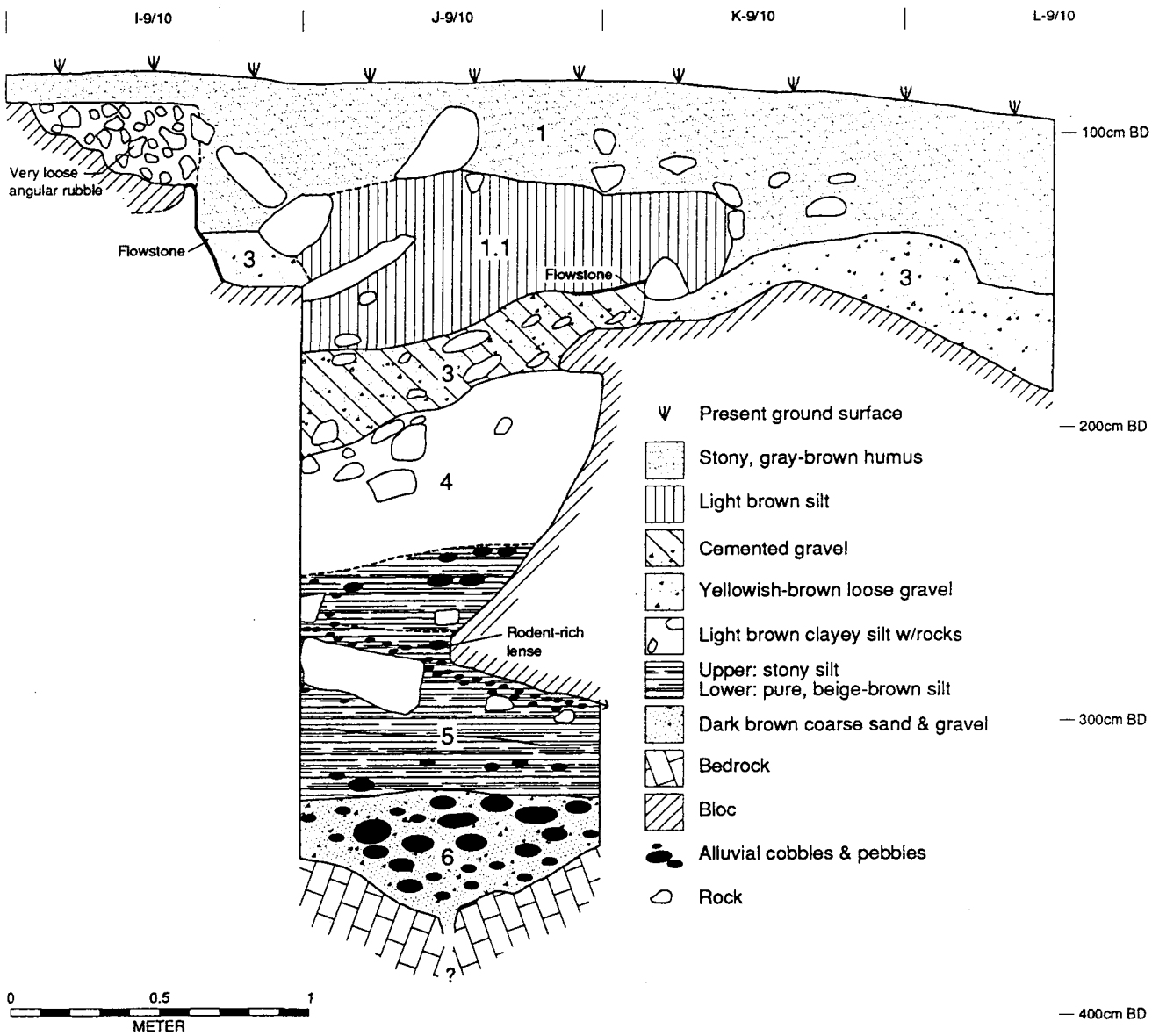

H 8
I 8
J 8
K 8
L 8
TROU MAGRITE
Trench C
Center Section
0
1
meter
cobble
mangenese oxide stained cobble
sandy lens
compact eboulis
loose eboulis
1
2
4c & 4d
4a
5
6
3
bloc
pollen column
bedrock
100cm BD
200cm BD
300cm BD

Figure 2.11.



TROU MAGRITE, 1992

TRENCH C - EAST SECTION

(I - L / 9 - 10)

Figure 2.12.

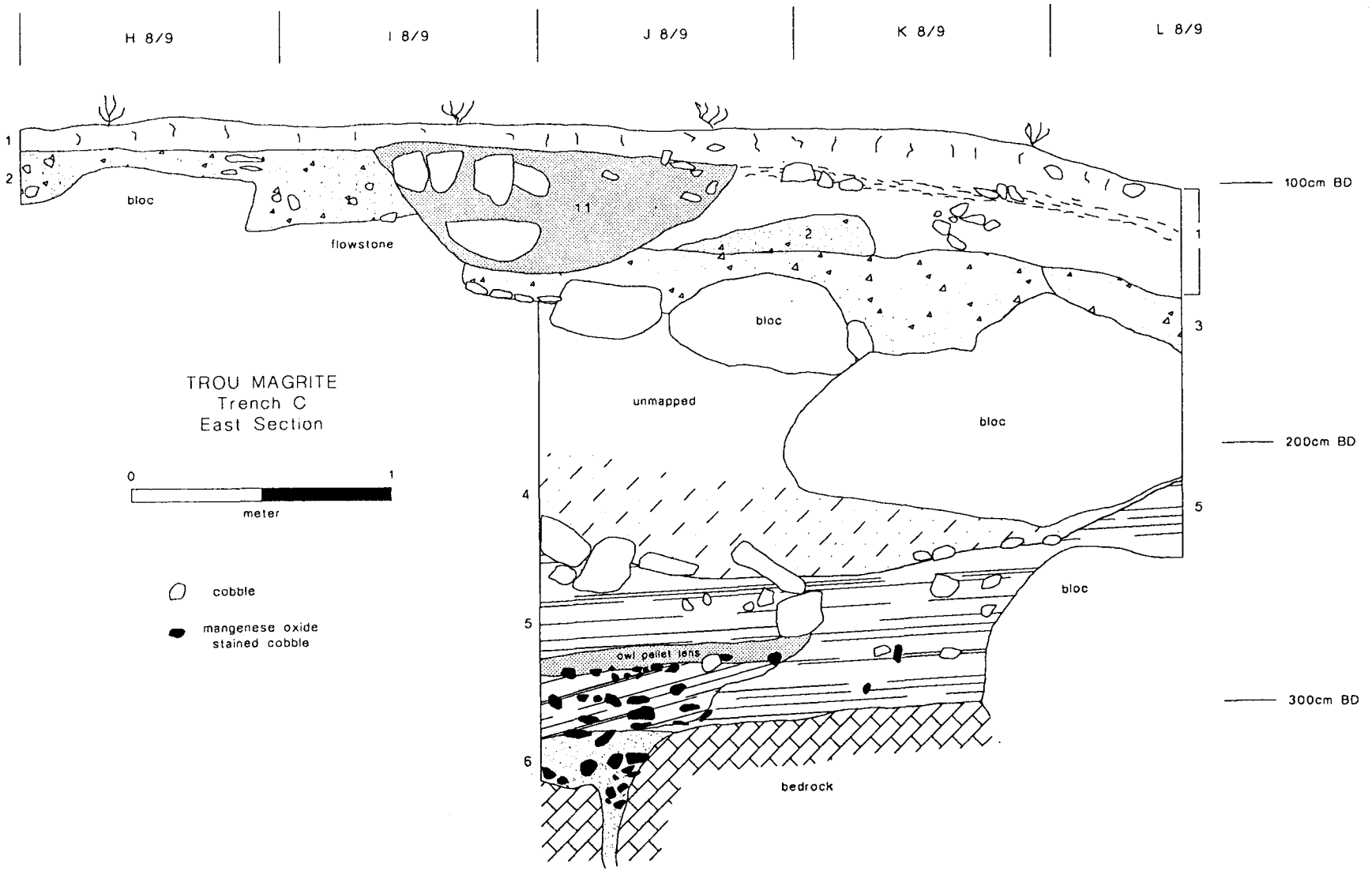

H 8/9
I 8/9
J 8/9
K 8/9
L 8/9
TROU MAGRITE
Trench C
East Section
0
1
meter
cobble
mangenese oxide
stained cobble
bloc
flowstone
1.1
2
bloc
unmapped
bloc
bloc
owl pellet lens
bedrock
1
2
3
4
5
5
6
100cm BD
200cm BD
300cm BD

Figure 2.13.

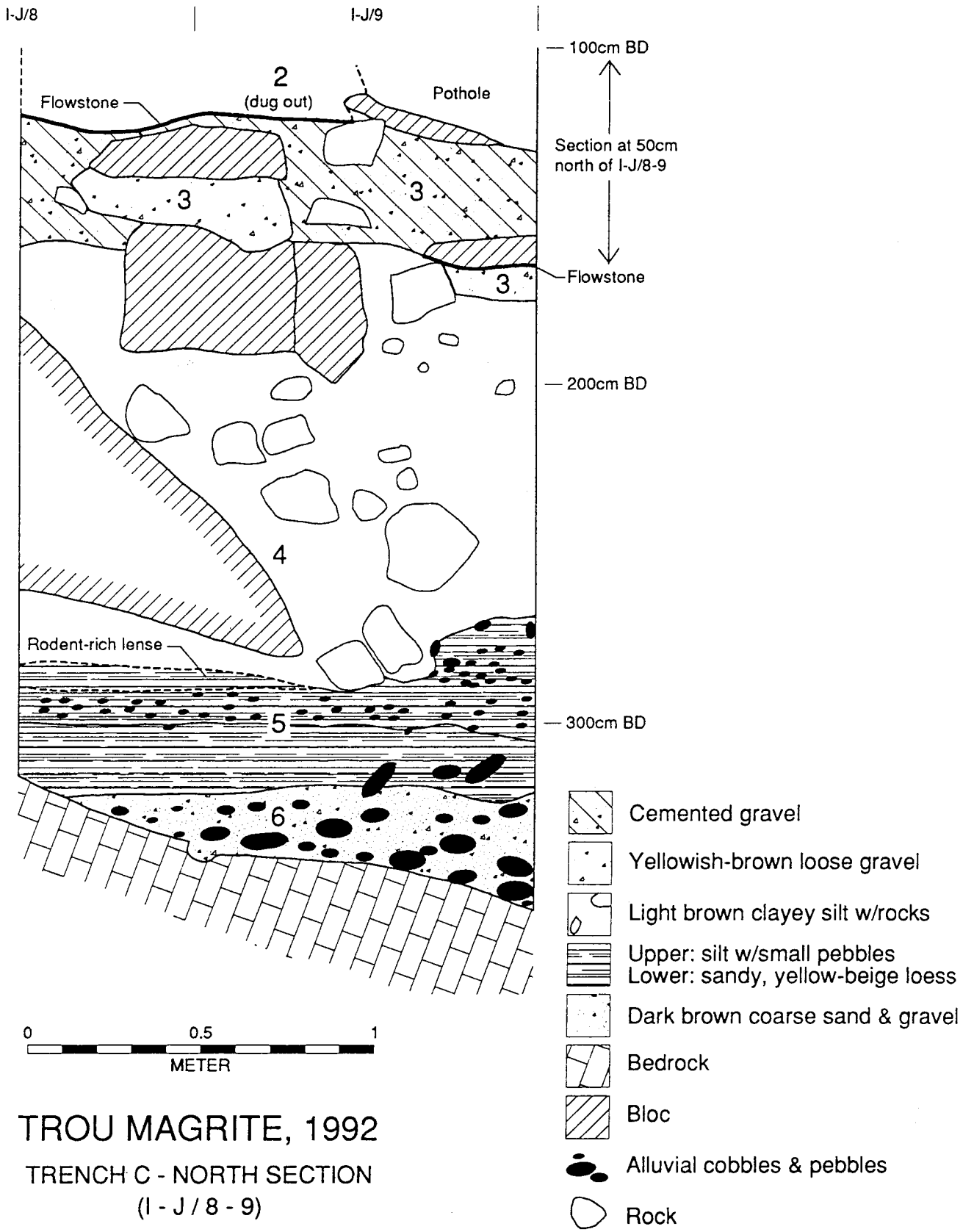

I-J/8
I-J/9
100cm BD
Section at 50cm
north of I-J/8-9
Flowstone
2
(dug out)
Pothole
3
3
3
Flowstone
200cm BD
4
Rodent-rich lense
5
300cm BD
6
0
0.5
1
METER
TROU MAGRITE, 1992
TRENCH C - NORTH SECTION
(I - J / 8 - 9)
Cemented gravel
Yellowish-brown loose gravel
Light brown clayey silt w/rocks
Upper: silt w/small pebbles
Lower: sandy, yellow-beige loess
Dark brown coarse sand & gravel
Bedrock
Bloc
Alluvial cobbles & pebbles
Rock

Figure 2.14.

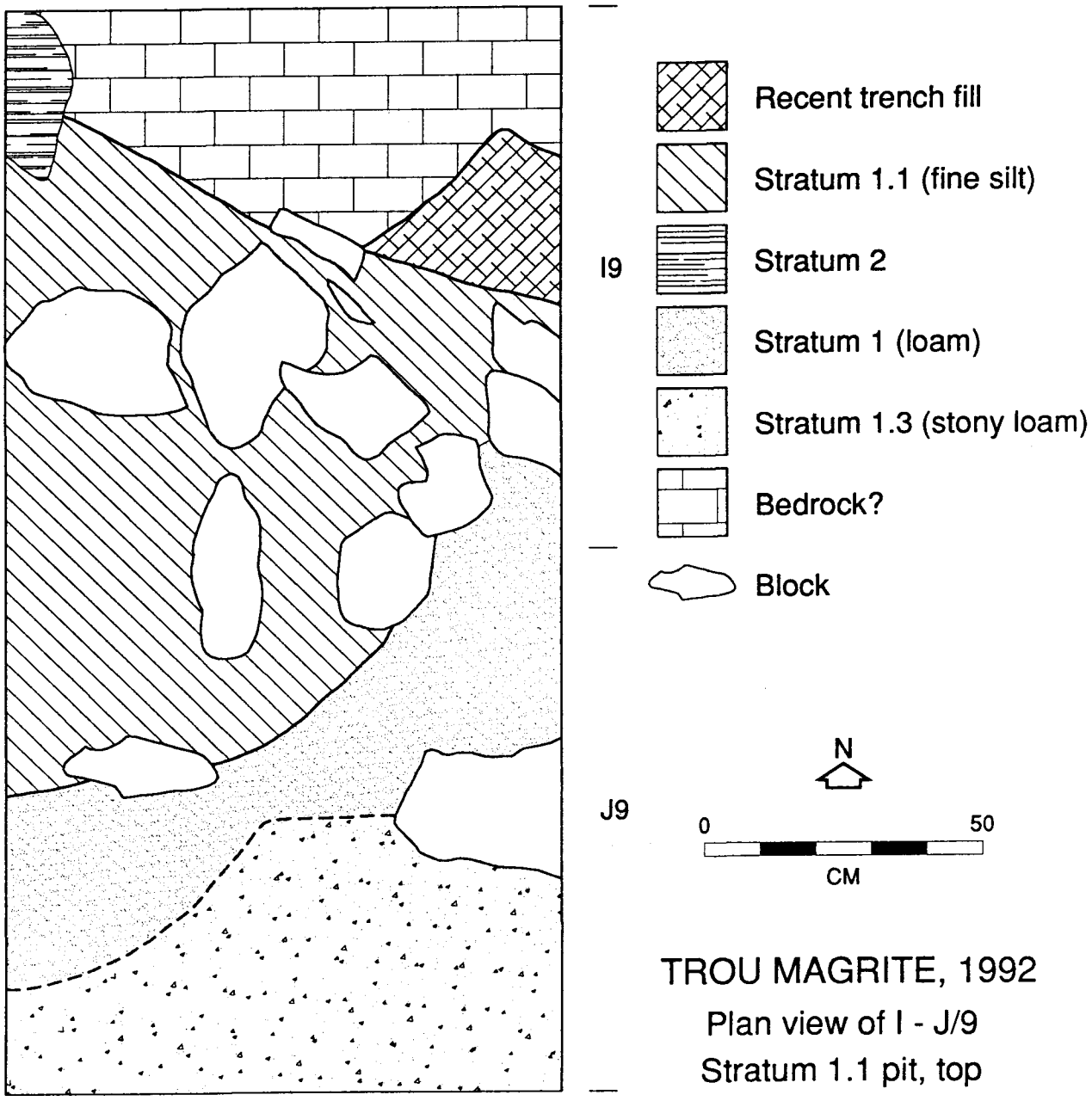

I9
J9
Recent trench fill
Stratum 1.1 (fine silt)
Stratum 2
Stratum 1 (loam)
Stratum 1.3 (stony loam)
Bedrock?
Block
N
0
50
CM
TROU MAGRITE, 1992
Plan view of I - J/9
Stratum 1.1 pit, top

Figure 2.15.

In J9 subsquare D, there was a tiny remnant of a gravelly deposit adjacent to the 1.1 pit. Called Stratum 1.3, this unit yielded a microlithic perforator, a thumbnail endscraper and an endscraper on a flake all artifacts which could be Mesolithic.

The contact with Stratum 2 is an abrupt uncomformity, as this unit is composed of small, angular cryoclastic eboulis gravels of yellowing beige color. The gravels are generally no more than about 2 cm. in size, though there are limited quantities of 4-5 cm. blocks. The comminuted gravel deposit is very homogeneous, although, despite the presence of extraneous artifacts, the top several centimeters are stained with dark humus that has percolated downward from Stratum 1. In some areas the gravels are quite "washed" out and loose, with scant interstitial silt. However, toward the cliff face, there is a zone where Stratum 2 is cemented by flowstone (calcium carbonate). The flowstone crust dips down away from the cliff in the eastern sector, indurating the lower part of Stratum 2 at the Stratum 3 contact. The top of Stratum 2 slopes down at the top of the talus in the K and especially L rows (where it is covered by a thick layer of promenade fill), but it is quite flat in the J, I, H and G rows, as if it had been cut into and levelled for construction of the promenade in the 1830's. Stratum 2 pinches out in the L row at the edge of the talus---apparently eroded away. Otherwise this layer is 20-45 cm. thick. It grades into Stratum 3 in such a fashion that the distinction between the two layers is often unclear and somewhat arbitrary.

Stratum 3 is also composed of cryoclastic eboulis, but contains many larger blocks and slabs in a gravel matrix. The gravels, which are generally larger than those of Stratum 2, are angular and yellowish beige in color and have minimal interstitial silt. However, like Stratum 2, this unit slopes and is locally cemented by precipitated calcium carbonate, especially in the northern end of Trench C, toward the cave mouth and cliff face. Generally Stratum 3 is 30-35 cm. thick, but locally pinches down to as little as 10 cm, notably atop huge boulders outcropping from Stratum 4. The larger blocks and slabs within Stratum 3 generally measure 10-20 cm in length, with a few being bigger than this (30 cm.). There is a localized 2-3 cm. thick humic lense at the base of Stratum 3. Unlike the gradational boundary between Strata 2 and 3, there is an abrupt break in granulometry and color between Strata 3 and 4.

Stratum 4 is a massive deposit of light (yellowish) brown clayey silt in which are embedded large to very large roof-fall boulders (photo 2.3). Some of these blocks measure in excess (or much in excess) of 1 m in length. There are no apparent surfaces within this unit, which is horizontally bedded, although there are patches or layers of denser blocks. The northern part of Stratum 4 is brecciated, especially along the western part of Trench C.

Haesaerts observed granulometric variations within Stratum 4, including the presence of waterworn cobbles in the upper-middle zone ("4c") and a sandier matrix of fines at the base of "4a" near contact with Stratum 5. Once again, this stratum is locally cemented by calcium carbonates that precipitated after at some time(s) since deposition of the silts (colluvial loess).

Photo 2.3 : Trench C.

Stratum 5 is also horizontally bedded and, although heterogeneous in composition, was clearly for the most part waterlain. Although excavated in a very limited area, due to the presence of huge, unbreakable and unmovable blocks, we were able to determine that Stratum 5 can be subdivided into three subunits.

The upper part is a stony, light brown-beige silt/loess that contains a few medium-size angular blocks and scattered waterworn cobbles/pebbles. Below this is a fairly well defined, more-or- less continuous lens extraordinarily rich in microfaunal (notably rodent) remains. This lens (ca. 10 cm. thick) is gritty loess, blotchy light beige-white in color, and clearly the result of owl regurgitation pellet deposition. Below this is pure yellowish beige-brown silt, locally (channel fill?) with stones and cobbles. The base of Stratum 5, which grades into Stratum 6, is increasingly sandy, with waterworn pebbles. There are localized lenticular pure sand deposits and clayey patches. Stratum 5 underlies the huge roof-fall boulders of Stratum 4. In its aggregate it is generally 50-80 cm. thick, but as little as 30 cm. in some places, especially under some of the Stratum 4 boulders and where Stratum 5 lies directly atop high areas of bedrock.

Stratum 6 was recognized as distinct in 1992 when the still restricted area of the base of Trench C could be enlargened somewhat. It is best defined in a "crevice" that runs east-west either through bedrock or between bedrock (to the north) and a huge boulder (to the south). Stratum 6 is composed of dark brown gravel, coarse sand and water-worn cobbles. In general, the cobbles, which are stained black (manganese oxide?), increase in size and density toward the base of the deposit. Some reach 15 and even 20 cm. in size, testifying to the velocity and force of the running water that laid down Stratum 6. The deposit measures 20-50 cm. thick and is the only unit to be totally sterile, both archeologically and paleontologically.

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