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Human burials from East Kalimantan (Indonesia)



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Archaeology in East Kalimantan karst areas

Between 2003 and 2009, a french-indonesian research program has conducted surveys in the *Gunung Gergaji* karstic mountains (East Kalimantan, *kabupaten Kutai Timur*), where several caves adorned with rock art have been discovered. Among the sites surveyed, *Liang Jon* is a vast rockshelter (c. 30 m x 15 m) located on the left bank of the river *Marang*. In 2005, two test-pits (A and B) were conducted which led to the discovery of several structures, including a human inhumation and a deposit of fragmented human bones.

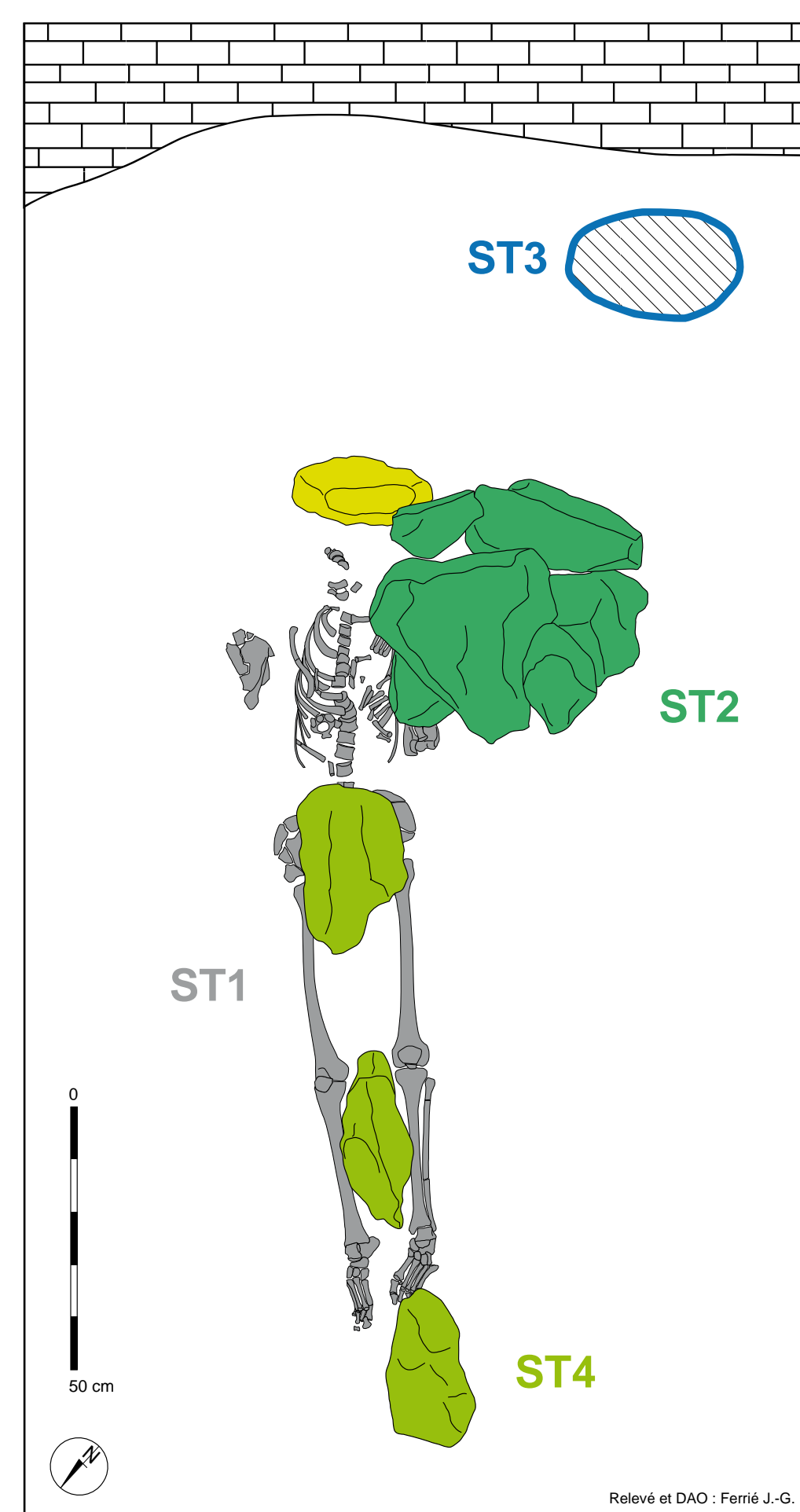
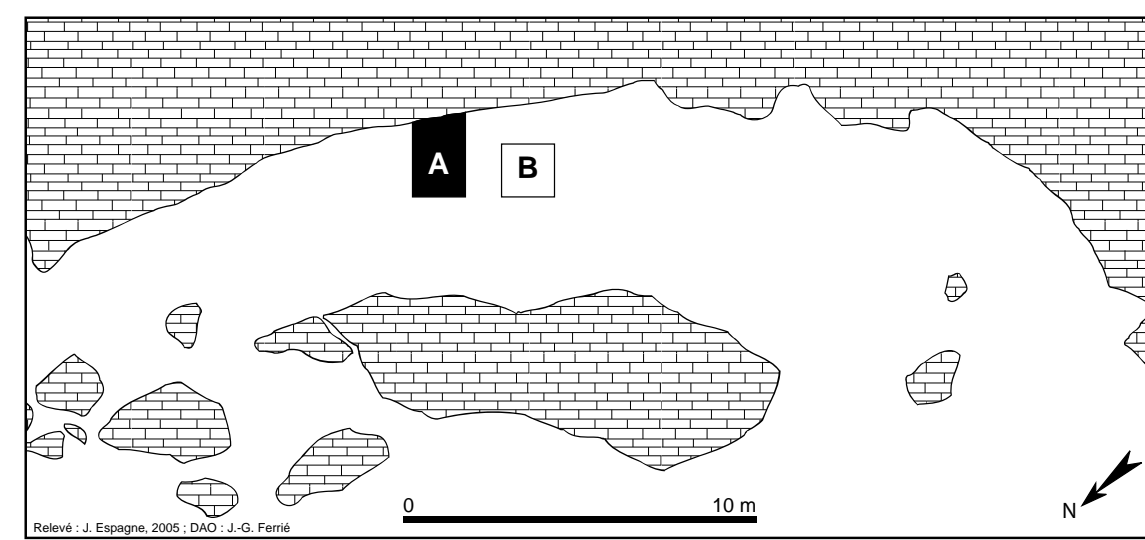


View of the Gunung Gergaji karst. © J.-G. Ferrié



Liang Jon rockshelter. © J.-M. Chazine

Map of Liang Jon rockshelter with the location of the two test-pits conducted in 2005. © J. Espagne, J.-G. Ferrié



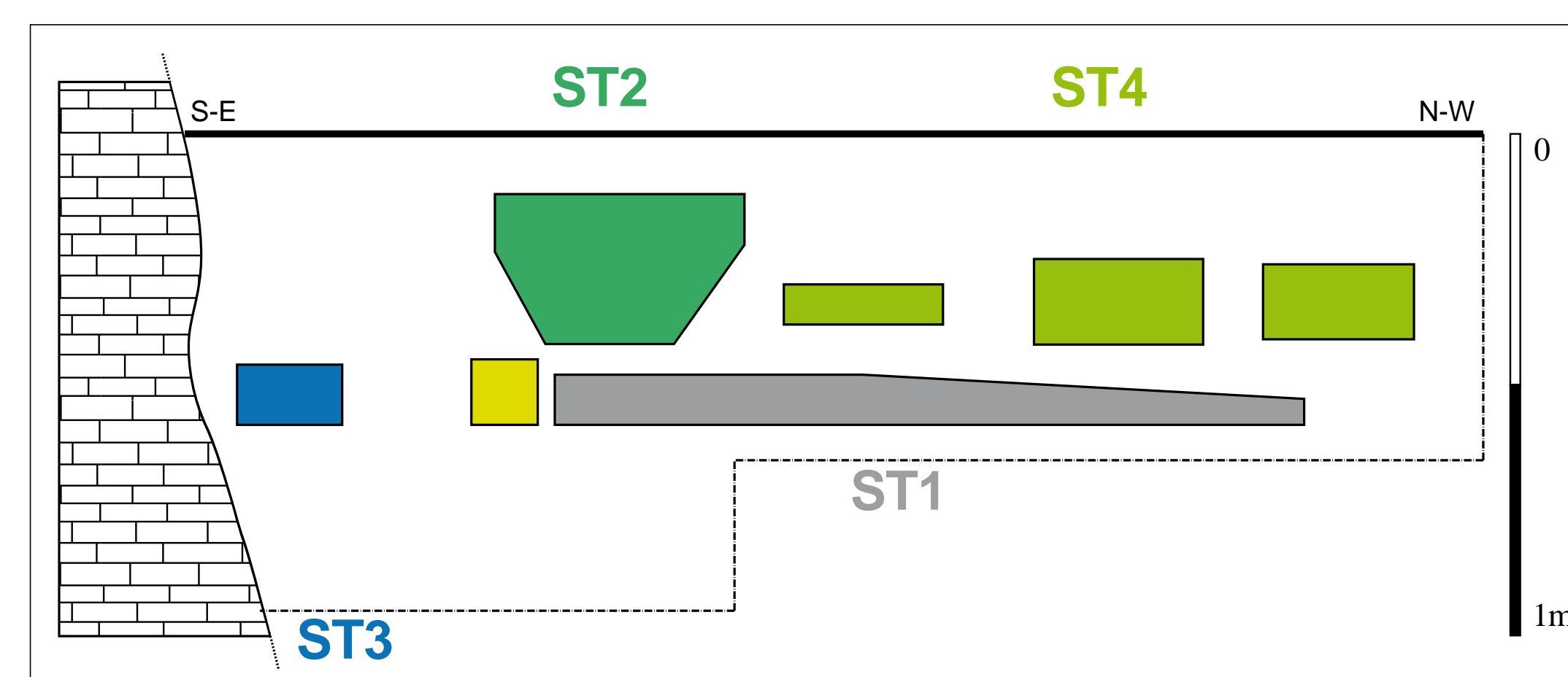
Test-pit A: Plan of the structures. © J.-G. Ferrié

Liang Jon: Excavation of test-pit A

In 2005, excavation of test-pit A at the rockshelter of *Liang Jon* has led to the discovery of several structures:

- **ST4:** Three medium-sized limestone blocks aligned along a north-west / south-east axis.
- **ST1:** A human skeleton, located 10-15 cm below the three aligned limestone blocks of ST4. It is oriented perpendicular to the cliff along a north-west / south-east axis, the feet being located north-west.
- **ST2:** A cluster of six limestone blocks of varying sizes. It has a roughly circular shape, around 50 cm in diameter. It is located above the region corresponding to the left shoulder of the skeleton ST1.
- **ST3:** A deposit of bones (almost exclusively human) located in the southern corner of the test-pit near the rock wall, and situated about 80 cm south of the skeleton ST1.

Due to the homogeneity of the sediment, no digging limit of pits or graves could be seen for these structures.



Schematic section (South-East / North-West) of the test-pit A showing the stratigraphic relationship between the structures. © J.-G. Ferrié

Individual burial (ST1)

Description

The individual, a young adult woman, lies on the back, the knees extended and the left elbow flexed. The vast majority of the bones are located in their original anatomical region and are in connection. However, we note that:

- Two major elements are missing: the skull (cranium and mandible) and the right humerus. The skull is nonetheless represented by an isolated tooth.
- Several bones are disarticulated and displaced, notably the atlas, axis, right scapula, right clavicle, which are located in front of the right thorax, and the right forearm (radius and ulna).

We can also note that a limestone block is present in the head region, and that the area corresponding to the left shoulder has been truncated.

No evidence of cutmarks, percussion marks, nor gnawing marks have been identified.

Interpretation

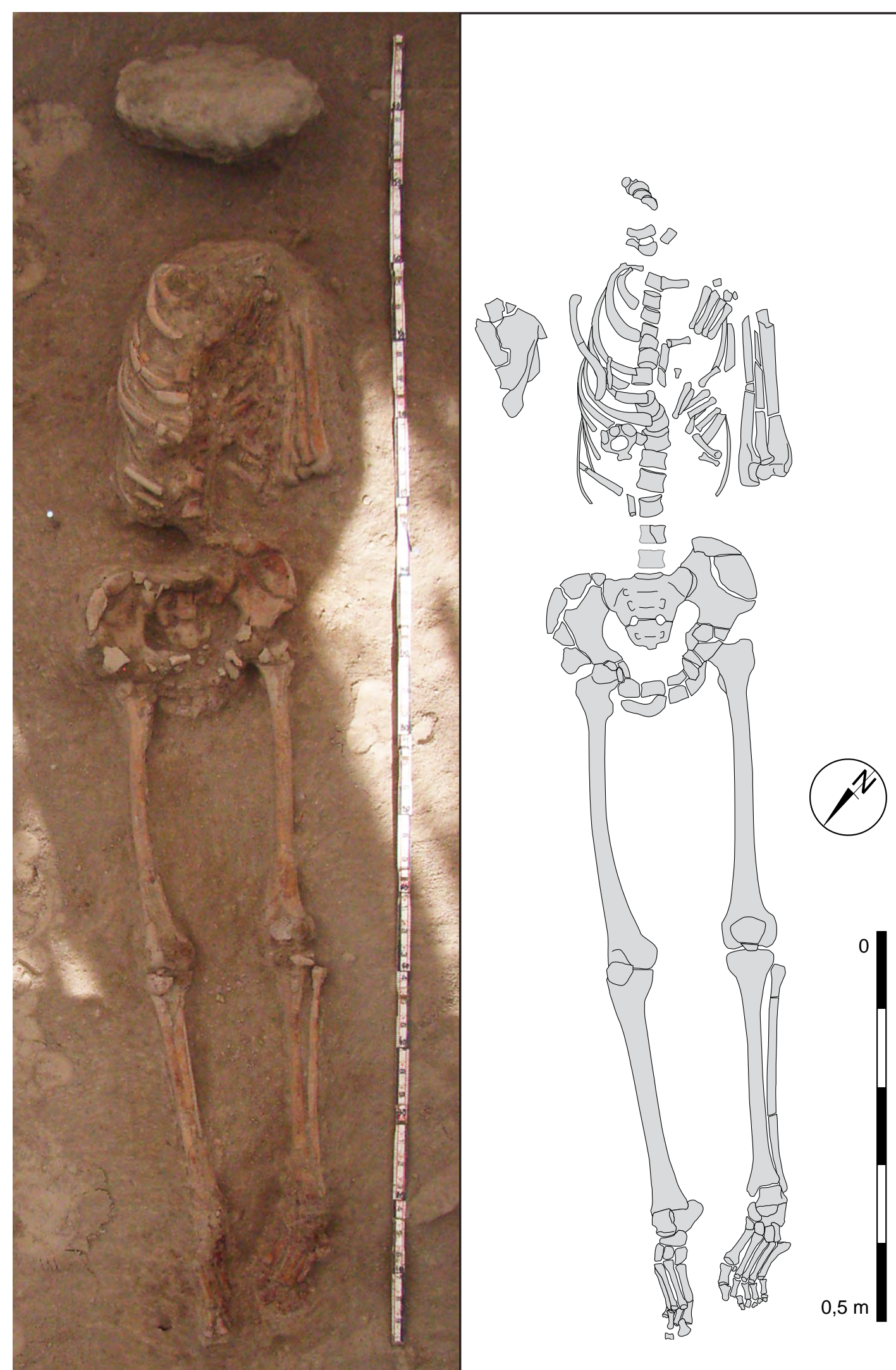
The analysis of this structure, conducted using the methods of «archaeoethanatology» (Duday, 2009), has led to the following interpretations:

- Structure ST1 represents a primary individual inhumation.
- After the decay of the body, the grave was reopened and the skull and the right humerus were removed.
- The truncation of the left shoulder area was probably caused by the installation of structure ST2.
- The limestone block located in the head region may have been placed in the grave initially or after the removal of the skull.

Radiocarbon dating

Due to the absence of collagen, direct radiocarbon dating of the skeleton was performed on bioapatite (mineral fraction of the bone). The ages obtained must therefore be considered as minimum ages (Zazzo, 2015). The age obtained for ST1 is: 2544 ± 30 BP (800-548 cal BC).

Calibration with curve *IntCal13* and software *OxCal4.2* (Bronk Ramsey, 2009)



ST1: Primary individual inhumation. © J.-G. Ferrié

Deposit of human bones (ST3)

Description

Located 80 cm south of the skeleton ST1, the structure ST3 is a deposit of bones which are grouped in an oval space of about 40 x 30 cm. No digging limit of a pit has been perceived during the excavation, but "wall effects" are visible on the bones located at the periphery.

Specimens identified

Except for a phalanx of pig and a large mammal rib fragment, only human bones are present.

A total of 24 human remains were identified: 16 pieces belong to the cranium; 2 mandibles (almost complete); 1 cervical vertebra; 1 left scapula; 3 fragments of right scapula; 1 distal portion of a left tibia.



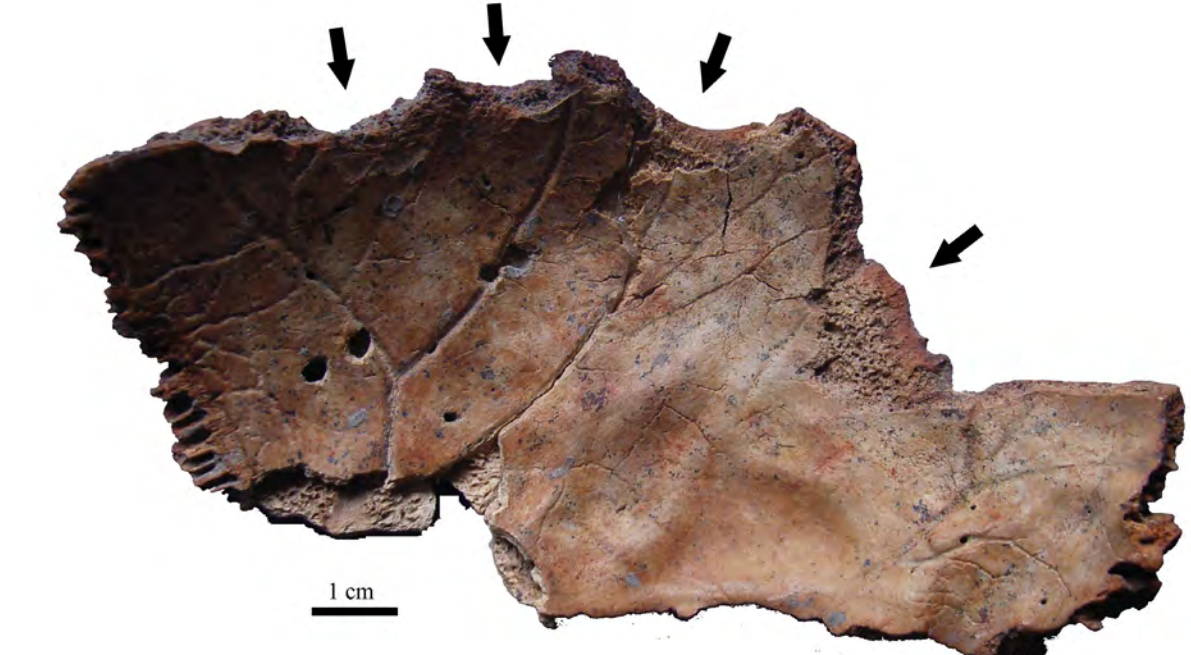
View of structure ST3 during excavation. © J.-G. Ferrié

Refitting and Minimum number of individuals

Only two pieces were in connection in situ, all the other bones being isolated. During the analysis, eleven refitting have been made between different cranial pieces, and one pairing between the left and the right scapulae.

Considering the refitting and the absence of duplicates, the 16 cranial pieces belong to a single cranium.

Considering the 24 human remains, a minimum of 2 individuals are present based on the mandibles.

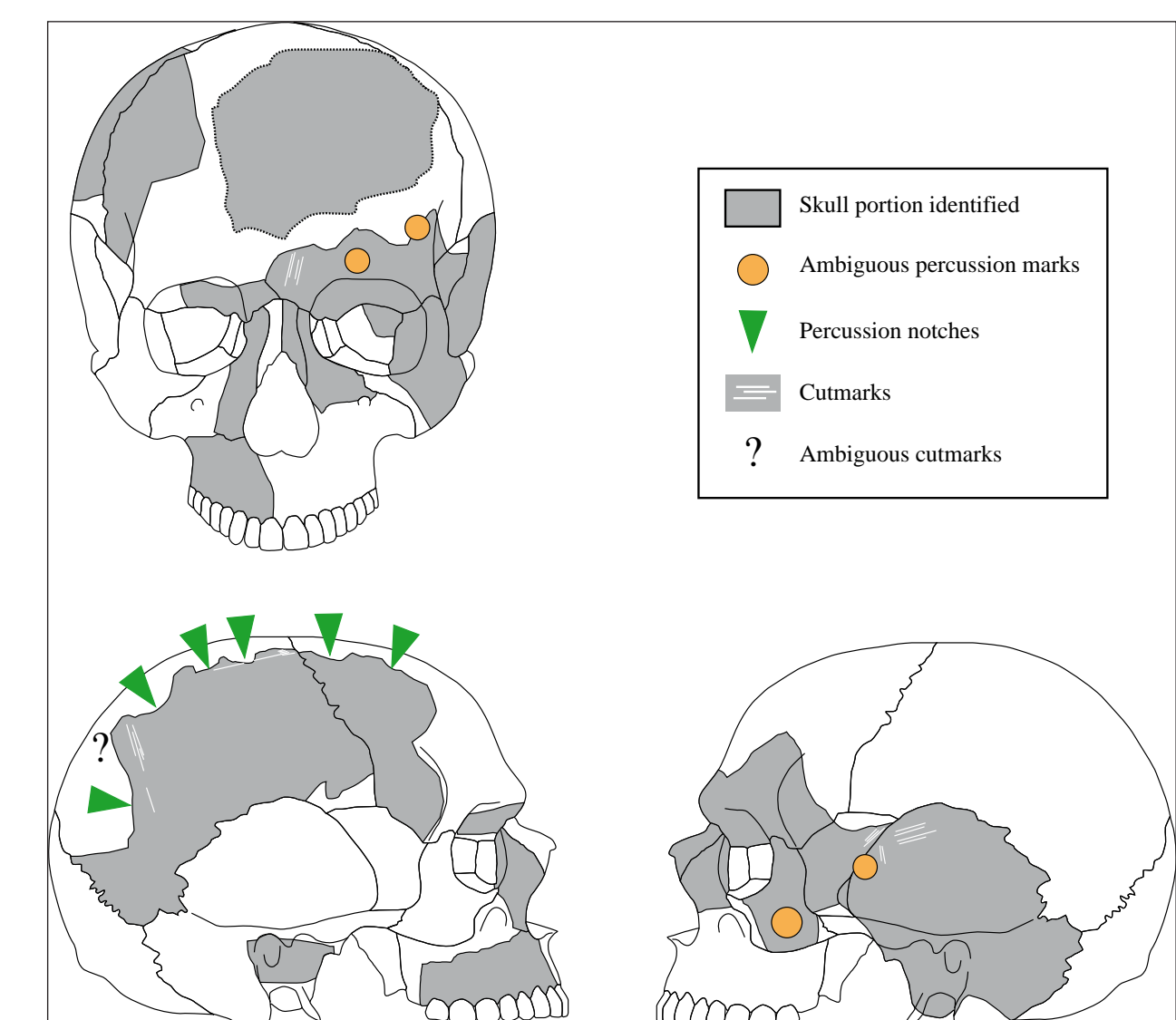


Endocranial view of the right parietal, with percussion notches and internal vault releases. © J.-G. Ferrié

Evidence of anthropic modifications

Anthropic modifications have been identified on cranial bones only:

- Cutmarks are located on the frontal, the right parietal and the left temporal.
- A series of six percussion notches, associated with internal vault releases, are located on the right parietal and frontal.
- All the human bones are covered with a thin residual layer of red coloured material. The analysis has shown that the presence of this material is not accidental but is more likely the result of a deliberate action.



Cranial bones identified in ST3, with location of anthropic modifications. © J.-G. Ferrié

Radiocarbon dating

As for ST1, direct radiocarbon dating of a tooth and a bone was performed on bioapatite. Two dates were obtained: 5539 ± 33 BP (4450-4340 cal BC) and 5634 ± 35 BP (4538-4369 cal BC).

Discussion

- ST1 is a primary individual inhumation of a young adult woman, of which the skull and the right humerus have been removed after the decay of the body. The 3 limestone blocks of ST4 must have been surface markers of this burial.

- ST3 is a secondary deposit of human bones, mainly composed of skull elements. Anthropic modifications have been identified on several cranial bones, and ochre residues are present on all the bones.

- The relation between ST1 and ST3 is problematic. The nature of these deposits and their stratigraphic position seem to indicate that these two structures hold a relationship. This interpretation is however contradicted by the large chronological difference (c. 3000 y. BP) between them. However, as radiocarbon dating was performed on bioapatite, the interpretation of the ages obtained should remain cautious (Zazzo, 2015). Based on the bones themselves, we can also note that the cranium and the mandibles found in ST3 seem too robust to belong to the individual of ST1.

- These discoveries document past mortuary gestures which are poorly documented in this geographic area from an archaeological perspective. In the other caves from *Gunung Gergaji* karst where test-pits have been conducted, burials are only known in *Gua Kebo-Boh* where two flexed burials have been excavated (Chazine, 2006).

- New excavations are planned at *Liang Jon* rockshelter which may add more informations about these past mortuary gestures.

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